



# DISTRICT SURVEY REPORT

FOR

## SAND MINING OR RIVER-BED MINING

IN

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## LATEHAR DISTRICT OF JHARKHAND

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As per Notification No. - S.O. - 141 (E), 15<sup>th</sup> January 2016 & S.O. - 3611 (E), 25<sup>th</sup> July 2018 of Ministry of Environment Forest & Climate Change, Government of India, New Delhi & Enforcement & Monitoring Guidelines for Sand Mining, 2020 by MoEF & CC



Prepared by:



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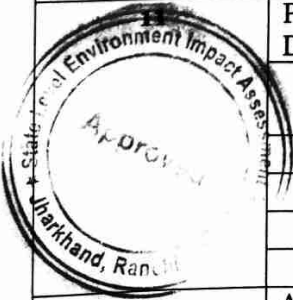
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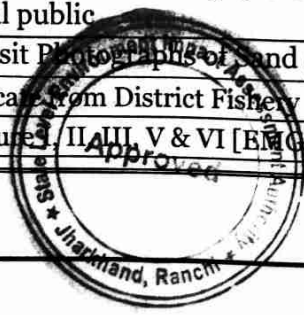




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	6	Marmar Sand Ghat	2.10
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	3	Dudwa Sand Ghat	8.49
	4	Latehar Sand Ghat	0.78
	5	Tapakhas Sand Ghat	2.73
	6	Marmar Sand Ghat	2.10
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### **CERTIFICATE**

The District Survey Report (DSR) for Sand Mining or River-bed Mining in Latehar District of Jharkhand State has been prepared by Sathi Planners Private Limited a QCI (NABET) accredited consultancy firm (Certificate No.: NABET/EIA/2225/RA0264).

District Survey Report Sand Mining or River-bed Mining in Latehar District is prepared under;

- ✓ MoEF & CC, GoI Notification No. - S.O. 141 (E) dated 15/01/2016
- ✓ Sustainable Sand Mining Management Guidelines, 2016
- ✓ Sand Mining Policy of Government of Jharkhand, 2017
- ✓ MoEF & CC, GoI Notification No. - S.O. 3611 (E) dated 25/07/2018
- ✓ Enforcement and Monitoring Guidelines for Sand Mining, 2020
- ✓ Jharkhand Minor Mineral Concession Rule, 2021

The information mentioned in the District Survey Report for Sand Mining or River-bed Mining in Latehar District of Jharkhand State are correct to the best of our knowledge.



Authorized Signatory

M/s Sathi Planners Pvt. Ltd.



**Recommended by Sub-Divisional Committee and Deputy Commissioner, Latehar**


  
District Mining Officer  
Latehar

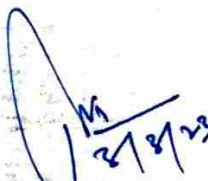
  
Assistant Director, Geology  
Latehar

  
3.3.2023  
Executive Engineer, Minor  
Irrigation, Latehar

  
03/03/2023  
Regional Officer  
JSPCB, Ranchi

  
03/03/23  
Sub-Divisional Officer  
Latehar

  
03.03.23  
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## 1. PREFACE

MoEF & CC has published Notification No. - 3611 (E), dated 25<sup>th</sup> July, 2018 regarding inclusion of the "Minerals Other than Sand" and format for preparation of the District Survey Report (DSR) for Sand mining or River-bed mining has been specified. Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, issued by Ministry of Environment, Forest and Climate Change is prepared in consideration of various orders/directions issued by Hon'ble NGT in matters pertaining to illegal sand mining and also based on the reports submitted by expert committees and investigation teams. This DSR has been prepared in conformity with the S.O. - 3611 (E) and other Sand mining guidelines published by MoEF & CC time to time as well as the requirement specified in Jharkhand State Sand Mining Policy 2017.

The purpose of DSR is to identify the mineral potential areas where mining can be allowed; and also to distinguish areas where mining will not be allowed due to proximity to infrastructural structures and installations, areas of erosion. The DSR would also help to estimate the annual rate of replenishment wherever applicable.

Although, field data collection is an integral part of DSR preparation but due to monsoon season no field visit has been carried out. This report has been prepared with the holistic approach and data provided by District Mining Office and study of Satellite imageries. The field data collection will be carried out post-monsoon season and a DSR with all updated data has been prepared.

Latehar district is one among the 24 district of Jharkhand State. It lies in the north-west corner of Jharkhand State. Latehar is a town, which is also administrative headquarters of Latehar district. It is located at a distance of 110 km north-west from the State Capital Ranchi. Latehar is known for its natural environment, forest, forest products and mineral deposits. Latehar remained a part of Palamau district as a sub division since 1924. It was elevated from sub divisional status to a district on 4<sup>th</sup> April 2001, vide Govt. Jharkhand Notification No. - 946 dated 04.04.2001. Latehar is located on the north-west corner of Jharkhand in the Palamau Commissionary. It is surrounded by Ranchi, Lohardaga and Gumla district in the east to south east; Chatra, Palamau and Garhwa district in the north to north-west and Jashpur, Balrampur district of Chhattisgarh State is in the west. District headquarter is situated at 84.51198 East Longitude and 23.741988 North Latitude. Elevation/Altitude of the district varies between 515-295 meters above sea level.

It's a predominantly tribal district with almost 45.54% of the population belonging to the schedule tribes and more than 21.31% of total population comprises SCs and STs. As of 2011 India Census, Latehar district has a population of 7,26,978. Males constitute 51% of the population and females 49%. Latehar has an average literacy rate of 59.51 Male literacy is 69.97, and female literacy is 48.68. In Latehar, 18.94% of the population is under 6 years of age and sex ratio is 967 females per 1000 male. It is the 20<sup>th</sup> largest district in the State by population. The total area of the district is 3651.59 km<sup>2</sup> having population density of 169. Latehar district is comprised of 7 Blocks, 118 Panchayats & 811 Villages. Garu block is the smallest block having population of 30,274. Latehar block is the biggest block by population with 1,44,495.

The drainage of the district is mainly controlled by the River North Koel and its tributaries viz the Auranga and Amanat. The Koel, Auranga and Amanat have the upper reaches characterized by high bank and rocky beds while the lower reaches by sandy beds. The general line of drain is from south to north towards River Sone.

The occurrence of river-bed sand and gravel in the district has 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. Sand mining is mainly practiced in Auranga, Damodar, North Koel, Sukri and Patam rivers of Latehar district. This report also recommends to undertake detail exploration program to assess the mineral occurrences in the major rivers of the district and should have a proper development and production plan for the specified minerals.



*[Handwritten Signature]*



**Compliance of Enforcement & Monitoring Guidelines for Sand Mining (MoEF & CC), January 2020:**

Clause No.	Particulars	Status
a	District Survey Report for Sand mining shall be prepared before the auction/e-auction/grant of the mining lease/Letter of Intent (LoI) by Mining department or department dealing the mining activity in respective states.	Noted.
b	In order to make the inventory of River-bed Material, a detailed survey of the district needs to be carried out, to identify the source of River-bed Material and alternative source of sand (M-Sand). The source will include rivers, de-siltation of reservoir/dams, Patta lands/Khatedari Land, M-sand etc.	Complied with and explained in Maps. Attached as Annexure A1 – A8.
c	District Survey Report is to be prepared in such a way that it not only identifies the mineral-bearing area but also define the mining and no mining zones considering various environmental and social factors.	Complied while making the ghats.
d	Identification of the source of Sand & M-Sand. The sources may be from Rivers, Lakes, Ponds, Dams, De-silting locations, Patta land/Khtedari lands. The details in case of Rivers such as [name, length of river, type (Perennial or Non-Perennial ), Villages, Tehsil, District], in case of Lakes, Ponds, Dams, De-silting locations [Name, owned/maintained by (State Govt./PSU), Area, Villages, Tehsil, District] in case of Patta Land/Khatedari lands [ Owner Name, Sy No., Area, Agricultural/Non-Agricultural, Villages, Tehsil, District], in case of M-Sand Plant [Owner Name, Sy No., Area, Quantity/Annum, Villages, Tehsil, District] needs to be recorded .	No M-Sand source are available in the district. All the required details of rivers are mentioned in desired format in Chapter 12.
e	Defining the sources of Sand/M-Sand in the district is the next step for identification of the potential area of deposition/aggradation wherein mining lease could be granted. Detailed survey needs to be carried out for quantification of minerals. The purpose of mining in the river bed is for channelization of rivers so as to avoid the possibility of flooding and to maintain the flow of the rivers. For this, the entire river stretch needs to be surveyed and original ground level (OGL) to be recorded and area of aggradation/deposition needs to be ascertained by comparing the level difference between the outside riverbed OGL and water level. Once the area of aggradation/deposition are identified, then the quantity of River-bed Material available needs to be calculated. The next step is channelization of the river bed and for this central 3/4th part of the river, width needs to be identified on a map. Out of the 3/4th part area, where there is a deposition/aggradation of the material needs to be identified. The remaining 1/4th area needs to be kept as no mining zone for the protection of banks. The	Detailed Survey for capturing OGL has been done using UAV Drone/DGPS. Area of deposition has been identified accordingly. All Sand ghats boundaries has been fixed after leaving the 1/4 <sup>th</sup> of the River width for bank's safety. Tonnage factor of sand has been calculated by analyzing sand samples from NABL accredited Laboratory.





	specific gravity of the material also needs to be ascertained by analyzing the sample from a NABL accredited lab. Thus, the quantity of material available in metric ton needs to be calculated for mining and no mining zone.	
f	The permanent boundary pillars need to be erected after identification of an area of aggradation and deposition outside the bank of the river at a safe location for future surveying. The distance between boundary pillars on each side of the bank shall not be more than 100 meters.	Boundary pillars will be fixed while fixation of the mining lease boundary subsequent to district level verification.
g	Identifying the mining and no mining zone shall follow with defining the area of sensitivity by ascertaining the distance of the mining area from the protected area, forest, bridges, important structures, habitation etc. and based on the sensitivity the area needs to be defined in sensitive and non-sensitive area.	No mining zone has been identified by measuring distance from bridges and permanent structures. Also, NOC from the concerned DFO & CO has been obtained for the potential area as per statutory norms. Enclosed as Annexure.
h	Demand and supply of the Riverbed Material through market survey needs to be carried out. In addition to this future demand for the next 5 years also needs to be considered.	Complied
i	It is suggested that as far as possible the sensitive areas should be avoided for mining, unless local safety condition arises. Such deviation shall be temporary & shall not be a permanent feature.	Agreed.
j	The final area selected for the mining should be then divided into mining lease as per the requirement of State Government. It is suggested the mining lease area should be so selected as to cover the entire deposition area. Dividing a large area of deposition/aggradation into smaller mining leases should be avoided as it leads to loss of mineral and indirectly promote illegal mining.	Entire deposit area has been marked on map as Zones instead of small parts. Sand ghat has been so prepared after leaving statutory distance & covering the entire deposit area within zone.
k	Cluster situation shall be examined. A cluster is formed when one mining lease of homogenous mineral is within 500 meters of the other mining lease. In order to reduce the cluster formation mining lease size should be defined in such a way that distance between any two clusters preferably should not be less than 2.5 Km. Mining lease should be defined in such a way that the total area of the mining leases in a cluster should not be more than 10 Ha.	Since, the sand deposit area has been divided into zones, formation of contiguous cluster has been reduced. Zone boundaries are fixed in such a way that it discontinues wherever there is bridge or no sand





		deposition or confluence. Also, individual sand ghat area has been kept as large as possible in order to reduce the formation of cluster through artificial break of large area.
l	The number of a contiguous cluster needs to be ascertained. Contiguous cluster is formed when one cluster is at a distance of 2.5 Km from the other cluster.	Due to formation of Sand deposit zone, contiguous cluster formation has been reduced as much as possible.
m	The mining outside the riverbed on Patta land/Khatedari land be granted when there is possibility of replenishment of material. In case, there is no replenishment then mining lease shall only be granted when there is no riverbed mining possibility within 5 KM of the Patta land/Khatedari land. For government projects, mining could be allowed on Patta land/Khatedari land but the mining should only be done by the Government agency and material should not be used for sale in the open market. Cluster situation as mentioned in para k above is also applicable for the mining in Patta land/Khatedari land.	Sand deposit area has been identified within River-bed only with proof of replenishment. No Patta/Khatedari land has been proposed for mining.
n	The State Government should define the transportation route from the mining lease considering the maximum production from the mines as at this stage the size of mining leases, their location, the quantity of mineral that can be mined safely etc. is available with the State Government. It is suggested that the transportation route should be selected in such a way that the movement of trucks/tippers/tractors from the villages having habitation should be avoided. The transportation route so selected should be verified by the State Government for its carrying capacity.	Transportation Route Map has been prepared for each sand ghat considering these factors and duly approved by competent authority. Attached as Map No. - D1 to D8.
o	Potential site for mining having its impact on the forest, protected area, habitation, bridges etc., shall be avoided. For this, a sub-divisional committee may be formed which after the site visit shall decide its suitability for mining.	Sub-Divisional Committee has been visited the Sand ghats and recommended the same. (Photographs enclosed)





<b>P</b>	Public consultation-The Comments of the various stakeholders may be sought on the list of mining lease to be auctioned. The State Government shall give an advertisement in the local and national newspaper for seeking comments of the general public on the list of mining lease included in the DSR. The DSR should be placed in the public domain for at least one month from the date of publication of the advertisement for obtaining comments of the general public. The comments so received shall be placed before the sub-divisional committee for active consideration. The final list of sand mining areas [leases to be granted on riverbed & Patta land/Khatedari land, de-siltation location (ponds/lakes/dams), M-Sand Plants (alternate source of sand)] after the public hearing needs to be defined in the final DSR.	The DSR has been kept in public domain for one month after publication of advertisement in local newspapers. (Attached as Annexure)
<b>q</b>	The LOI should not be granted for mining area falling on both riverbed and outside riverbed. Therefore, in the same lease, both types of area should not be included.	Shall be considered while issuing the LoI.





## 2. INTRODUCTION

The District Survey Report of Latehar 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 regarding Enforcement and Monitoring Guidelines for Sand Mining 2020. 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 a notification S.O. 3611(E), dated 25<sup>th</sup> July 2018 and recommended the format for District Survey Report of Sand mining or River-bed mining.

The main objective of DSR is Identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area. The DSR would also help to calculate the annual rate of replenishment wherever applicable and allow time for replenishment.

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 Sand & Gravel 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 sand mining at each step.
4. District Survey Report shall enable Environmental Clearance for cluster of Sand & Gravel mining. It shall assist concern Department during post Environmental Clearance Monitoring.
5. To control the instance of illegal mining.
6. To control the flood in the area.
7. To maintain the livelihood of aquatic habitat.
8. To protect the incursion of ground water in the area. Limiting extraction of material in floodplains to an elevation above the water table generally disturbs more surface area than allowing extraction of material below the water table.
9. To keep accumulated data records viz. details of Mineral Resource, potential area, lease, approved mining plan, co-ordinates of a district at one place.
10. To maintain the records of revenue generation.
11. In-stream extraction of gravel from below the water level of a stream generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the water level.
12. In-stream extraction of gravel below the deepest part of the channel generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the thalweg.
13. Excavating sand and gravel from a small straight channel with a narrow flood plain generally will have a greater impact on the natural hydrologic processes than excavations on a braided channel with a wide floodplain.
14. Extracting sand and gravel from a large river or stream will generally create less impact than extracting the same amount of material from a smaller river or stream.
15. A concise guideline can be framed considering the point discussed in the DSR for sand and or minor mineral 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, landform, forest, rivers, soil, agriculture, road, transportation, irrigation etc. Data on lease and mining activities in the district has been collected from concern District Mining Office and collated in report.



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## 2.1 Statutory Framework:

The below table has mentioned the requirement of District survey report and its year wise modification;

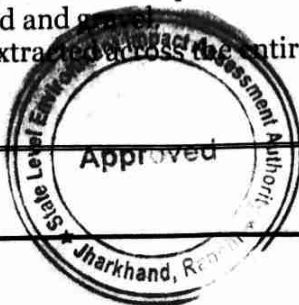
Table 2.1: Requirement of District Survey Report & its year-wise modification

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 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 more than 5 Ha.
2012	Further, Hon'ble Supreme Court wide order dated the 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.
2018	MoEF & CC published a notification S.O. 3611(E) dated 25 <sup>th</sup> July, 2018 and recommended the format for District Survey Report. The notification stated about the objective of DSR, i.e. "Identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area".
2020	Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) 2020 has been published with modifying Sustainable Sand Mining Guidelines, 2016 by MoEF & CC for effective enforcement of regulatory provisions and their monitoring. The EMGSM 2020 directed the States to carry out river audits, put detailed Survey Reports of all mining areas online and in the public domain, conduct replenishment studies of river beds, constantly monitor mining with drones, aerial surveys, ground surveys and set up dedicated task forces at district levels. The guidelines also push for online sales and purchase of sand and other river-bed materials to make the process transparent. They propose night surveillance of mining activity through night-vision drones.

### > Sustainable Sand Mining Management Guidelines 2016/Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) 2020 (MoEF&CC)

The main objective of the guideline is to ensure sustainable sand mining and environment friendly management practices in order to restore and maintain the ecology of river and other sand sources.

- Parts of the river reach that experience deposition or aggradations shall be identified first. The Lease holder/Environmental Clearance holder may be allowed to extract the sand and gravel deposit in these locations to manage aggradations problem.
- The distance between sites for sand and gravel mining shall depend on the replenishment rate of the river. Sediment rating curve for the potential sites shall be developed and checked against the extracted volumes of sand and gravel.
- Sand and gravel may be extracted from the entire active channel during the dry season.



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- d)** Abandoned stream channels on terrace and inactive flood plains be preferred rather than active channels and their deltas and flood plains. Stream should not be diverted to form inactive channel.
- e)** Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.
- f)** Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.
- g)** Segments of braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.
- h)** Sand and gravel shall not be extracted up to a distance of 1 kilometre (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.
- i)** The sediment sampling should include the bed material and bed material load before, during and after the extraction period. Develop a sediment rating curve at the upstream end of the potential reach using the surveyed cross-section. Using the historical or gauged flow rating curve, determine the suitable period of high flow that can replenish the extracted volume. Calculate the extraction volume based on the sediment rating curve and high flow period after determining the allowable mining depth.
- j)** Sand and gravel could be extracted from the downstream of the sand bar at river bends. Retaining the upstream one to two-thirds of the bar and riparian vegetation is accepted as a method to promote channel stability.
- k)** The flood discharge capacity of the river could be maintained in areas where there is a significant flood hazard to existing structures or infrastructure. Sand and gravel mining may be allowed to maintain the natural flow capacity based on surveyed cross-section history. Alternatively, off-channel or floodplain extraction is recommended to allow rivers to replenish the quantity taken out during mining.
- l)** The Piedmont Zone (Bhabhar area) particularly in the Himalayan foothills, where riverbed material is mined, this sandy-gravelly track constitutes excellent conduits and holds the greater potential for groundwater recharge. Mining in such areas should be preferred in locations selected away from the channel bank stretches.
- m)** Mining depth should be restricted to 3 meters and distance from the bank should be  $\frac{1}{4}$ th or river width and should not be less than 7.5 meters.
- n)** The borrow area should preferably be located on the riverside of the proposed embankment because they get silted in the course of time. For low embankment, less than 6m in height, borrow area should not be selected within 25 m from the toe/heel of the embankment. In the case of the higher embankment, the distance should not be less than 50m. In order to obviate the development of flow parallels to the embankment, crossbars of width eight times the depth of borrow pits spaced 50 to 60-meter center-to-center should be left in the borrow pits.
- o)** Demarcation of mining area with pillars and geo-referencing should be done prior to the start of mining.
- p)** A buffer distance/un-mined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed/prescribed by the regulatory authority shall be maintained.
- q)** A buffer distance/unmined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed/prescribed by the regulatory authority shall be maintained.
- r)** River bed sand mining shall be restricted within the central  $\frac{3}{4}$ th width of the river/rivulet or 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be and decided by regulatory authority while granting environmental clearance in consultation with irrigation department. Regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall



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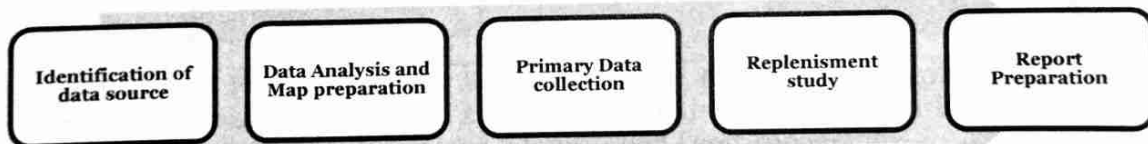
not exceed 60% of the mine lease area, and any deviation or relaxation in this regard shall be adequately supported by the scientific report.  
s) Mining Plan for the mining leases(non-government) on agricultural fields/Patta land shall only be approved if there is a possibility of replenishment of the mineral or when there is no riverbed mining possibility within 5 KM of the Patta land/Khatedari land. For government projects mining could be allowed on Patta land/Khatedari land but the mining should only be done by the Government agency and material should not be used for sale in the open market.

The mineral reserve for river bed area is calculated on the basis of maximum depth of 3 meters and margins, width and other dimensions as mentioned in para (s) above. The area multiplied by depth gives the volume and volume multiplied with bulk density gives the quantity in Metric Ton. In case of river bed, mineable material per hectare area available for actual mining shall not exceed the maximum quantity of 60,000 MT per annum.

➤ The Ministry of Environment Forest & Climate Change formulated the Sustainable Sand Management Guidelines 2016 which focuses on the management of sand 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 guidelines for effective enforcement of regulatory provision and their monitoring. Hence, MoEF & CC formulated the Sustainable Sand Management Guidelines 2020. 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 in this regard. 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. This is very critical to identify authentic data sources before collating the data set. The data sources which are used in DSR are mostly Government published data based or the published report in reputed journal. District profile has been prepared based on the District Census 2011. Potential mineral resources have been described based on GSI or any other Govt. agencies work done. Mining lease details and the revenue generated from minor minerals has been prepared based on available data from District Mining office of the district. Satellite image has been used for map preparation related to physiography and land utilization pattern of the district.

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



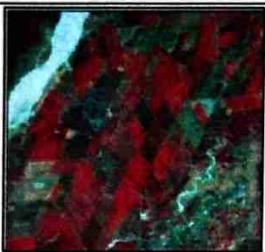







**Land Use and Land Cover Map:** Land Use and Land Cover classification is a complex process and requires consideration of many factors. The major steps of image classification may include determination of a suitable classification system via Visual Image Interpretation, selection of training samples, Satellite image (FCC-False Colour 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

	
<p><b>Agricultural Land</b> - Based on their Geometrical shape, Red and Pink colour tone, Agricultural Land has been identified.</p>	<p><b>Vegetation Covered Area</b> - Based on their continuous Red colour tone, Vegetation Covered Area has been identified.</p>
	
<p><b>Agricultural Fallow Land</b> - Based on their Geometrical shape, Light and dark Cyan with light Pink colour tone, Agricultural Land has been identified.</p>	<p><b>Bad Land Topography</b>- Light Yellowish mixed with Cyan colour has been identified as Bad Land Topography.</p>
	
<p><b>Settlement Area</b> - Area with Cyan colour including geometrical shape has been recognised as Settlement Area.</p>	<p><b>Water Bodies</b> - Dark Blue colour has been classified as Water Bodies.</p>



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### 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 Colour 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.
- 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.

### Earthquake Map:

- Raw data collected from **Ministry of Earth Science.**
- 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.
- 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:** Although, field data collection is an integral part of DSR preparation but due to monsoon season no field visit has been carried out. This report has been prepared with the holistic approach and data provided by District Mining Office and study of Satellite imageries. The field data collection will be carried out post-monsoon season and a DSR with all updated data has been prepared.

**Replenishment study:** One of the principal causes of environmental impacts from in-stream mining is the removal of more sediment than the system can replenish. It is therefore need for replenishment study for river bed sand in order to nullify the adverse impacts arising due to excessing sand extraction. The annual rate of replenishment carried out on every river of the district to have proper assessment of the sand reserve for mining purposes.

Four times Physical survey is to be carried out by DGPS/Total Station to define the topography, contours and offsets of the river-bed. The surveys should clearly depict the important attributes of the stretch of the river and its nearby important civil and other feature of importance. This information will provide the eligible spatial area for mining. However, this DSR has been prepared on a very short period of time, mostly using secondary data. Primary data to be taken into use in subsequent phases.

**Report Preparation:** District Survey Report has been prepared to fulfill the purpose of identification of mining area both major and minor mineral and their impact on environment. Report provides details of the major and mineral potential zones. Assessing mining prospect with respect to minor minerals. Replenishment study details includes in the report. Report also provides the socio environmental study for establishing minor minerals in the district.

#### **Demand and Utilization of Sand**

Sand is a multi-purpose construction material. It is known as one of the three fundamental ingredients in concrete. The composition of sand is diverse. Mostly sand is made of silica which is a common element. It can also come from another source of minerals like quartz, limestone, or gypsum.

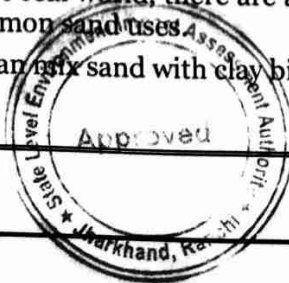
From beds to flood plains to coastlines- we can find the sand at almost everywhere. The robustness of sand has played a significant role in everyday life. We use sand practically every other day.

Sand extraction from river beds and brick earth mining for making raw bricks are the main mining activities in the district. With a spurt in construction of real estate sectors and various govt. sponsored projects, the demand for both sand and bricks has increased manifold.

The extraction of sand is carried out either manually or through semi-mechanized system. The depth of mining for both river bed sand and brick earth is restricted due to statutory provision in the regulations pertaining to conservation and development of minor minerals.

River sand mining is a common practice as habitation concentrates along the rivers and the mining locations are preferred near the markets or along the transportation route, for reducing the transportation cost. In the real world, there are a lot of situations where we can find uses of sand. Followings are the common sand uses

1. While bunting metal, we can mix sand with clay binder for frameworks used in the foundries.





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2. Sand can be used for cleaning up oil leak or any spill by dredging sand on that spill. The material will form clumps by soaking up, and we can quickly clean the mess.
3. Sand can be used as a road base which is a protective layer underneath all roads.
4. Industrial sand is used to make glass, as foundry sand and as abrasive sand.
5. One creative usage of sand is serving as a candle holder. We can try putting some sand before pouring tea light or any candle in a glass. It holds the candle still and refrain the candle from rolling by giving it an excellent decoration.
6. Adds texture and aesthetic appeal to space.
7. Sand is mostly pure to handle, promptly available and economically wise.
8. We use sand in aquariums, fabricating artificial fringing reefs, and in human-made beaches.
9. Sandy soils are ideal for growing crops, fruits and vegetables like watermelon, peaches, peanuts.
10. Sand can light a path by filling mason jars with sand and tea light which is another in expensive way to make a walkway glow.
11. Sand helps to improve resistance (and thus traffic safety) in icy or snowy conditions.
12. We need sand in the beaches where tides, storms or any form of preconceived changes to the shoreline crumble the first sand.
13. Sand containing silica is used for making glass in the automobile and food industry- evenhousehold products for the kitchen.
14. Sand is a strong strand which is used for plaster, mortar, concrete, and asphalt.
15. The usual bricks formulated of clay only is way weaker and lesser in weight than blocks made of clay mixed with sand.

▪ **Chronology:**

Sl. No.	Time Period	Activity
1	January 2022	Pre Monsoon study of Sand deposit has been carried out by the District Mining Office
2	October 2022	Work for Preparation of DSR has been allotted to the concerned NABET accredited consultants.
3	October 2022	Post-Monsoon survey as well as study of satellite imageries has been conducted.
4	November 2022	Softcopy of Draft DSR has been uploaded to the NIC portal for review.
5	Januar 2022	Incorporating all the suggestions received and field verification by the Sub-Divisional Committee, DSR has been finalized.
6	February 2022	DSR has been placed in front of the Hon'ble SEAC Jharkhand for approval.



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### 3. GENERAL PROFILE OF THE DISTRICT

#### 3.1 General Information:

Latehar district is one among the 24 district of Jharkhand state. It lies in the north-west corner of Jharkhand State. Latehar is a town, which is also administrative headquarters of Latehar district. It is located at a distance of 110 km North-West from the state capital Ranchi. Latehar is known for its natural environment, forest, forest products and mineral deposits. Latehar remained a part of Palamau District as a sub division since 1924. It was elevated from sub divisional status to a district on 4<sup>th</sup> April 2001, vide Jharkhand Govt. Notification No. – 946, dated 04.04.2001. Latehar is located on the north-west corner of Jharkhand in the Palamau Commissionerary. It is surrounded by Ranchi, Lohardaga and Gumla district in the east to south east; Chatra, Palamau and Garhwa district in the North to North West and Jashpur, Balrampur district of Chhattisgarh state is in the west. District headquarter is situated at 84.51198 East Longitude and 23.741988 North Latitude. Elevation/Altitude of the district varies between 515-295 meters above sea level.

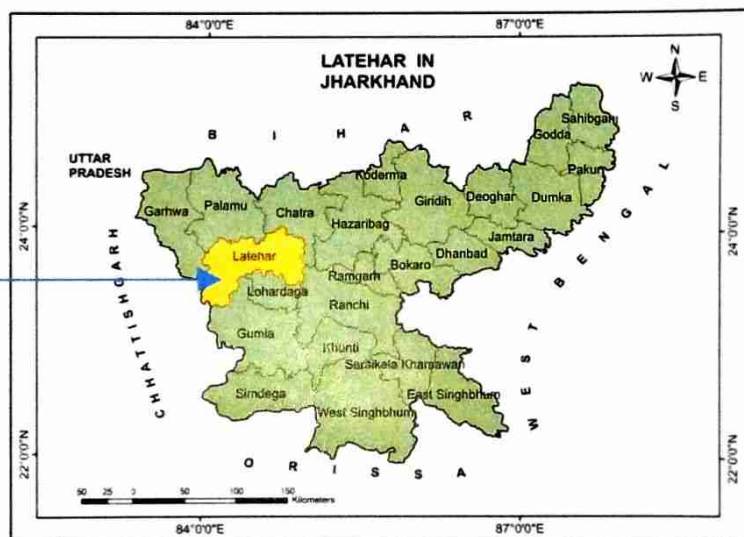


Fig. 3.1: Representative location of Latehar District

It's a predominantly tribal district with almost 45.54% of the population belonging to the schedule tribes and more than 21.31% of total population comprises SCs and STs. As of 2011 India Census, Latehar district has a population of 7,26,978. Males constitute 51% of the population and females 49%. Latehar has an average literacy rate of 59.51 Male literacy is 69.97, and female literacy is 48.68. In Latehar, 18.94% of the population is under 6 years of age and sex ratio 967. It is the 20<sup>th</sup> largest district in the state by population. The total area of the district is 3651.59 km<sup>2</sup> having population density of 169. Latehar district is comprised of 7 blocks 118 panchyets 811 villages. Garu block is the smallest block having population of 30,274. Latehar block is the biggest block by population with 1,44,495.

Table 3.1: Latehar District at A Glance

Sl. No.	ITEMS	Statistics
1.	GENERAL INFORMATION	
	i) Geographical Area (km <sup>2</sup> )	3651.59
	Administrative Divisions (As on	



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2001)		
Number of Block	9	
Number of Panchyat	115	
Number of villages	772	
(ii) Population (As on 2011 Census)	726978	
(iii) Average Annual Rainfall (mm)	1300 mm	
2. GEOMORPHOLOGY		
Major Physiographic units		<ul style="list-style-type: none"><li>• Metamorphic rock</li><li>• Sandstone, conglomerate</li><li>• Lava capping having thick mantle laterite.</li></ul>
Major Drainages		<ul style="list-style-type: none"><li>• Flow direction is from south to north,</li><li>• rivers are the North Koel,</li><li>• the Auranga and their tributaries</li></ul>
3. LAND USE ( In Ha.)		
Geographical area	379.1	
Forest area:	162.2	
Net area sown	59.6	
Barren and uncultivable land	24.7	
Non agricultural use	13.6	
Cultivable area	86	
Pasture	1.124	
Cultivable wasteland	6.5	
Current fallow	45.8	
Other fallow	33.3	
4. MAJOR SOIL TYPES		
a) Entisols	63.7%	
b) Inceptisols	28.2%	
c) Alfisols	7.2%	
5. AREA UNDER PRINCIPAL CROPS (2013)		<ul style="list-style-type: none"><li>• Paddy, Maize, Pigeonpea, Wheat, Blackgram (area- 45.1 Ha)</li><li>• Horticulture crops -Fruits (Lemon, Mango, Guava), Area-605 Ha</li><li>• Horticulture crops - Vegetables( Tomato, Potato, Bhindi, Brinjal, Chilli), Area-3002 Ha</li></ul>

1. The district is divided into two sub-divisions (Latehar and MahaudanR) and 9 administrative blocks, namely, Latehar Block, Chandwa Block, Balumath Block, Manika Block, Barwadih Block, Garu Block, Mahaudanar Block, Bariyatu Block, Herhanj Block.
2. The district comprises of 115 numbers of Panchayats and 772 number of villages.
3. The distrcet headquarter is at Latehar town.



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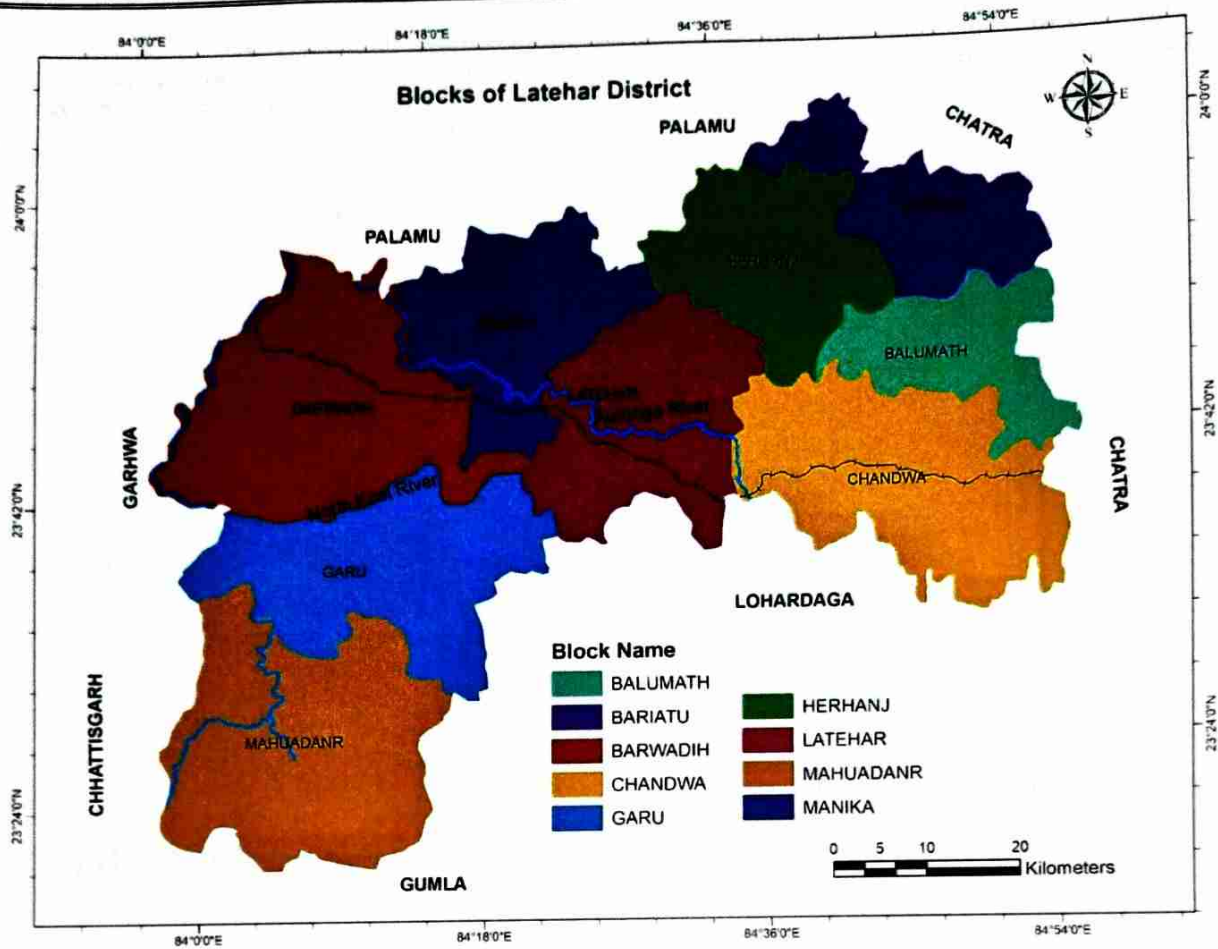


Fig. 3.2: Block Map of Latehar District

### 3.2 Climatic Condition:

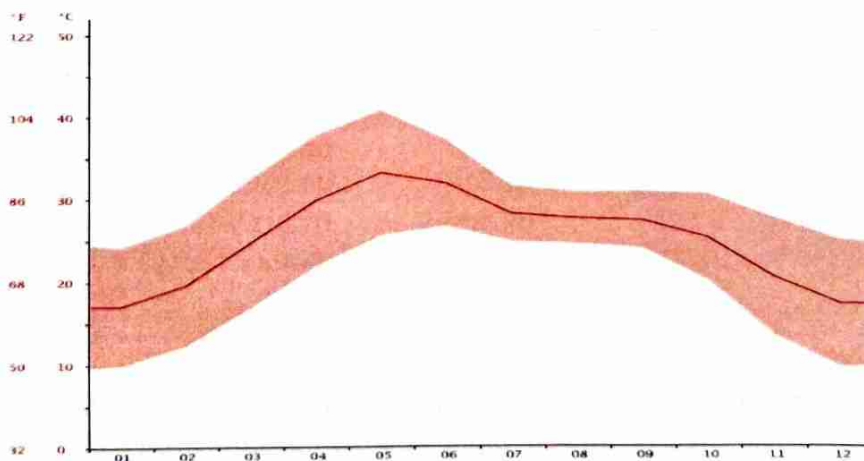


Fig. 3.3: Average Annual Temperature Graph of Latehar District

The district is characterized by humid subtropical climate with three distinct seasons - hot and dry summer, cold winter and rainy season. The cold season extends from November to March; it is followed by summer season from April to middle of June and rainy season from mid June to



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middle of October. The climate here is mild, and generally warm and temperate. In winter, there is much less rainfall than in summer. In Latehar, the average annual temperature is 25.0°C. Precipitation here averages 1270 mm.

**Table 3.2: Monthly Average Temperature of Latehar District**

	Jan	Feb	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Avg. Temperature (°C)	17	19.5	24.6	29.6	32.9	31.6	27.9	27.3	27	24.9	20.2	17
Min. Temperature (°C)	9.8	12.2	16.7	21.7	25.3	26.4	24.5	24.2	23.6	19.7	13.1	9.4
Max. Temperature (°C)	24.2	26.8	32.5	37.6	40.5	36.9	31.3	30.5	30.5	30.2	27.3	24.7
Avg. Temperature (°F)	62.6	67.1	76.3	85.3	91.2	88.9	82.2	81.1	80.6	76.8	68.4	62.6
Min. Temperature (°F)	49.6	54.0	62.1	71.1	77.5	79.5	76.1	75.6	74.5	67.5	55.6	48.9
Max. Temperature (°F)	75.6	80.2	90.3	99.7	104.9	98.4	88.3	86.9	86.9	86.4	81.1	76.5
Precipitation / Rainfall (mm)	20	15	18	8	14	154	330	302	220	62	4	5

(Source: Indian Meteorological Department)

**3.3 Rainfall:**

**Table 3.3: Month-wise Rainfall**

Latehar District Rainfall Data (mm.)					
	2020	2019	2018	2017	2016
Jan	33.80	0	0	27.1	5.6
Feb	18.70	36.40	0	0	4.2
Mar	153.40	13.40	16.50	0	30
Apr	40.30	16.80	0	0	0
May	34.90	0	5.50	19.1	18.8
Jun	274.90	90.0	19.80	70.6	118.2
Jul	442.50	225.20	100.80	638.9	330.4
Aug	312.3	201.60	358.20	233.1	582.2
Sep	150.7	116.70	297.40	127.8	466.3
Oct	168.2	59.10	283.40	76.9	84.6
Nov	10.10	0	31.0	0	0
Dec	0	2.0	0	0	0

(Source: Indian Meteorological Department)

The Indian Meteorological Department, Nagpur, vide letter No. NAGPUR RMC/CS-312, dated 18<sup>th</sup> January, 2016 has provided the period of Rainy Season Viz. Normal dates of Onset and Withdrawal of South West Monsoon over India as State-wise. The duration for the period is 15<sup>th</sup> June to 15<sup>th</sup> October.



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### 3.4 Topography & Terrain:

The topography of Latehar district is characterized by a hilly rugged landscape with green forest all over the area. The major part of the Latehar district is occupied by the granitic rocks of Archaean rocks, are known from the phyllites and schists of varying dimensions in the granitic mass. The inclusions are disposed along the gneissic foliation. The granite gneiss of this area is a part of the enormous intrusive mass known as Chhotanagpur Granite-Gneiss. It shows the usual wide variations from massive to highly gneissic foliation changing from NNW to NNE. Rapid changes in the strike suggesting local applications or crumpling are the common in the gneissic types. Shearing and faulting on a large scale occur at places. Among the various modifications of this rock the porphyritic types with varying coarseness and shape of the phenocrysts. It has been observed that the more massive types the rocks constitute the ridges and plateaus, whereas gneissic rocks are mostly exposed in the intervening valleys. This features are due to their comparative resistance to weathering.

### 3.5 Water courses and Hydrogeology:

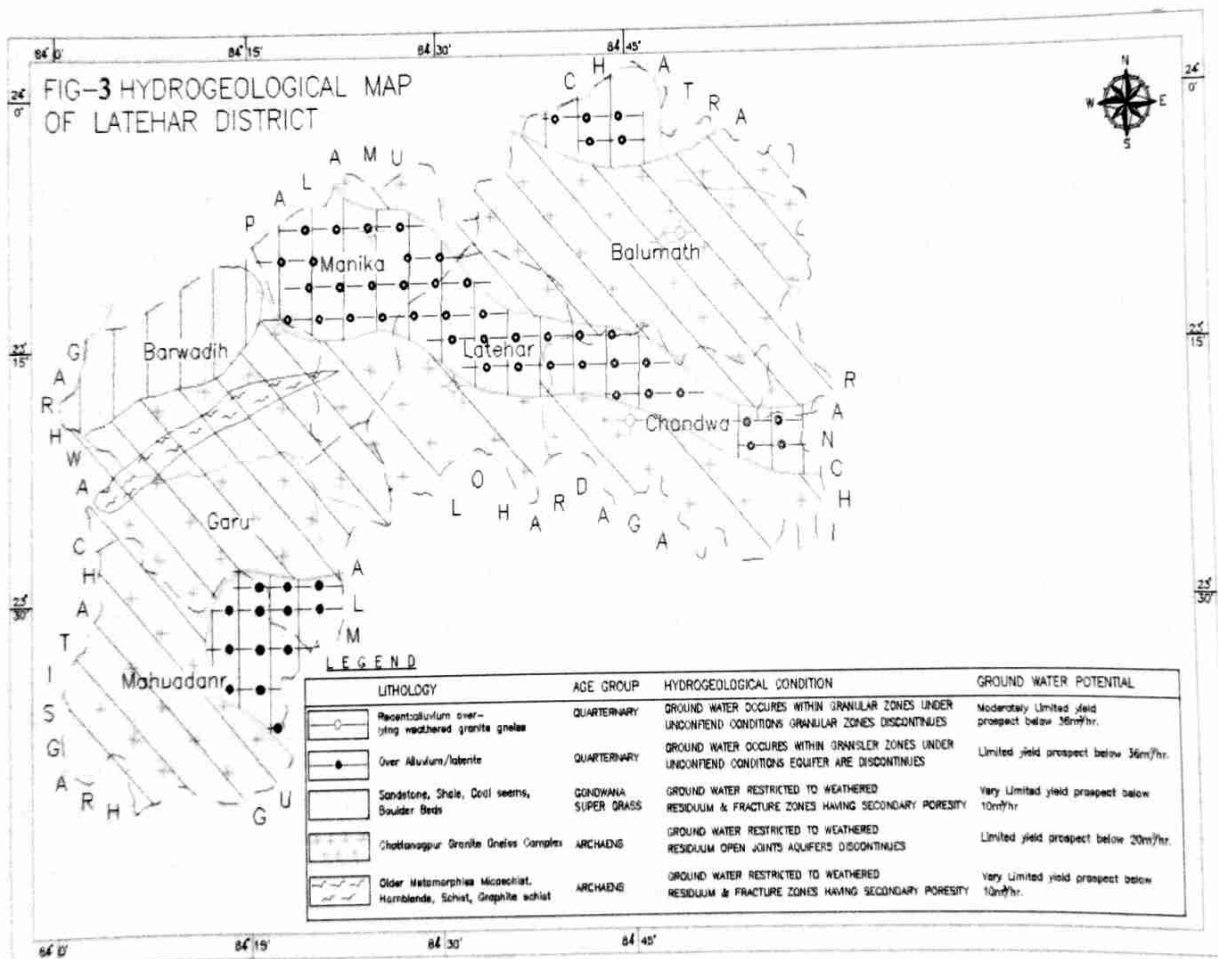


Fig. 3.4: Hydrogeological Map of Latehar District

(Source: CGWB Report 2013, Latehar District)

In the district, the area is rugged and highly undulated and the following hydrogeological formations are found:

- (i) Consolidated formations
- (ii) Semi consolidated formations and
- (iii) Unconsolidated formations



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Rainfall, climate, topography, soil conditions and land use are the factors controlling ground water potentials of the area. Ground water in the hard rock areas occur in the weathered mantle and fracture zones of under lying rocks. It also occurs in unconsolidated sedimentary deposits along the major river valleys.

**Depth to Water level**

CGWB has established a network of observation wells under National Hydrograph Network Stations (NHNS) programme to study water level behavior and quality of ground water in the district. Eight NHS monitoring stations were established and being monitored every year regularly during January, May, August and November. During pre monsoon season, the minimum and maximum water levels were observed as 6.15 m bgl. and 11.02 m bgl respectively. About 55% wells have the water level in the range of 6–8 mbgl. The water level in eastern part of district ranges from 10 m bgl to 12 m bgl, while the southern and middle part is having the water level in the range 8–10 m bgl.

The water level during post monsoon season ranges from 2.0 m bgl to 8.05 m bgl. About 25% the wells have the water level in the range of 0–3 m bgl. In majority of the wells (around 62.5%), the water levels lie in the range of 3–6 m bgl. In and around Balumath block, the water level is more than 6 m bgl.

**Table 3.4: Depth to Water Level of Hydrograph Network Stations Located in Latehar District (2012-13)**

SI No.	Location	May 2012	August 2012	November 2012	January 2013
1	Balumath	11.7	8.4	9.5	10.45
2	Barjatu	8.47	4.87	6.9	7.57
3	Barwadih	9.31	0.42	3.65	-
4	Chandwa	9.95	3.2	4.15	5.7
5	Latehar	5.7	2.2	3.02	4.38
6	Manika	6.52	0.92	2.5	3.84

**Water Level Trend**

Water level depends upon the storage of ground water development and variation in rainfall over a long period. The water level data of each station has been analyzed. The pre monsoon and post monsoon long term water level trend has been calculated for the period of 2003–2012. The long term water level trend is showing declining trend between 0.16–0.26, 0.13–0.41 and 0.05–0.27 m/year for pre monsoon, post monsoon and all period respectively.



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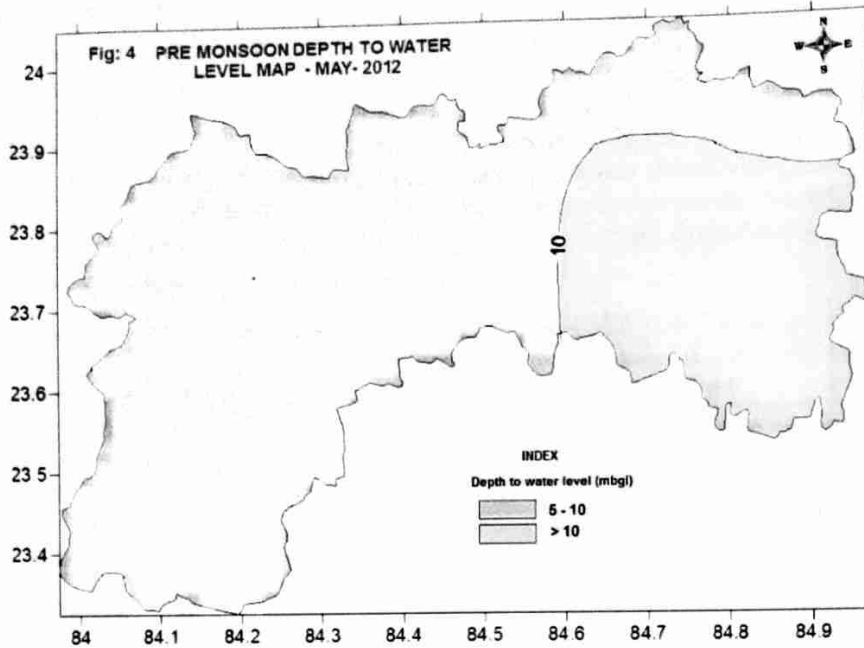


Fig. 3.5: Map Showing Pre Monsoon Depth of Water Level of Latehar District

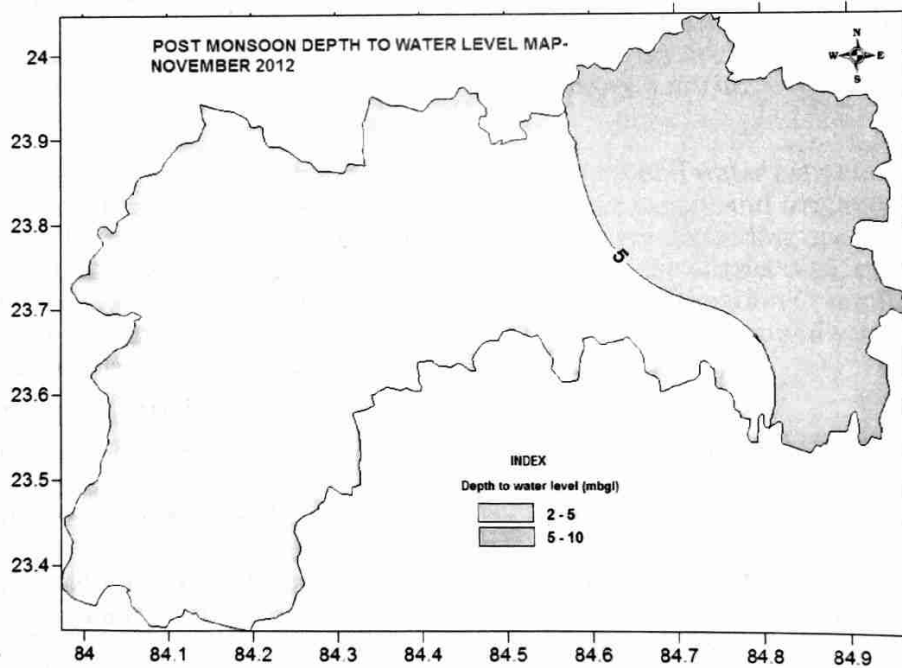


Fig. 3.6: Map Showing Post Monsoon Depth of Water Level of Latehar District



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### **Ground Water Resources**

The ground water resource assessment has been assessed based on the recommendations of the Ground Water Estimation Committee – 1997 (GEC – 1997). The ground water assessment has been carried out on blockwise basis. Latehar district is having adequate ground water resource potential and only a small part of it is being utilized. The net ground water availability is 25256.47 ham. Gross draft for all uses is 6685.57 ham. Net ground water availability for future irrigation has estimated to be 18206.47 ham. Stage of ground water development varies from 16.34% at Mahuadanr to 60.09% in Latehar. All the blocks in the district fall under Safe category.

### **Ground Water Quality**

The chemical quality of ground water is very important as it controls the suitability of the ground water for domestic, irrigation and industrial uses. For analysis of ground water quality, the following parameters are considered for analysis of water samples collected during May 2011 from 5 hydrograph network stations of the district. The EC ranges from 113 to 1460 micro siemens/cm at 25°C with the average being 577.6 micro siemens/cm at 25°C. Except one well, EC is within 1000 micro siemens/cm in the district. For consideration of suitability of ground water for drinking purpose, ISI norms have been adopted. All the constituents are under permissible limit, so the ground water is suitable for both drinking and agricultural purposes.

### **3.6 Status of Ground Water Development:**

In the district, there is vast scope for further development of the ground water resources. However, the main problem associated with the ground water development in the district is that the ground water is not occurring in isotropic and homogeneous strata. The exploratory well drilled depth varies from 85.24 m bgl to 199.56 m bgl. The thickness of fracture zones varies from 1m to 6m. The well at Latehar having the highest discharge of 3.3 m<sup>3</sup>/hr. The minimum SWL at Balumath is 3.3 m bgl. The yield of bore well ranges from 0.9-3.3 m<sup>3</sup>/hr.

### **Ground water development**

Dug wells, tube wells and dug cum bore wells are the main ground water extraction structure in the district to meet the increasing demand of domestic water supply and irrigation. North-East part of the district is more suitable for ground water development depending upon the availability of favorable locations. The overall ground water development in the district is 26.47%. The ground water draft has been worked out as per norms of Ground Water Estimation Committee - 1997 for potential available in the district. The details of recharge, net annual ground water availability, net ground water balance and annual draft has been evaluated.

### **Water Conservation & Artificial Recharge**

The major schemes like artificial recharge & rain water harvesting are lacking in the district. Rain water harvesting and artificial recharge is necessary for ground water augmentation in different part of the district. There should be a plan to arrest the decline of ground water storage and ensuring sustainable and economic utilization of ground water resources. The artificial recharge can be taken up in Latehar and Chandwa Township as well as other block headquarter in the district. There are lot of watersheds in the area. The artificial recharge structure like percolation tank, gully plugging, subsurface dyke can be constructed to maintain the ground water potentiality and sustainability.

### **Ground Water related Issues & Problems**


Some areas of the district are highly drought prone. The deeper ground water level is the major problem in the district.

### **Awareness & Training Activity**

#### **Awareness of Training Activity**

No mass awareness programme on Water Management Programme has been organized in the district till date.



  
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Participation in Exhibition, Mela, Fair etc.  
Nil.

Presentation & Lectures delivered in public forum/Radio/TV/Institute of repute/Grassroots association/NGO/ Academic institutions etc.  
Nil.

Areas Notified by CGWB/SGWA

From the ground water point of view, all blocks of the district are under safe category. So no block has been notified by the Authority.

### **Recommendation**

1. In certain patches, the dug well goes dry during the summer. In such places the wells should be deepened so that it taps the entire saturated thickness of weathered residuum. Lineaments should be carefully demarcated and pin pointed by Geophysical investigations for construction of bore wells.
2. The springs should be developed and used for local water supply in the district.
3. In the district under geological condition deeper fracture and other secondary porosity are proved their yielding and storage capacity. The district head quarter Latehar and other block headquarters are suitable for rainwater harvesting and artificial recharge of ground water.

The artificial recharge structure like percolation tank, gully plugging, subsurface dyke can be constructed to maintain the ground water potentiality and sustainability

### **3.7 Drainage System:**

The drainage of the district is mainly controlled by the river North Koel and its tributaries viz the Auranga and Amanat. The Koel, Auranga and Amanat have the upper reaches characterized by high bank and rocky beds while the lower reaches by sandy beds. The general line of drain is from south to north towards river Sone. The occurrence of riverbed sand and gravel in the district has been established by Directorate of Mines and Minerals, Government of Jharkhand and others in previous instances. It requires further systematic and scientific approach to quantify the resource along with their grade assessment. Sand mining is mainly practiced in Auranga, Damodar, North Koel, Sukri and Patam rivers of Latehar district.



  
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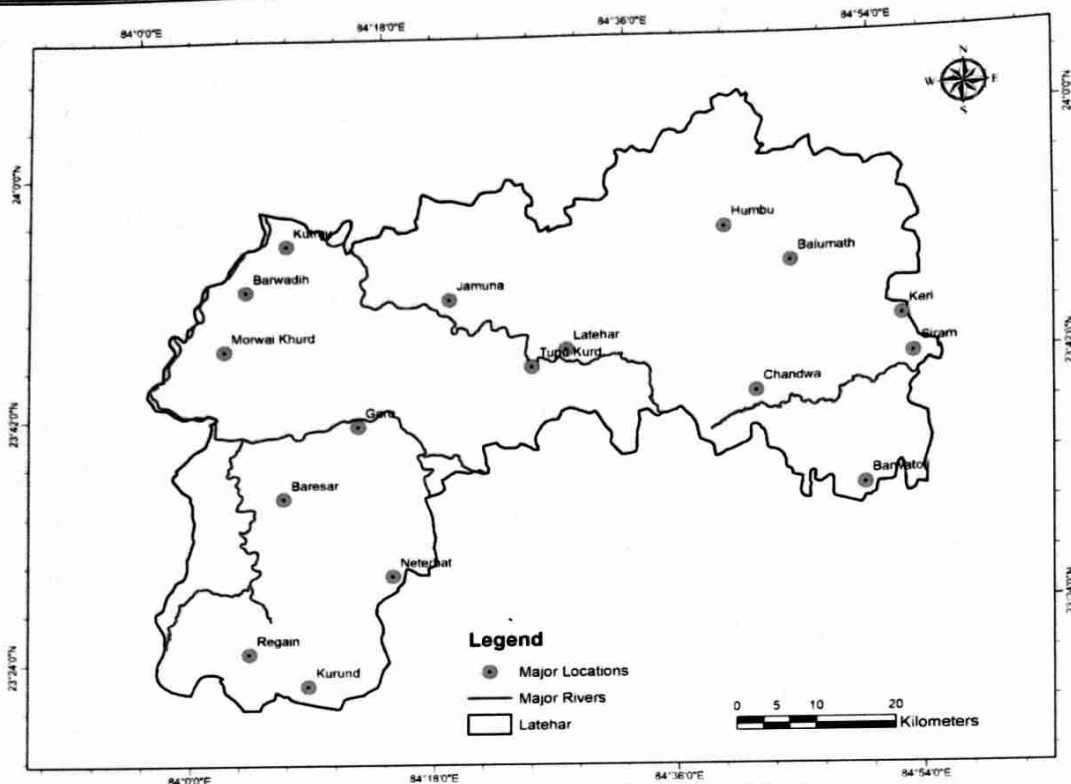


Fig.3.7: Major Rivers of Latehar District

(Source: CGWB Report of Latehar)

### 3.8 Demography:

Latehar district of Jharkhand has total population of 726,978 as per the Census 2011. Out of which 369,666 are males while 357,312 are females. In 2011 there were total 133,381 families residing in Latehar district. The Average Sex Ratio of Latehar district is 967. As per Census 2011 out of total population, 7.1% people lives in Urban areas while 92.9% lives in the Rural areas. The average literacy rate in urban areas is 78.3% while that in the rural areas is 58%. Also the Sex Ratio of Urban areas in Latehar district is 914 while that of Rural areas is 971.

The population of Children of age 0-6 years in Latehar district is 137699 which is 19% of the total population. There are 69971 male children and 67728 female children between the age 0-6 years. Thus as per the Census 2011 the Child Sex Ratio of Latehar is 968 which is greater than Average Sex Ratio (967) of Latehar district.

The total literacy rate of Latehar district is 59.51%. The male literacy rate is 56.73% and the female literacy rate is 39.45% in Latehar district.

Table 3.5: Population Data of 2011 Census

DESCRIPTION	FIGURE
MALE	369666
FEMALE	357312
POPULATION GROWTH	18%
AREA SQ. KM	3651.59
DENSITY/KM <sup>2</sup>	169
SEX RATIO (PER 1000)	967



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CHILD SEX RATIO (0-6 AGE)	968
AVERAGE LITERACY	59.51%
MALE LITERACY	56.73%
FEMALE LITERACY	39.45%
TOTAL CHILD POPULATION (0-6 AGE)	137699
MALE POPULATION (0-6 AGE)	69971
FEMALE POPULATION (0-6 AGE)	167728
LITERATES (TOTAL)	61%

### **3.9 Connectivity in Latehar District:**

#### **By road**

Latehar is well connected by a network of roads with all the neighbouring cities and towns. The distance to some important locations are as follows: Bokaro 237.7 km (via NH 320, NH 39), Dhanbad 274 km (NH 19), Jamshedpur 264.4 km (Via NH39), Chaibasa 265.6 km (Via NH 39), Hazaribagh 150.5 km (Via NH 22) Gaya 192.3 km (Via NH 22), Patna 290.5 km (NH 139), Barhi (via NH 27, NH 139) 498.5 km, Kolkata (428.3 km) via Kodarma-Giridih-Tundi-Gobindpur Road/Kowar-Koderma Road-Kolkata 539.6 via NH 19. Bus connections are available for almost all cities and towns in the area. Road communication of this district is not at par with the other districts of the state.

Following are the important Roads in the district: -

1. Daltonganj-Ranchi-Road - The road runs from Daltonganj through Latehar and Chandwa to Ranchi covering 155 kms.
2. Chandwa-Balumath-Chatra-Road - This road runs through Balumath for 36 km in the district and joins Dobhi on the G.T. Road.
3. Latehar-Barwadiah-Garu-Netherhar-Mahuadanr - This road runs with start from Latehar through Barwadiah, Garu, Netherhar and finally Mahuadanr
4. Palamau is connected by NH 75 Road, Chatra is connected by NH 99, Ranchi is connected by NH39 which is shown in the map below.

#### **By Rail**

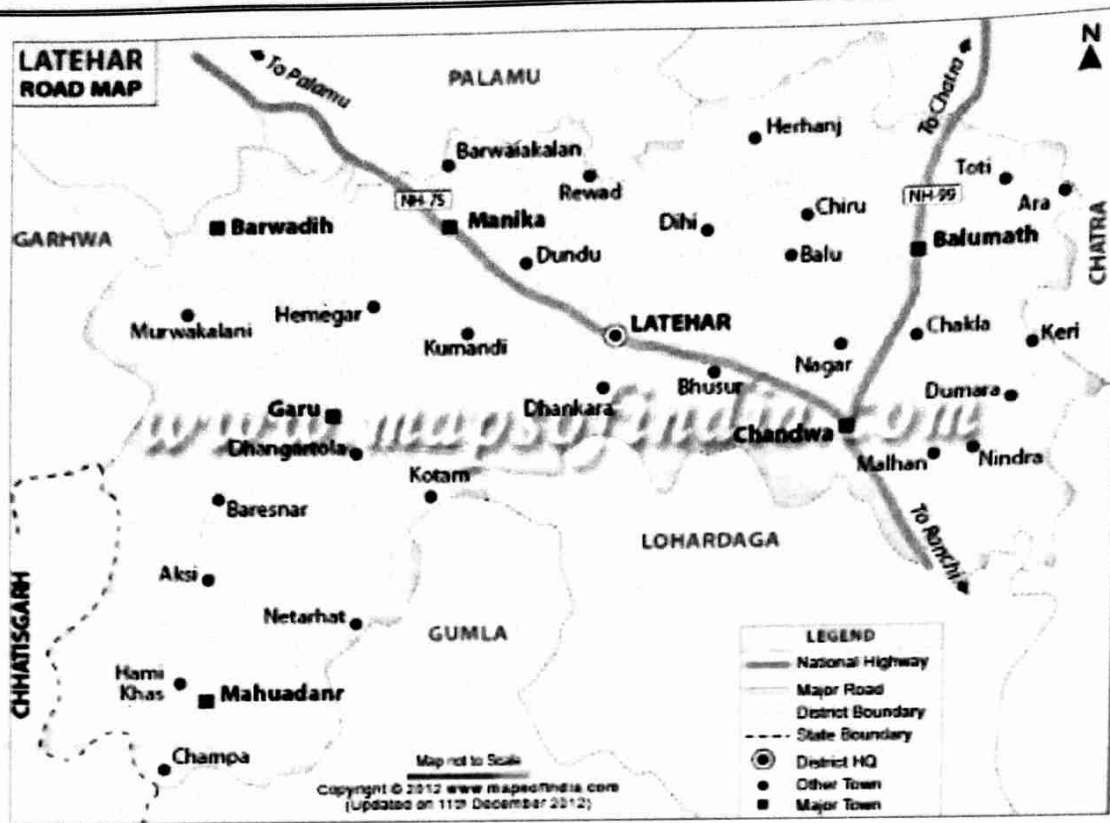
Rail line from Barwadiah to Gomoh under Eastern Central Railway runs through the district from Latehar and Chandwa.

#### **By Air**

Latehar district have no airport. The nearest airport is Ranchi Airport (IXR) 93 km (South East) away from latehar.



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### 3.10 Flora & Fauna:

The forests of the Latehar have a vast range of vegetation consisting of tropical wet evergreen forests in the lower reaches, mixed (moist & dry) deciduous forests in the middle and temperate alpine forests in the upper reaches including sal and bamboo as the major components along with a number of medicinal plants. There are grasslands in the flowing area of the Koel river itself and its tributaries run through the northern portion of the park.

The park has a variety of diverse eco-systems and plenty of wild animals. Elephants in large numbers are seen mostly after the monsoons up to the time when water holes begin to dry up in March. Permanent residents include as predators Sloth Bear, Panther, Wild Bear and Wolf. Jackal and hyena are common scavengers. Large herds of Gaur and Chital are commonly seen. Large families of Langurs are an ever present attraction, as are rhesus monkey. Other animals found in the park are Mouse Deer, Sambhar, Four-horned antelopes, Nilgai, Kakar, small Indian Civets, porcupine and Mongoose.

#### Betla National Park

Though some part of this National Park falls in Palamau district, some portion falls in Latehar district as well (Lat-Long 23.8878°N, 84.190139°E). The park has a variety of diverse eco-systems and abundance of wild animals. The park features waterfalls and hot springs. This is one of the finest parks in the northeast of India. The park is open all year round. In wildlife scenes, the hot weather (May to June) is highest when the leaves are not thick; the most comfortable time to come in terms of climate is between November and March.



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**Lodh Waterfall**



It is located on the Burha River, deep in the forest of the Latehar district. It is 120 km from Daltonganj, 200 km from Ranchi, and 61 km from Netarhat. Being the highest waterfall of the Jharkhand, lakhs of tourist's flock every year from different part of country to visit the fall. Being located inside the sanctum sanctorum of the Wolf Sanctuary, a protected area, the tourism is regulated by the Forest Department. Eco Development Committee, Lodh has been involved in managing tourism at Lodh Falls.

**Netarhat**

Netarhat is a hill station in Latehar district, it is also referred to as the "Queen of Chhotanagpur". It is located at 23.4833°N, 84.2667°E at a height of 1,071 metres.




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It is a plateau covered with thick forest, located in the Pat region of Chhotanagpur Plateau, Netarhat plateau is about 4 miles (6.4 km) long and 2.5 miles (4.0 km) broad. It consists of crystalline rocks and has a summit capped with sandstone trap or laterite. Region of Netarhat is covered with Sal, Kendu, Mahua, Pear and Eucalyptus. The highest point is 3,696 feet.



  
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## 4. PHYSIOGRAPHY OF THE DISTRICT

### 4.1 General Landforms:

Latehar district is highly hilly and forested in the south and comparatively less hilly in the north. The average elevation of the district is 400 meters. The highest spot found is Netarhat. Geologically, hills found near Netarhat area are of metamorphic rock. The remaining hills are composed of sandstone, conglomerate, and lava capping having thick mantle of laterite.

Physiographically, the district can be divided into three parts:

- (i) East–West trending hill ranges consisting of metamorphic rocks in the southern part.
- (ii) Flat type hill in the south–eastern parts.
- (iii) The narrow valleys along the course of rivers in south–west of the district.

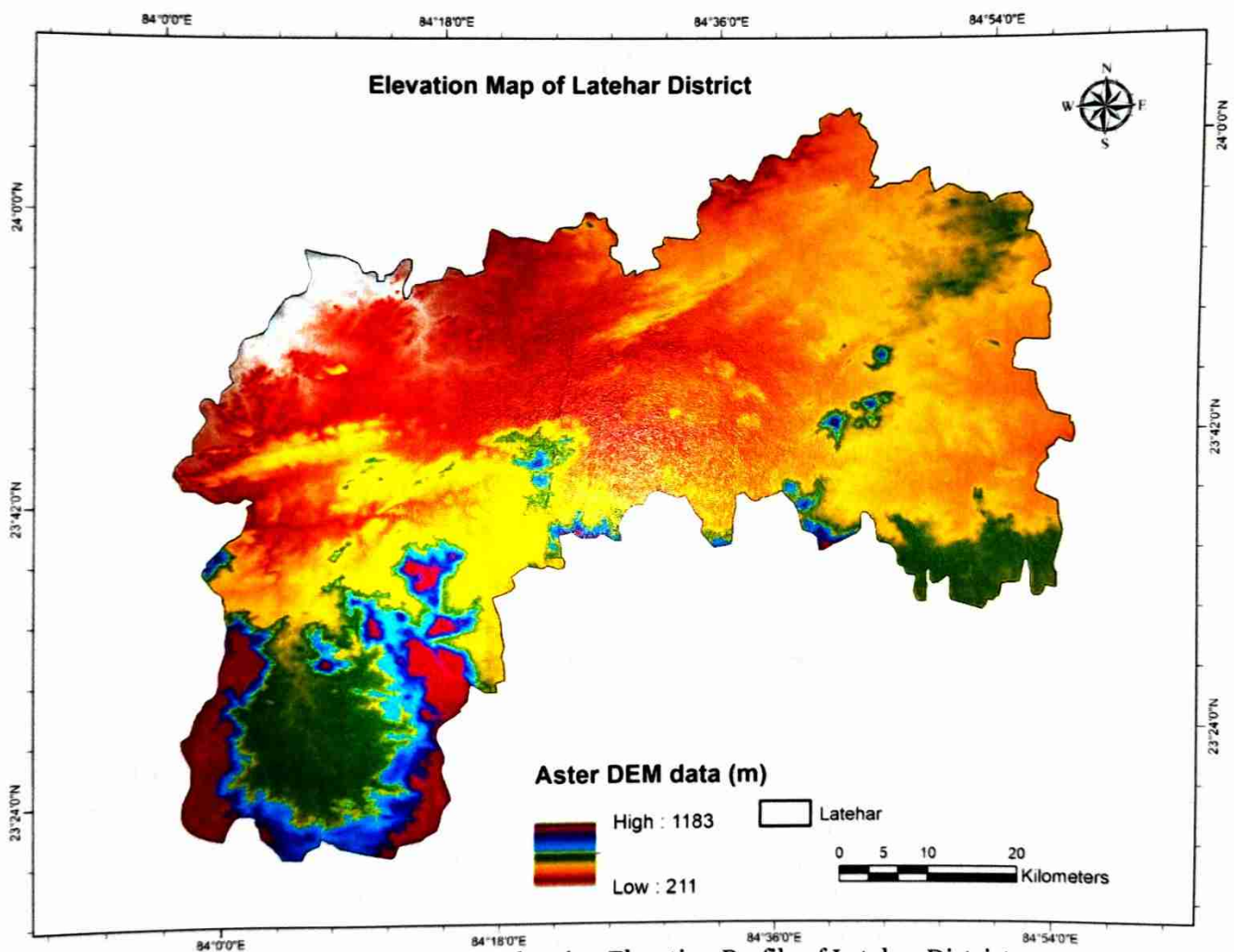


Fig. 4.1: Map Showing Elevation Profile of Latehar District  
(Source: Aster DEM Imagery Data)



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## 4.2 Soil:

The district is characterized by great heterogeneity in soil development. It can be attributed to uneven topography, non-uniform rainfall distribution and variation within composition of the parent material. High relief plateau of Netarhat, Chandwa and Garu are in mature stage, where the soil developments in low relief areas are of recent type. Soils of Netarhat region are laterite type derived from weathered basalt and granite rocks. Major part of the district is occupied by red sandy soil. The red and yellow soil are occupying the northern part of the district.

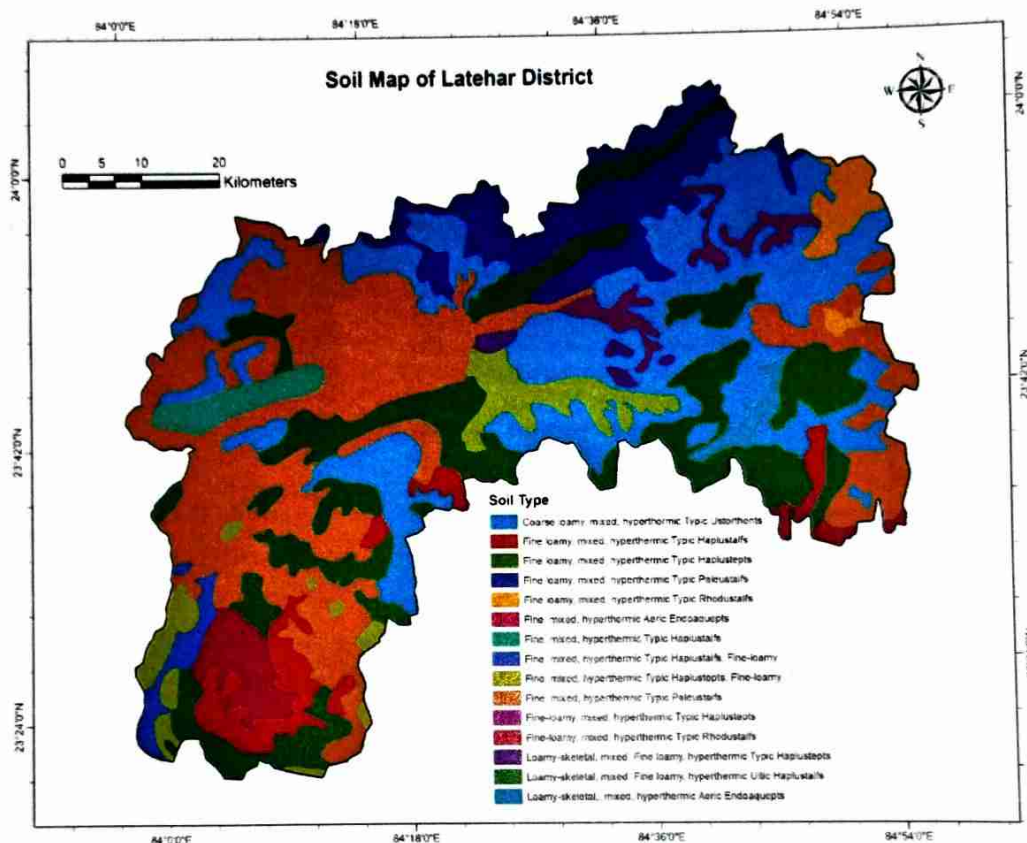


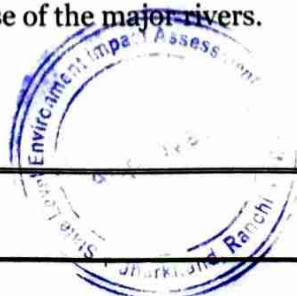
Fig. 4.2: Soil Map of Latehar District

(Source: National Informatics Centre)

## 4.3 Geomorphology:

The topography of Latehar district is characterized by highly rugged landscape with green forest all over the area. The elevation of the hill ranges in southern part of the district varies from 360-1110 m above msl. The master slope of the area in general tends towards north and east. In terms of the physioigraphy the district shows the following four broad categories of landforms -

- East-West trending hill ranges, consisting of crystalline and metamorphic rocks in the southern part.
- Flat topped hills in the south-eastern.
- The sub-plateau area lying south of the plains are separated by narrow valleys in parts of Bishrampur block.
- Narrow valleys along the course of the major rivers.



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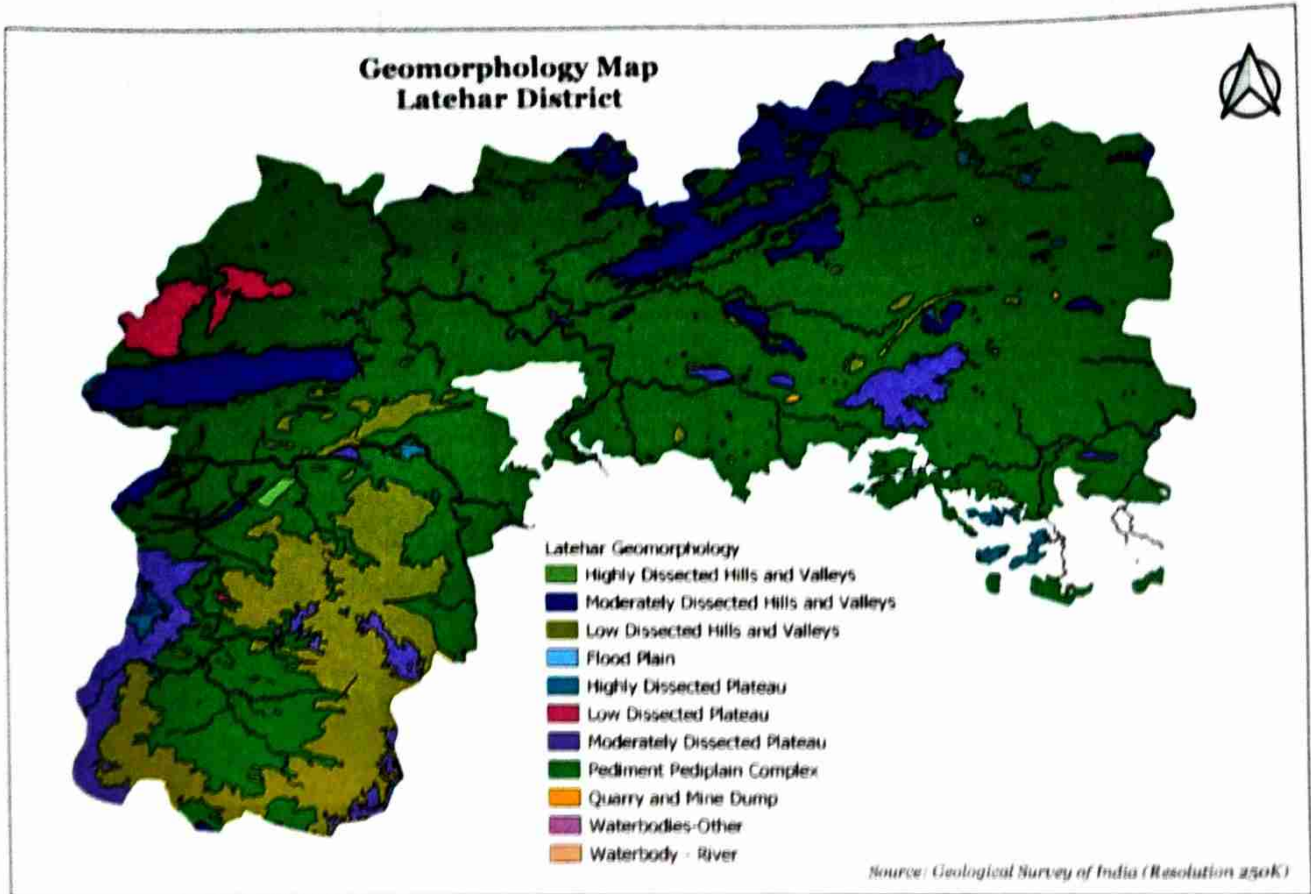


Fig. 4.3: Geomorphology Map of Latehar District

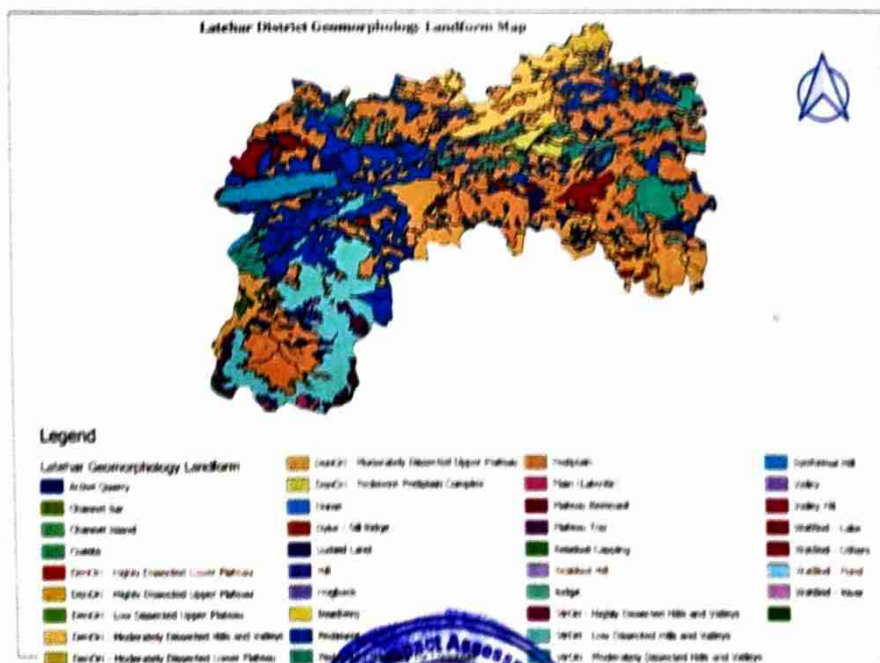


Fig. 4.4: Geomorphology Landform Map of Latehar District



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## 5. LAND UTILIZATION PATTERN OF THE DISTRICT

### 5.1 Forest:

Out of total geographical area of 3651.59 km<sup>2</sup>, forest area covers nearly 2403.04 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.

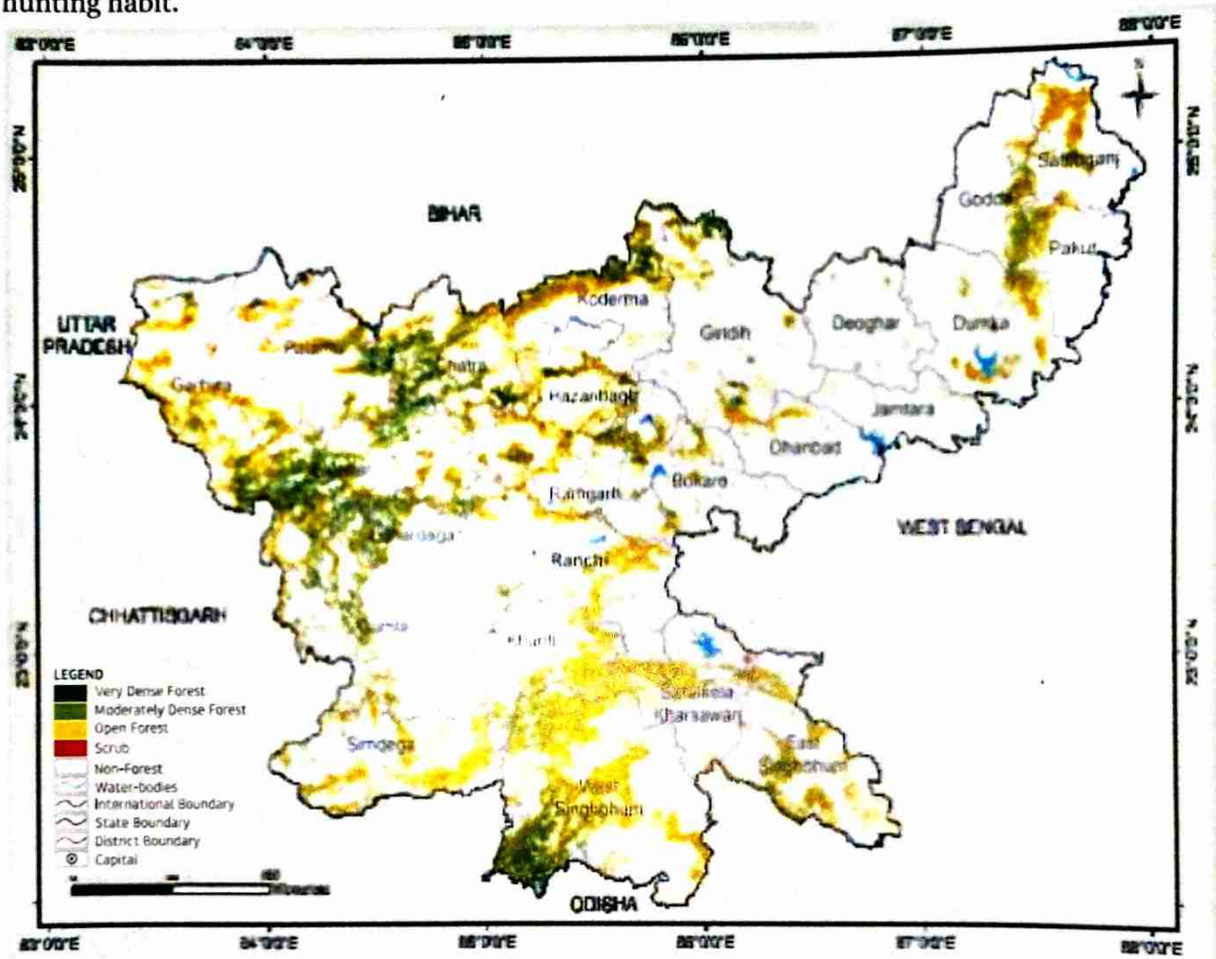


Fig. 5.1: Forest Cover Map of Jharkhand

(Source: India State of Forest Report, 2021)





Table 5.1: 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>1</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>1</sup>	3,761	0.00	259.40	318.23	577.63	15.36	0.32	44.55
East Singhbhum <sup>1</sup>	3,562	54.81	591.69	434.19	1,080.69	30.34	1.31	20.91
Garhwa <sup>1</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
Godda <sup>1</sup>	2,266	12.81	271.88	138.66	423.35	18.68	0.00	14.27
Gumla <sup>1</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>1</sup>	1,811	0.00	20.84	85.18	106.02	5.85	5.38	5.32
Khunti <sup>1</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>1</sup>	4,291	480.36	1,308.93	613.75	2,403.04	56.00	-3.30	9.30
Lohardaga	1,502	174.03	218.40	111.99	504.42	33.58	-0.20	7.66
Pakur <sup>1</sup>	1,811	2.96	172.40	111.64	287.00	15.85	-0.13	20.06
Palamu <sup>1</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>1</sup>	5,097	62.89	363.91	741.98	1,168.78	22.93	4.29	27.98
Sahibganj <sup>1</sup>	2,063	17.74	258.73	297.48	573.95	27.82	1.60	47.53
Saraikela-Kharsawan <sup>1</sup>	2,657	22.03	213.84	338.73	574.60	21.63	0.56	21.87
Simdega <sup>1</sup>	3,774	21.97	343.54	877.89	1,243.40	32.95	2.48	20.28
West Singhbhum <sup>1</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)

## 5.2 Agriculture & Irrigation:

### Agriculture

Since, the district has partly hilly terrain and partly homogenous plains, land use also varies. In northern part, as it is plain most of the area is under agriculture. Rice and wheat are major crops grown in the district. In southern part the majority area is engaged in forest cover only patches of agricultural land are found.



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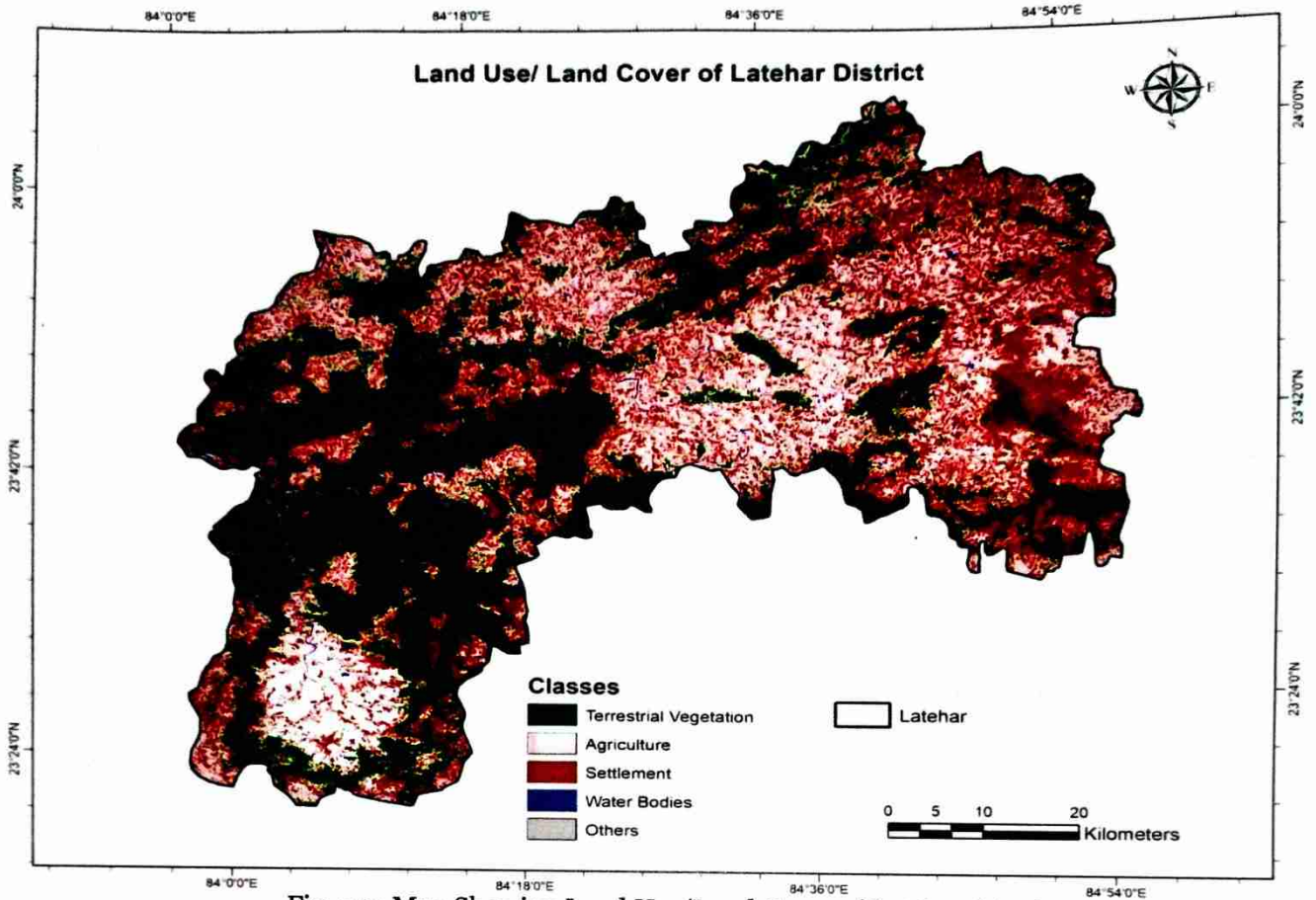


Fig. 5.2: Map Showing Land Use/Land Cover of Latehar District

(Source: Sentinel 2 Imagery, December 2020)

Classes	Area (in km <sup>2</sup> )
Terrestrial Vegetation	1911.13
Agriculture	1197.57
Settlement	1393.53
Water bodies	37.56
Others	64.45
<b>Total</b>	<b>4604.24</b>



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Area Stats

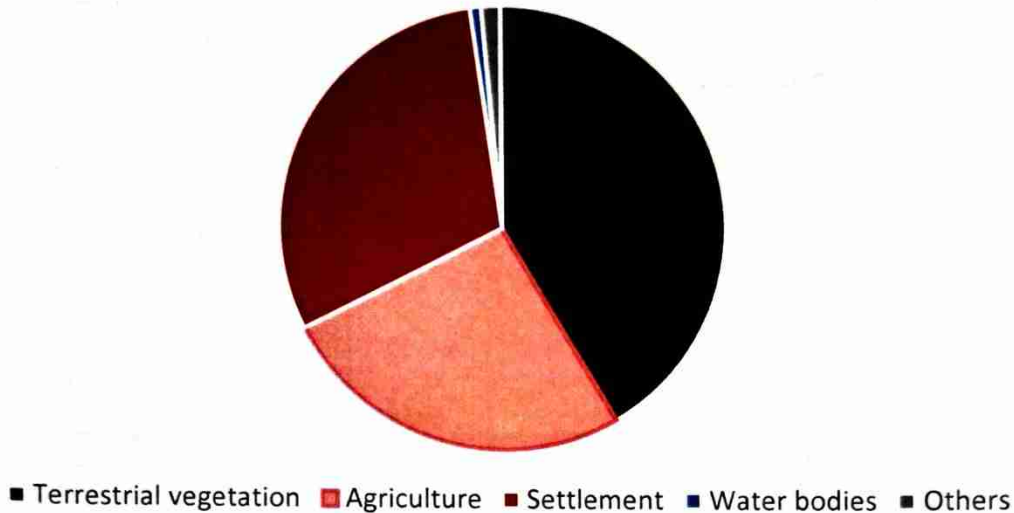


Fig. 5-3: Pie Chart Representation of Land Use/Land Cover of Latehar District

- ❖ Terrestrial vegetation includes Forest area and related trees.
- ❖ Agriculture includes all area under cultivation.
- ❖ Settlement area includes the area or locality, which are habited, and has evidence of human interactions.
- ❖ Waterbodies includes all water bodies including river, lakes, ponds and streams.

Other class includes wasteland, sandy area and barren land.

### Irrigation

Out of total geographical area of 3651.59 km<sup>2</sup>, forest area covers nearly 2403.04 km<sup>2</sup>. Land put to agricultural use is 1197.57 km<sup>2</sup> and waterbody occupying area is 37.56 km<sup>2</sup>. Area under habitational settlement and other structure is 1393.53 km<sup>2</sup>.



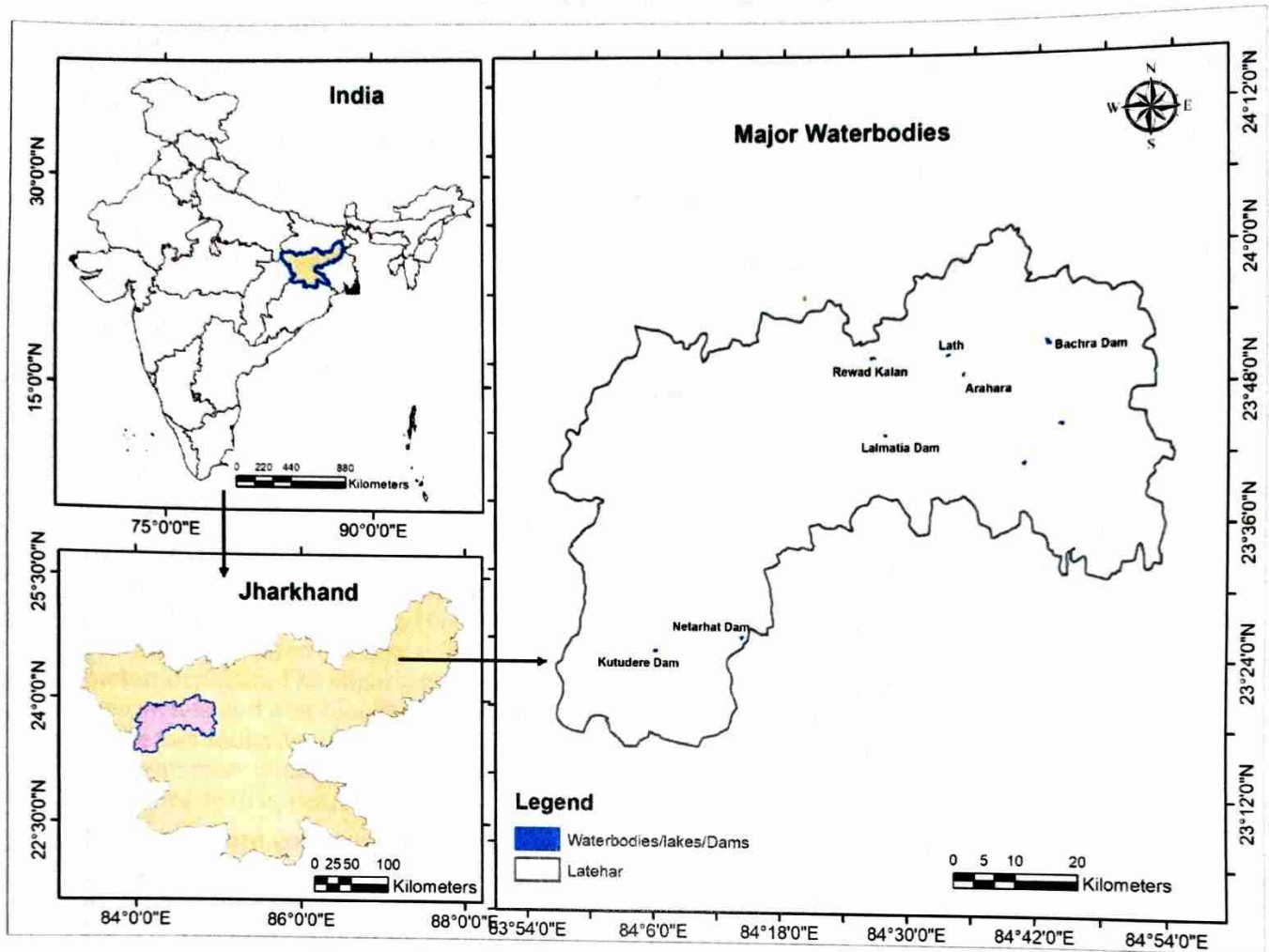


Fig. 5.4: Map Showing Major Waterbodies of Latehar District



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## 6. GEOLOGY & MINERAL WEALTH

### 6.1 Geology:

The geological formation of the Latehar district comprise mainly rock of Archaean, Vindhyan & Gondwana ages, the last cut by dykes of Deccan trap age. The Archaean rock includes both schist of Dharwar age and gneisses and granite. The schists, mainly horn- blentic and biotitic are the oldest rock of the area and occur as parallel and lenticular bands in the gneisses. The schist is intruded by epidiorites, amphibolites, and gneisses. Garnetiferous sillimanite-graphite schists, similar to the khondalites, also occur near Daltonganj and Latehar smaller patches of these rocks are found in the manner of inclusive in the most prevalent and the biotite and sillimanite schists are rare.

Geologically, much of the district is yet unexplored except the areas around latehar, the coalfields and other economics deposits such as those of magnetite, limestone and clay etc.

The Archaean rock can be grouped under the following head:

Crystalline limestone marbles and Calc-silicate rock  
Amphibolites  
Dolerites and meta-dolerites  
Grannites and Granite-gneisses

In the Latehar region, these rocks have been altered by intrusions of basic igneous rocks into different types of granulites, dolerite and meta dolerite. The differences in composition of the original sediments which by their metamorphic induced by the surrounding dykes (dolerite) have produced the different types. The dolerites occur as dykes and bands show various degrees of metamorphism. The slightly metamorphosed dolerite but in some area the rocks are converted to epidiorites and amphibolites in which hornblende have more or less replaced the pyroxene while in the metadolerites, the original ophitic texture characteristics of igneous origin is present though the pyroxene is altered to amphibole. Some varieties contain hypersthene and approach basic charnockite in appearance.

Pegmatites are common in the granitic & gneissic country, but also merge into finer-grained granitic type. Although they form irregular veins, thick masses also occur containing considerable amount of muscovite workable deposit occur lesiganj, kini and feldspar and quartz veins derived from the residual pegmatite liquid are also found in many places.

In the neighbourhood of Latehar, hornblende peridotite dykes are found in the khondalites and the gneisses.

The lower Vindhyan system of rocks has been described as follows:

The south of narrow outcrop of vindhyan rocks belonging mainly to the basal, porcellanite and Kheinjua stage. The rock of the porcellanite group is indurated and silicified volcanic ashes. Toward the north-western part of the district there is a large out crop of the lower Vindhyan strata, south of the Sone, which appears to be a part of the main lower Vindhyan formation of the Rohtas plateau north of the son. Bhawnathpur is situated in the eastern part of the main outcrop. There is a small outlier about 5 miles south- east in Hussainabad near Japla. The shales and the limestone of the Kheinjua group are mostly concealed by alluvium along the bank of the Sone. South of this at a distance of two miles is a place called Kalapahar. The kalapahar are a group of very conspicuous and remarkable dome hills formed of an acid volcanic rock, rhyolitic in composition. Other hills between Japla and Nabinagar are made up of volcanic tuff of varying coarseness and porcellanite which may be bedded.

Felsities are true lavas have been found in one locality between Japla and Kutumba and indicated the proximity of a centre of volcanic eruption.

The Gondwana system of rock as developed in the Latehar district has been classified as follows:

Coal-bearing Damuda strata occur in three separate areas in the Latehar district, namely, the Auranga, Hutar and Daltonganj coalfields. Although there are of Gondwana strata are now isolated from one another, their distribution is such as to suggested that they are remnants of a





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much large spread of Gondwana of the Damodar valley. The Auranga and Hutar coalfield lie directly in the belt of the Damodar valley coalfield, the Auranga River flowing westward from the watershed between itself and Damodar. The Daltonganj field is north of this belt along the valley of the north Koel. This northern field has suffered a greater amount of demulation than the other two fields as only the Talchair and Karharbari stages of the Barakar series are present.

In the Hutar coalfield, the Mahadevas lie directly on the Baraker and appear to be conformable to them. This break in the sedimentation of the lower gondwana period appears also to be present in the western part of the auranga field which is nearest to be Hutar field. But both the Raniganj and the Panchet series between the Barakar and the Mahadevas have been recognized in the Auranga field which lies nearer to the Damodar valley.

**Local Geology**

In this area scattered dolerite is exposed to the surface. With very veneer layer of the general sucession of rock types exposed in the proposed lease hold area is as follows with the oldest litho unit at the base.

- Morrum
- Dolerite (Basic & ultrabasic of Gorumahisari green stone)
- Quartzite (Iron ore stage of iron one group)
- ..... Unconformity.....
- Sighbhum granite (Not exposed in the area)

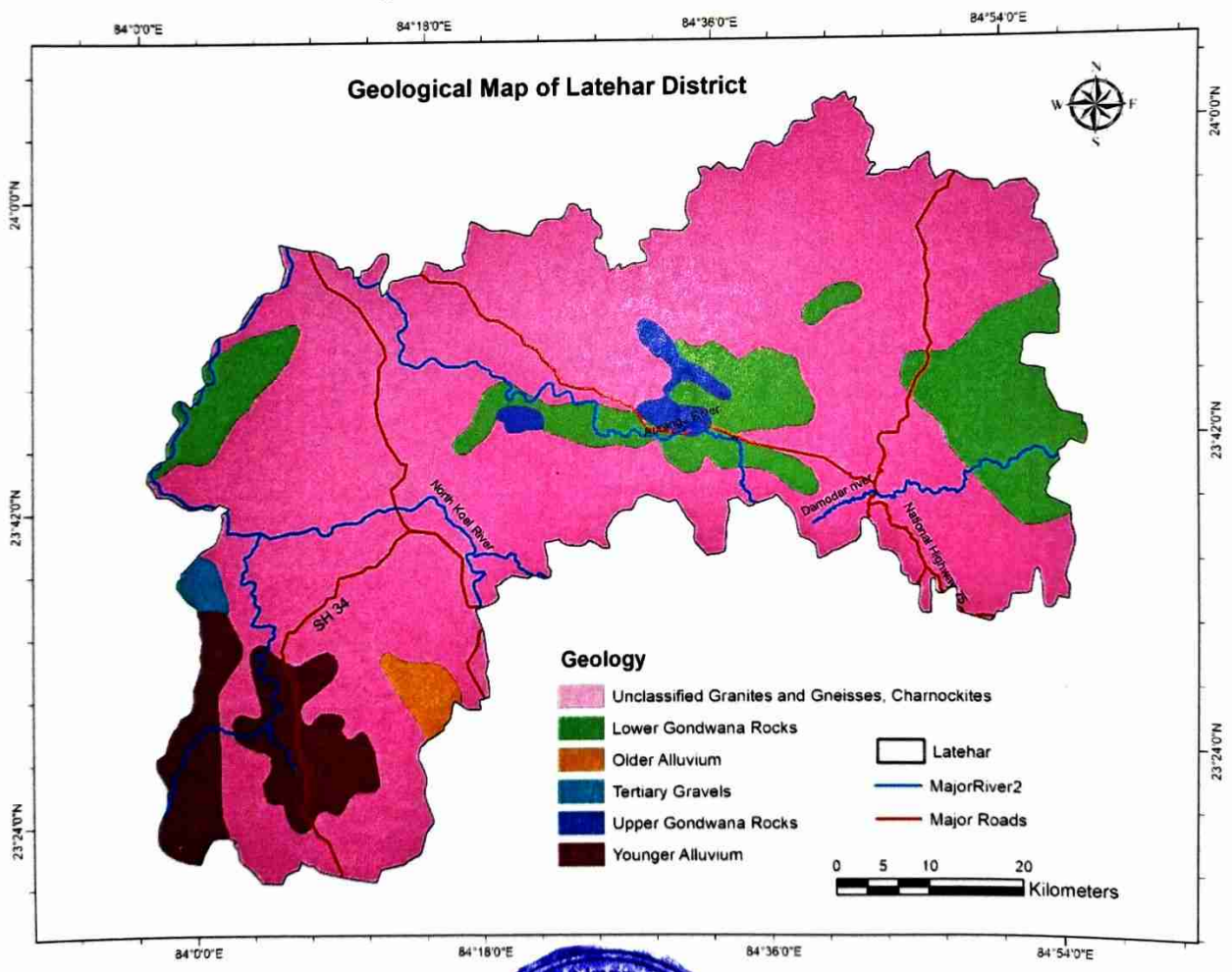


Fig. 6.1: Geological Map of Latehar District  
(Source: Geological Survey of India)



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## 6.2 Overview of Mineral Resources:

### Availability of Minerals

The district is very rich in various mineral deposits. There is abundance of deposit of Coal, Bauxite, Laterite, Dolomite, and Graphite, Granite, Quartz, Fireclay, Felspar etc. The excavation and exploration of these minerals have provided job opportunities to the inhabitants of this hinterland to some extent because these minerals have not been fully explored at large scale.

As on date, the district is having nine numbers of stone/morrum mines having lease granted, spread across Balumath, Manika and Chandwa block of the district. As per the data obtained from the office of the District Mining Officer, Latehar, it can be observed that there is a gradually increasing trend of mining industry in the district.

Sand is the basic raw material for its utilization in any development activity through out the world. Sand is primarily produced from mining operations on the surface on the surface of the Earth, near the river beds and the sand quarrying below the surface of Earth. In the earlier time the mud houses/buildings were constructed with the use of mud. However, with the passage of time, new technique of development activities was started. As such the demand of Minor mineral started on an increasing trend. In order to meet the requirement of raw material for construction, the extraction of sand carried out manually/semi-mechanized from the river beds. Sand mining is mainly practiced in Auranga, Damodar, North Koel, Sukri and Patam rivers of Latehar district.



Fig. 6.2: Mineral map of Latehar District

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



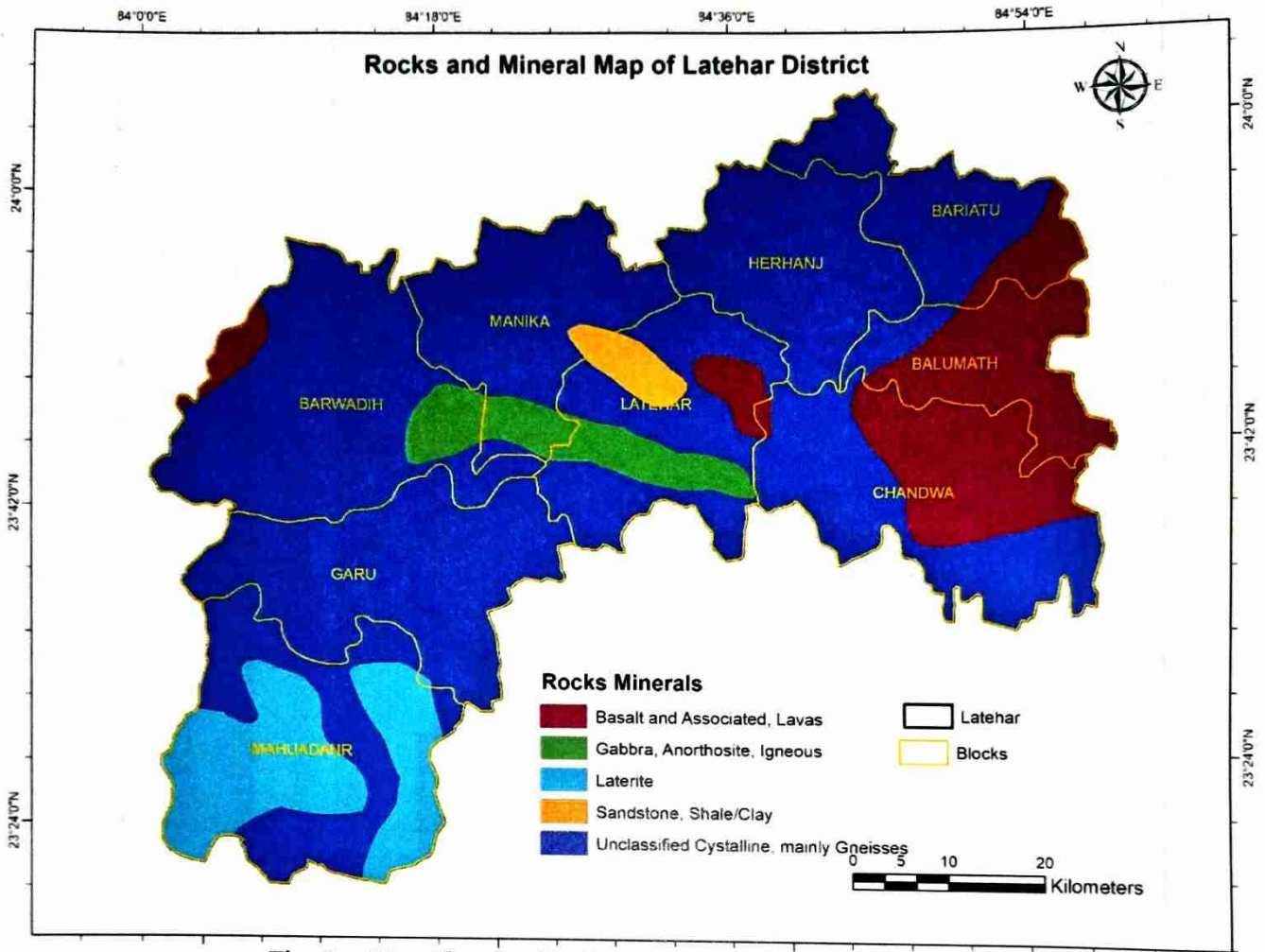


Fig. 6.3: Map Showing Rocks & Mineral types of Latehar District



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## 7. OVERVIEW OF MINING ACTIVITY IN THE DISTRICT

### 7.1 List of Mining Lease in the District with location, area and period of validity:

Table 7.1 - List of Sand Ghats in the Latehar District: -

Sl. No.	River/Sand Ghat	Panchayat	Area (Hectare)	Mouza	Remarks
1	Nil	Nil	Nil	Nil	Nil



  
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## 8. DETAILS OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS

Table 8.1: Details of Royalty-Revenue of Latehar District

कार्यालय जिला खनन पदाधिकारी, लातेहार।

वित्तीय वर्ष -2018-19 से वित्तीय वर्ष-2021-22 (माह अगस्त-2021) तक का खनिजवार प्राप्त राजस्व समाहरण की विवरणी-  
(ऑफ-कंडा लाख में)

क्रमांक	खनिज का नाम	वित्तीय वर्ष 2018-19		वित्तीय वर्ष 2019-20		वित्तीय वर्ष 2020-21		वित्तीय वर्ष 2021-21 (माह अगस्त-2021 तक)	
		लक्ष्य	कुल प्राप्त समाहरण/राजस्व	लक्ष्य	कुल प्राप्त समाहरण/राजस्व	लक्ष्य	कुल प्राप्त समाहरण/राजस्व	लक्ष्य	कुल प्राप्त समाहरण/राजस्व
1	2	3	4	5	6	7	8	9	10
	जोपरमो-डीओसी		812.68		0.00		71.34		1.99
	सीओपीएल (तेतरिया)		3611.72		1083.68		1191.24		833.15
	सीओपीएल (मगध)		0.00		2944.28		9812.40		5688.29
	कोयला से कुल		4424.41		4027.96		11076.98		6525.43
	डोकसाईट		0.01		0.00		0.01		0.00
	फायरक्ले		0.00		0.00		0.00		0.00
	केल्सपार / क्वार्ट्ज		1.76		3.36		0.89		0.00
	ग्रेफाईट		0.00		0.00		0.00		0.00
	लीड अयस्क		0.00		0.00		0.00		0.00
	लघु खनिज पत्थर		109.95		122.44		215.09		67.72
	ईड / मिट्टी		35.09		30.27		29.80		3.01
	बालू		0.27		0.00		0.00		0.00
	मार्बल		4.87		5.93		9.36		1.12
	आग्नेय शल्क / अन्य		17.85		6.54		12.46		64.31
	कार्बो मिश्रण		1251.73		2032.74		1047.07		170.61
	नीलामयित्त बकया		0.00		1.67		0.00		0.00
	अनीलामयित्त बकया		0.00		5.12		0.00		0.00
	कुल		6845.93		6236.03		12391.66		6832.20
				10300.00			10127.00		22300.00



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### 9. DETAILS OF PRODUCTION OF SAND OR BAJRI IN LAST THREE YEARS

Sl. No.	Name of Lessee	Year	Production(Ft³)	Dispatch (Ft³)
1	Shri Rahul Kumar	2017-2018	4024300.000	3557804.00
		2018-2019	3400000.000	3269600.00
		2019-2020	N.A.	N.A.
2	Shri Harswardhan Singh	2017-2018	2417793.000	3729368.000
		2018-2019	1924750.000	5664000.002
		2019-2020	N.A.	N.A.
3	Shri Arvind Pandey	2017-2018	1288170.000	1288170.000
		2018-2019	2300762.000	1819902.000
		2019-2020	400000.000	353700.000
	Shri Pramod Kumar Sahu	2017-2018	100000.000	37280.000
		2018-2019	1177200.000	712200.000
		2019-2020	1050000.000	998000.000



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## 10. DEMAND & SUPPLY OF THE MINERAL IN THE DISTRICT

The demand for sand is ever growing with the growth of the infrastructure sector in our country. The mineral is used mainly in the construction activities like buildings, bridges etc. The requirement for the mineral is always high in the cities and towns. Therefore, there is always a good demand of the mineral in the domestic market.

A study by the Indian Institute of Technology-Bombay (IIT-B) has estimated that the annual demand for sand in urban India is 60 million metric tonnes. To put the amount in perspective, the national demand for sand stands at an average of 1kg per person per day in urban India, according to IIT-B.

From construction to cosmetics, society uses sand in unexpected ways, and quite literally, is built on it. India's sand demands pose a difficult market to target. The unbridled demand for sand leaves India devastated by extensive and unsustainable mining practices and promotes illegal operations in other districts and countries. Expected shortages of sand only spike the need for illegal mining activities. Although no official data shares the amount of sand mined illegally, the amount sufficiently thwarts state and district-level bodies attempts to reduce unlawful mining operations. Most countries, including India, regulate sand mining through environmental and national regulation, entrusting States to enforce laws and regulation. India is a union of states; there is a demarcation of power between Union and State legislatures. The Mines and Minerals Act 1957 and the Mines Act 1952 are the major national statutes steering India's mining sector. These acts provide power to State legislatures to frame legal outlines for the mining of Minor minerals like that of Sand.

The demand of Sand in Latehar district is already high as no Sand mining has been carried out since 2018. Although demand of sand becomes three times more with respect to supply within district. Therefore, 08 nos. of potential sand ghats have been identified and incorporated in this DSR which could meet the requirement and reduce the demand-supply gap of sand in future.

(Source: <https://www.hidustantimes.com>)



  
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## 11. PROCESS OF DEPOSITION OF SEDIMENTS IN THE RIVERS OF THE DISTRICT

### 11.1 Classifying Rivers - Three Stages of River Development:

These categories are: Youthful, Mature and Old age. A Rejuvenated River, one with a gradient that is raised by the earth's movement, can be an old age river that returns to a Youthful State, and which repeats the cycle of stages once again.

#### Characteristics found in the 3 Stages of River Development:

##### YOUTHFUL RIVER:

Perhaps the most dynamic of all rivers is a *Youthful River*. Characteristically youthful rivers are found at higher elevations, in mountainous areas, where the slope of the land is steeper. Water that flows over such a landscape will flow very fast. Youthful rivers can be a tributary of a larger and older river, hundreds of miles away and, in fact, they may be close to the headwaters (the beginning) of that larger river.



Fig. 11.1: Cross-section of Youthful River Channel

##### MATURE RIVER:

The Mature River is an in-between stage. The river still down cuts though to a much lesser degree than the Youthful River does but it also erodes laterally, though not as extensively, when compared to the Old Age River. The landscape over which it passes is steep enough that the river's slope enables a velocity capable of moving not only the finer sediments, but also the larger pebbles and cobbles by way of rolling, bouncing and saltation along the river bed. The area through which the river flows may be mountainous but they will not be as high as the Young River's locale. A "hilly" landscape would be a better description for the surrounding area. Rapids are absent and so is the V-shaped channel. The channel of a Mature River is U-shaped but deeper than and not as wide as the Old Age river's channel.





Fig. 11.2: Cross-section of Mature River Channel

### **OLD AGE RIVER:**

Old rivers flow slowest and their rate of erosion is encounter acted by the degree of sediment they deposit. Their course is no longer straight and widened floodplains are a common characteristic. An old river rests in an almost flat valley as a result of the many years of erosion that have taken place.

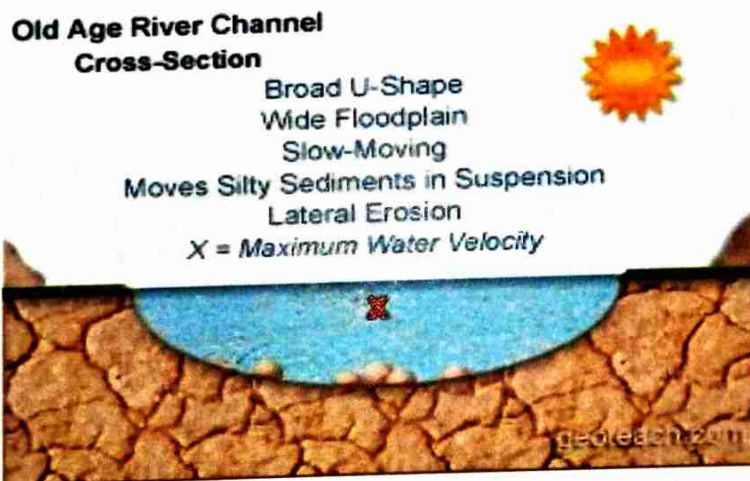


Fig. 11.3: Cross-section of Old Age River Channel

### **10.2 Stream Erosion and Deposition:**

Flowing water is a very important mechanism for both erosion and deposition. Water flow in a stream is primarily related to the stream's gradient, but it is also controlled by the geometry of the stream channel. As shown in Figure 2, water flow velocity is decreased by friction along the stream bed, so it is slowest at the bottom and edges and fastest near the surface and in the middle. In fact, the velocity just below the surface is typically a little higher than right at the surface because of friction between the water and the air. On a curved section of a stream, flow is fastest on the outside and slowest on the inside.



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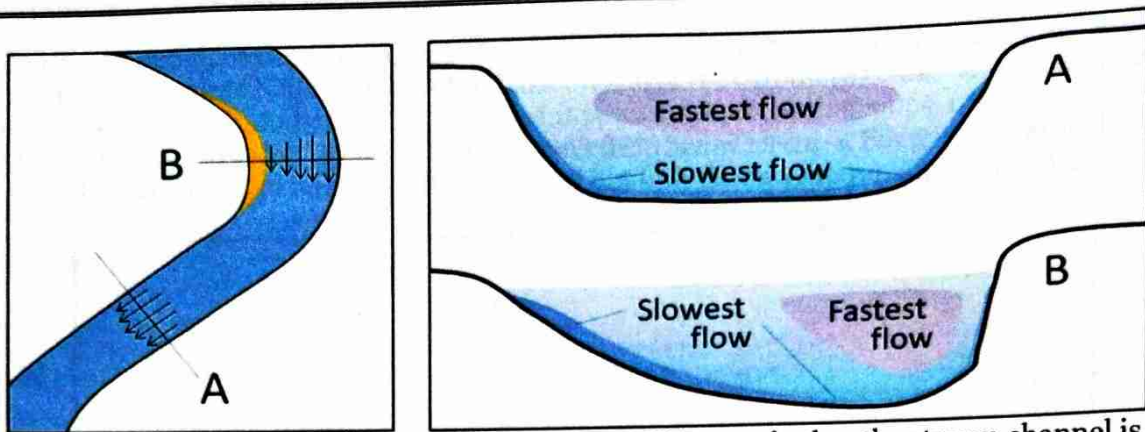


Fig 11.4 - The relative velocity of stream flow depending on whether the stream channel is straight or curved (left), and with respect to the water depth (right).

Other factors that affect stream-water velocity are the size of sediments on the stream bed — because large particles tend to slow the flow more than small ones — and the discharge or volume of water passing a point in a unit of time (e.g.,  $m^3/\text{second}$ ). During a flood, the water level always rises, so there is more cross-sectional area for the water to flow in; however, as long as a river remains confined to its channel, the velocity of the water flow also increases.

Figure 10.5 shows the nature of sediment transportation in a stream. Large particles rest on the bottom — bed load — and may only be moved during rapid flows under flood conditions. They can be moved by saltation (bouncing) and by traction (being pushed along by the force of the flow).

Smaller particles may rest on the bottom some of the time, where they can be moved by saltation and traction, but they can also be held in suspension in the flowing water, especially at higher velocities. As you know from intuition and from experience, streams that flow fast tend to be turbulent (flow paths are chaotic and the water surface appears rough) and the water may be muddy, while those that flow more slowly tend to have laminar flow (straight-line flow and a smooth water surface) and clear water. Turbulent flow is more effective than laminar flow at keeping sediments in suspension.

Stream water also has a dissolved load, which represents (on average) about 15% of the mass of material transported, and includes ions such as calcium ( $Ca^{+2}$ ) and chloride ( $Cl^{-}$ ) in solution. The solubility of these ions is not affected by flow velocity.

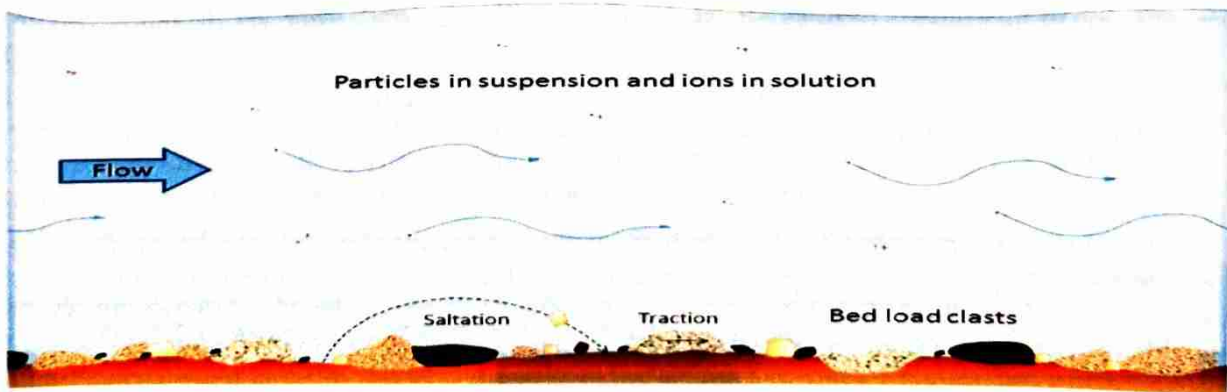


Figure 11.5: Modes of transportation of sediments and dissolved ions (represented by red dots with + and - signs) in a stream. [SE]

The faster the water is flowing, the larger the particles that can be kept in suspension and transported within the flowing water. However, as Swedish geographer Filip Hjulström discovered in the 1940s, the relationship between grain size and the likelihood of a grain being





eroded, transported, or deposited is not as simple as one might imagine. Consider, for example, a 1 mm grain of sand. If it is resting on the bottom, it will remain there until the velocity is high enough to erode it, around 20 cm/s. But once it is in suspension, that same 1 mm particle will remain in suspension as long as the velocity doesn't drop below 10 cm/s. For a 10 mm gravel grain, the velocity is 105 cm/s to be eroded from the bed but only 80 cm/s to remain in suspension.

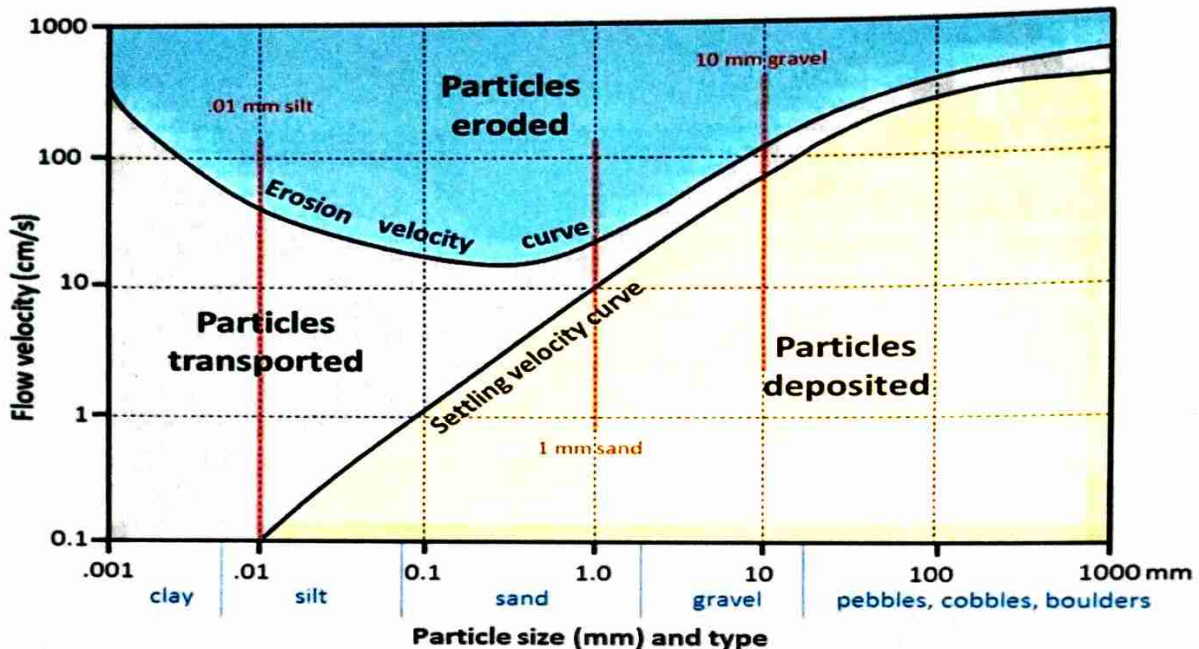


Figure 11.6: The Hjulström-Sundborg diagram showing the relationships between particle size and the tendency to be eroded, transported, or deposited at different current velocities

On the other hand, a 0.01 mm silt particle only needs a velocity of 0.1 cm/s to remain in suspension, but requires 60 cm/s to be eroded. In other words, a tiny silt grain requires a greater velocity to be eroded than a grain of sand that is 100 times larger! For clay-sized particles, the discrepancy is even greater. In a stream, the most easily eroded particles are small sand grains between 0.2 mm. and 0.5 mm. Anything smaller or larger requires a higher water velocity to be eroded and entrained in the flow. The main reason for this is that small particles, and especially the tiny grains of clay, have a strong tendency to stick together, and so are difficult to erode from the stream bed.

It is important to be aware that a stream can both erode and deposit sediments at the same time. At 100 cm/s, for example, silt, sand, and medium gravel will be eroded from the stream bed and transported in suspension, coarse gravel will be held in suspension, pebbles will be both transported and deposited, and cobbles and boulders will remain stationary on the stream bed.

A stream typically reaches its greatest velocity when it is close to flooding over its banks. This is known as the bank-full stage, as shown in Figure 5. As soon as the flooding stream overtops its banks and occupies the wide area of its flood plain, the water has a much larger area to flow through and the velocity drops significantly. At this point, sediment that was being carried by the high-velocity water is deposited near the edge of the channel, forming a natural bank or *levée*.



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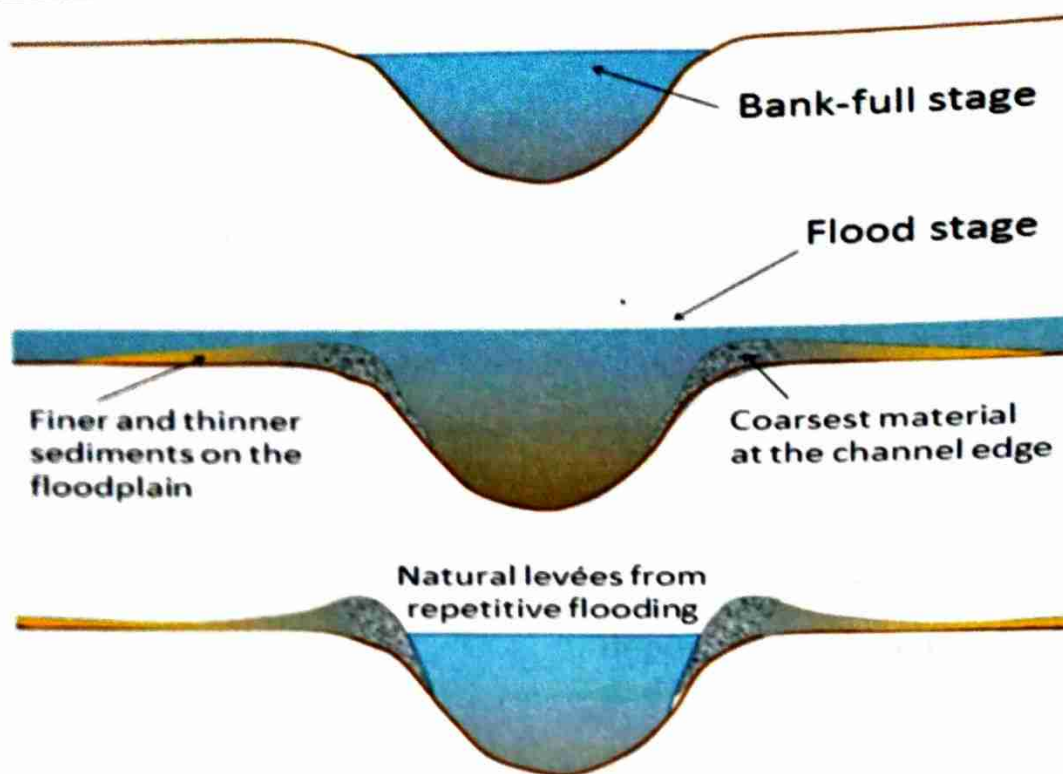


Figure 11.7: The development of natural levees during flooding of a stream. The sediments of the levee become increasingly fine away from the stream channel, and even finer sediments — clay, silt, and fine sand — are deposited across most of the flood plain. [SE]

### 10.3 Flood Plain:

Flood-plain is an area of land adjacent to a stream or river which stretches from the banks of its channel to the base of the enclosing valley walls, and which experiences flooding during periods of high discharge. The soils usually consist of clays, silts, and sands deposited during floods.

Flood plains are formed when a meander erodes sideways as it travels downstream. When a river breaks its banks, it leaves behind layers of alluvium (silt). These gradually build up to create the floor of the plain. Floodplains generally contain unconsolidated sediments, often extending below the bed of the stream. These are accumulations of sand, gravel, loam, silt, and/or clay, and are often important aquifers, the water drawn from them being pre-filtered compared to the water in the river.



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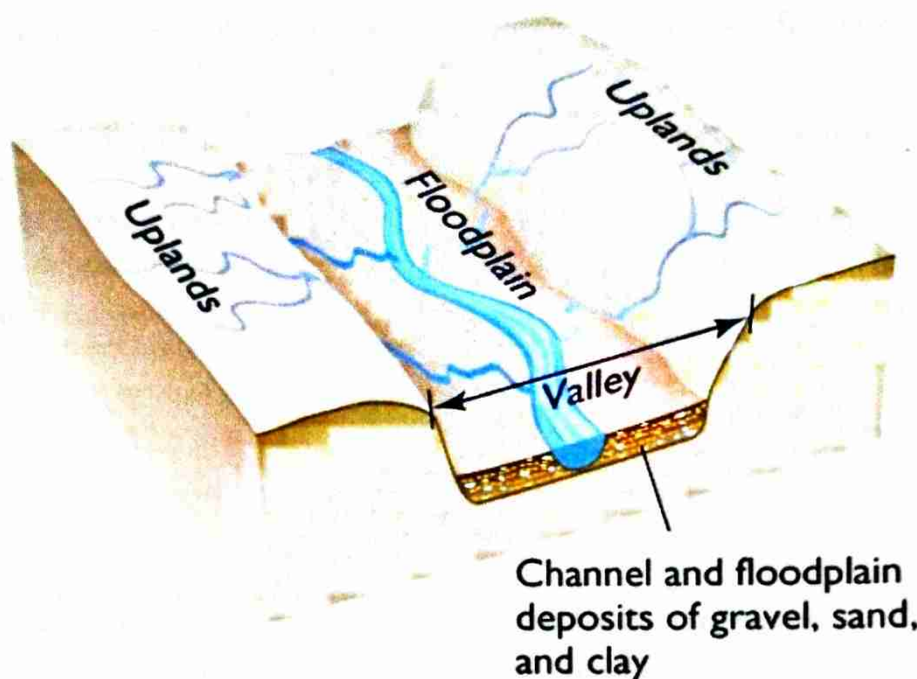


Figure 11.8: Flood Plain

#### 10.4 Replenishment of Sand:

The deposition in a river bed is more pronounced during rainy season although the quantum of deposition varies from stream to stream depending upon numbers of factors such as catchment, lithology, discharge, river profile and geomorphology of the river course where annual deposition is one meters, but it is noticed that during flood season whole of the pit so excavated is completely filled up and as such the excavated area is replenished with new harvest of minerals.

In order to calculate the mineral deposits in the stream beds, the mineral constituents have been categorized as clay, silt, sand, bajri and boulder. However, during present calculation, the waste material i.e. silt which vary from 10 to 20% in different streams has also been included in the total production. Further the Survey of India Topo-Sheets are used as base map to know the extent of river course. The mineral reserves have been calculated only up to 1.00-meter depth although there are some portions in the river beds such as channel bars, point bars and central islands where the annual deposition is raising the level of river bed thus causing shifting of the rivers towards banks resulting in to cutting of banks and at such locations, removal of this material upto the bed level is essential to control the river flow in its central part to check the bank cutting. While calculating the mineral potentials, the mineral deposits lying in the sub- tributaries of that particular stream/river has not been taken into consideration. Since, these mineral deposits are adding annually.

#### 10.5 Surface Runoff:

Also known as overland flow is the flow that occurs when excess storm water, melt water, or other sources flows over the Earth's surface. This might occur because soil is saturated to full capacity, because rain arrives more quickly than soil can absorb it, or because impervious areas (roofs and pavement) send their runoff to surrounding soil that cannot absorb all of it. Surface runoff is a major component of the water cycle. It is the primary agent in soil erosion by water.

Runoff that occurs on the ground surface before reaching a channel is also called a nonpoint source. If a nonpoint source contains man-made contaminants, or natural forms of pollution (such as rotting leaves) the runoff is called nonpoint source pollution. A land area which produces runoff that drains to a common point is called a drainage basin. When runoff flows along the





ground, it can pick up soil contaminants including petroleum, pesticides, or fertilizers that become discharge or nonpoint source pollution.

In addition to causing water erosion and pollution, surface runoff in urban areas is a primary cause of urban flooding which can result in property damage, damp and mold in basements, and street flooding.

▪ **Effects of Surface Runoff:**

**Erosion and deposition**

Surface runoff can cause erosion of the Earth's surface; eroded material may be deposited a considerable distance away.

There are four main types of soil erosion by water:

- Splash Erosion,
- Sheet Erosion,
- Rill Erosion,
- Gully Erosion.

**Splash erosion** is the result of mechanical collision of raindrops with the soil surface: soil particles which are dislodged by the impact then move with the surface runoff.

**Sheet erosion** is the overland transport of sediment by runoff without a well-defined channel.

Soil surface roughness causes may cause runoff to become concentrated into narrower flow paths: as these incise, the small but well-defined channels which are formed are known as **rills**. These channels can be as small as one-centimeter-wide or as large as several meters.

If runoff continue to incise and enlarge rills, they may eventually grow to become **gullies**.



Figure 11.9 :Soil erosion by water on intensively-tilled farmland.

**Gully erosion** can transport large amounts of eroded material in a small time period. Reduced crop productivity usually results from erosion, and these effects are studied in the field of soil conservation. The soil particles carried in runoff vary in size from about .001 millimetre to 1.0 millimetre in diameter. Larger particles settle over short transport distances, whereas small particles can be carried over long distances suspended in the water column.

There are many sediment transport equations which are suitable for use in the prediction of the replenishment rate of rivers/ watershed. Some of the famous sediment transport equations are:



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1. Dandy-Bolton Equation
2. Yang Equations
3. Engelund-Hansen Equation
4. Modified Universal Soil Loss Equation (MUSLE)

• **Dandy-Bolton Equation:**

Dandy Bolton formula is often used to calculate the sedimentation yield. But use of these equations to predict sediment yield for a specific location would be unwise because of the wide variability caused by local factors not considered in the equations development. However, they may provide a quick, rough approximation of mean sediment yields on a regional basis for preliminary watershed planning. They include climate, drainage area, soils, geology, topography, vegetation and land use. Studies revealed that sediment yield per unit area generally decreases as drainage area increases. As drainage area increases, average land slopes usually decrease; and there is less probability of an intense rainstorm over the entire basin. Both phenomena tend to decrease sediment yield per unit area. In arid regions, sparse precipitation and low run-off are the limiting factors. As precipitation increases, density of vegetation also increases, resulting in less erosion. In areas with adequate and evenly distributed precipitation, vegetation thus becomes the limiting factor. The accuracy of the sedimentation surveys varied, ranging from reconnaissance type measurements of sediment deposits to detailed surveys consisting of closely spaced cross-sections or contours. Runoff data are translated to inches per year per unit area and sediment deposition data to tons per year per square mile of net drainage area. Net drainage area is defined as the sediment-contributing area and normally excluded areas above upstream reservoirs or other structures that were effective sediment traps. Actual sediment yields undoubtedly were slightly higher because most reservoirs do not trap inflowing sediment. Sediment Yield vs. Drainage Area: - On the average, sediment yield is inversely proportional to the 0.16 power of drainage area between 1 and 30,000 square miles. Sediment Yield vs. Runoff: - Sediment yield increased sharply to about 1,860 tons per square mile per year as run-off increased from 0 to about 2 inches. As runoff increased from 2 to about 50 inches, sediment yield decreased exponentially. Because sediment yield must approach zero as runoff approaches zero, a curve through the plotted points must begin at the origin. The abrupt change in slope of a curve through the data points at Q equals 2 inches.

Precluded the development of a continuous function that would adequately define this relationship. Thus, there are two equations derived for when Q was less than 2 inches and when Q was greater than 2 inches.

• **Combined Effect of Drainage area and Surface Run off on Sediment Yield**

Dandy-Bolton determined the combined influence of runoff and drainage area on sediment yield to compute the sediment yield. They developed two equations i.e. for run off less than 2 inch and for run off more than 2 inch, which are given below: -

Where: S = Sediment yield (tons/miles<sup>2</sup>/yr.)

Q = Mean Annual runoff (inch)

A = Net drainage are in mile<sup>2</sup>

For run off less than 2 inches.

(Q < 2in)  $S = 1289 * (Q)^{0.46} * [1.43 - 0.26 \text{ Log } (A)]^F$

For runoff more than 2 inches.

(Q > 2in):  $S = 1958 * (e^{-0.055 * Q}) * [1.43 - 0.26 \text{ Log } (A)]$





• **Universal Soil Loss Equation:**

Sediment loss from water erosion  
Modelling sediment loss

MUSLE is a modification of the Universal Soil Loss Equation (USLE). USLE is an estimate of sheet and rill soil movement down a uniform slope using rain-fall energy as the erosive force acting on the soil (Wischmeier and Smith 1978). Depending on soil characteristics (texture, structure, organic matter, and permeability), some soils erode easily while others are inherently more resistant to the erosive action of rain-fall.

MUSLE is similar to USLE except for the energy component. USLE depends strictly upon rainfall as the source of erosive energy. MUSLE uses storm-based runoff volumes and runoff peak flows to simulate erosion and sediment yield (Williams 1995). The use of runoff variables rather than rainfall erosivity as the driving force enables MUSLE to estimate sediment yields for individual storm events. The water erosion model uses an equation of the form:

$$Y = X \times EK \times CVF \times PE \times SL \times ROKF$$

where:

- Y = sediment yield in tons per hectare  
EK = soil erodibility factor  
CVF = crop management factor that captures the relative effectiveness of soil and crop management systems in preventing soil loss  
PE = erosion control practice factor (including management practices such as terraces, contour farming, and strip cropping)  
SL = slope length and steepness factor  
ROKF = coarse fragment factor

For estimating MUSLE, the energy factor, X, is represented by

$$X = 1.586 \times (Q \times q)^{0.56} \times WSA^{0.12}$$

where:

- Q = runoff volume in millimeters  
qp = peak runoff rate in millimeters per hour WSA = watershed area in hectares

Runoff volume is estimated using the SCS curve number method. Peak flow was estimated using a modification of the rational method which relates rainfall to peak flow on a proportional basis. The rational equation is:

$$Q = C \times i \times A$$

where:

- q = peak flow rate  
C = runoff coefficient representing watershed characteristics  
i = rainfall intensity for the watershed's time of concentration  
A = watershed area





## 12. ADDITIONAL INFORMATION

### 12.1 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	Auranga	9.36	0.25%
2	North Koel	11.25	0.31%
3	Damodar	3.4	0.001%
4	Sukri	5.04	0.001%

### 12.2 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
1	Auranga	78	Patratu	435m
2	North Koel	45	Chemo	356m
3	Damodar	40	Boda	709m
4	Sukri	56	Basia	531m

### 12.3 Replenishment Study of Sand Deposit Zones (Category 2):

REPLENISHMENT OF SAND ASSESSED BY "AFTER THE MONSOON" SURVEY (THIRD) CARRIED OUT DURING NOVEMBER 2022									
Pre-Monsoon [March - May 2022]				Post-Monsoon [October - December 2022]					
Sl. No.	Sand Deposit Code	Surface RL	Surface Area	Surface RL	Thickness Replenished	Volume Replenished	Depth of Sand Deposit	Volume of Sand Deposit	Rate of Replenishment
		in m	in m <sup>2</sup>	in m	in m	in m <sup>3</sup>	in m	in m <sup>3</sup>	in %
1	LA_Z8_SU_1	362.0	800.00	362.9	0.9	720	1.5	1200	60.00
2	LA_Z1_AU_2	367.3	84900.00	368.4	1.1	93390	1.6	135840	68.75
3	LA_Z1_AU_3	364.2	23900.00	365.0	0.8	19120	1.2	28680	66.67
4	LA_Z1_AU_4	369.3	24000.00	370.2	0.9	21600	1.5	36000	60.00
5	LA_Z3_DAM_5	372.8	21000.00	373.9	1.1	23100	1.8	37800	61.12
6	LA_Z3_DAM_6	456.1	1500.00	457.2	1.1	1650	1.8	2700	61.12
7	LA_Z1_AU_7	455.6	27300.00	456.3	0.7	19110	1.3	35490	53.84
8	LA_Z1_AU_8	389.6	7800.00	390.4	0.8	6240	1.5	11700	53.34
<b>TOTAL</b>						<b>184930</b>		<b>289410</b>	<b>63.89</b>



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## 12.4 Jharkhand State Sand Mining Policy 2017:

### • Categorization of Streams/Rivers:

- Identification of the sand available in different order of streams such as 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> order or more shall be carried out by the District Survey Committee based on its size and capacity.
- Based on District Survey Report the Survey Committee shall categorize the sand in 1<sup>st</sup> order and 2<sup>nd</sup> order stream/river as Category-1 and 3<sup>rd</sup> order and above as Category-2.
- However, based on recommendation of District Survey Committee and depending upon local conditions/requirements, the State may review and change the positioning of a particular order of stream/river into a particular category of Category-1 or Category-2.

### • Management of Sand Deposits of Category-1 Streams/Rivers:

- The sand deposits of Category-1 stream/river will be kept fully free from domain of grant of mining lease.
- The sand from this category can be used only for non-commercial purposes such as domestic purpose, Community purposes, Government sponsored Schemes etc. or as defined in Appendix-IX of Part-II-Section-3-Sub Section-(ii) of Extraordinary Gazette of MoEF & CC, Government of India, New Delhi dated 15<sup>th</sup> January 2016.
- Gram Panchayat/Local Self Government shall be responsible for supervision of sand collection from such area.
- There shall be no transfer or subletting of the sand deposits from these Streams/Rivers.
- The sand from these Streams/Rivers shall be free from any taxes, royalty or levy.
- For the purpose of maintenance of the approach road, management, supervision etc. a nominal Maintenance Charge shall be levied by Gram Panchayat/Local Self Government per unit volume of sand lifted/collected/dispatched, as per the rate decided by Department of Industries, Mines and Geology, Government of Jharkhand.
- It shall be responsibility of Gram Panchayat/Local Self Government to ensure that sand from these deposits is not used for any commercial purposes and to regulate the same, a receipt-cum dispatch challan will be issued by the Gram Panchayat/Local Self Government in the format as prescribed by the State.
- The maintenance charge so collected shall be deposited in the account of Gram Panchayat/Local Self Government.
- The book keeping of this account shall be maintained by Gram Panchayat/Local Self Government according to prevailing rules and guidelines of Gram Panchayat/Local Self Government.
- Under no circumstances the sand shall be allowed to be stored from these Streams/Rivers.

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- k. As mentioned in para 7-(i) - (B) of Part-II-Section-3-Sub Section-(ii) of Extraordinary Gazette of MoEF & CC, Government of India, New Delhi dated 15<sup>th</sup> January, 2016 such usage of sand shall be exempted from environmental clearance.
- l. This shall be the responsibility of the Gram Panchayat/Local Self-Government to restrict sand mining in prohibited areas as directed by the Department.
- m. Under no circumstances mechanized lifting of sand shall be allowed from these category of streams/rivers.
- n. The Deputy Commissioner shall put in place proper administrative/enforcement mechanism to ensure no commercial/illegal extraction of sand from these orders of streams/rivers.
- **Management of Sand Deposits of Category-2 Streams/Rivers: -**
- a. The Sand deposits of Category-2 shall be managed by State Government through Jharkhand State Mineral Development Corporation Limited (JSMDC).
- b. All the sand deposits in Category-2 shall be allocated to JSMDC for a minimum period of 5 years or more as decided by the Government.
- c. Sand shall be sold by the JSMDC on commercial basis.
- d. The sale price of sand shall be decided by JSMDC in consultation with the Government.
- e. JSMDC shall obtain all clearances such as Environmental Clearance, Mining Plan or any other statutory requirements for sand mining, storage and sale.
- f. JSMDC shall ensure compliance of all applicable rules, regulations, guidelines, directives of honourable courts etc.
- g. JSMDC shall ensure that no Sand mining is carried out in any such zone or depth as prohibited under MoEF&CC Guidelines.
- h. JSMDC shall adopt scientific and sustainable mining practices and shall ensure a transparent, fair and effective delivery system.
- i. JSMDC shall adopt appropriate technology such as RFID/GPS tracking of vehicles, CCTV surveillance, central monitoring, cashless online sale etc. to prevent illegal mining and transportation of sand.
- j. State shall reimburse the entire expenditure incurred by JSMDC for operation and maintenance of sand ghats and also pay suitable agency commission as fixed by the Government.

The Government may review the Sand Mining Policy in future as and when required and issue Guidelines or Amendments accordingly.



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Sand deposit zones has been identified through field survey and study of satellite imageries over the entire stretch of the river within the district. After physical verification of those deposition zones, only sand potential areas are considered for Sand Ghats. After leaving safe distance from all physical structures, forest, habitation etc. as per statute, limiting coordinates of each Sand Ghat has been fixed.

In order to reduce the cluster formation, size of a Sand Ghat has been kept as large as possible, covering the entire sand bar inside single Sand Ghat after leaving statutory distances.

Approximately all the Sand Ghats which are located on 1<sup>st</sup> and 2<sup>nd</sup> order of stream, are considered as *Category-1* Sand Ghats. Apart from this, all such Sand Ghats, which don't comply with the statutory norms in terms of distance from habitation and forest to obtain Environment Clearance for commercial mining are also considered as *Category-1* Sand Ghats, which shall be consumed by local villagers for their domestic use. All other identified Sand Ghats are considered as *Category-2* Sand Ghats, proposed for commercial mining.

**2.5 Details of Sand Ghats – Category 1:**

Sl. No.	Name of Sand Ghat	River	Circle/Block	Mouza	Khata No.	Plot No.	Area (in Acres)
1	Dumaro-Chandwa	Damodar	Chandwa	Dumaro		1398, 1023	3.48
2	Aan Sand Ghat	Auranga	Chandwa	Aan	200	563(P)	2.22
3	Chandwa Sand Ghat	Damodar	Chandwa	Chandwa	608	2326(P)	6.17
4	Chandwa Sand Ghat	Damodar	Chandwa	Chandwa	608	2076(P)	4.32
5	Chandwa Sand Ghat	Damodar	Chandwa	Chandwa	42	356(P)	1.90
6	Devnadiya Sand Ghat	Damodar	Chandwa	Devnadiya	44	64	16.22
7	Kita Sand Ghat	Subarnarekha	Chandwa	Kita	97	367	3.65
8	Kita Sand Ghat	Subarnarekha	Chandwa	Kita	97	467	2.27
9	Malhan Sand Ghat	Damodar	Chandwa	Malhan	276	286	17.90
10	Kita Sand Ghat	Subarnarekha	Chandwa	Kita	97	919	2.57
11	Balbal Sand Ghat	Damodar	Balumath	Balbal	56	157	1.70
12	Marang Loia Sand Ghat	Damodar	Balumath	Marang Loia	136	374(P)	1.75
	Siram Sand Ghat	Damodar	Balumath	Siram	124	1399(P) & 1470(P)	30.02

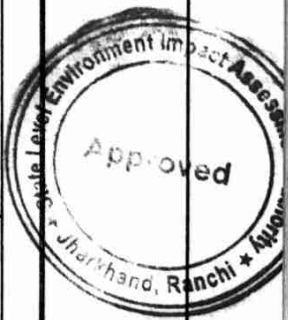
Approved  
State Level Environment  
Department  
Jharkhand, Ranchi

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14	Keri Sand Ghat	Damodar	Balumath	Keri	222	1928(P) & 1972(P)	13.18
15	Rud Sand Ghat	North Koel	Garu	Rud	76	893(P)	2.59
16	Samodh Tola Sand Ghat	North Koel	Garu	Samodh Tola	26	1(P)	6.24
17	Kachanpur Sand Ghat	North Koel	Barwadih	Kachanpur	44	1(P)	4.17
18	Pokhri Khurd Sand Ghat	Auranga	Barwadih	Pokhri Khurd	130	927(P) & 928(P)	8.40
19	Chencha Sand Ghat	North Koel	Barwadih	Chencha	252	1	10.00
20	Karkatiya Tola Chencha Sand Ghat	North Koel	Barwadih	Karkatiya Tola Chencha	252	1134	10.00
21	Khura Sand Ghat	North Koel	Barwadih	Khura	205	1	10.00
22	Mangara Sand Ghat	Falgu	Barwadih	Mangara	210	1/1501	10
23	Lanka Sand Ghat	Kangsabati	Barwadih	Lanka	63	1	5
24	Chungru Sand Ghat	Auranga	Barwadih	Chungru	254	87	5
25	Ker(Bhurikhar) Sand Ghat	Kharkai	Barwadih	Ker(Bhurikhar)	208	2023	10.00
26	Semarbudhani Sand Ghat	North Koel	Mabuadani	Semarbudhani	130	1976 & 1890(P)	5.68
27	Akshi Sand Ghat	North Koel	Mabuadani	Akshi	161	976(P)	12.24
28	Lodh Sand Ghat	North Koel	Mabuadani	Lodh	161	964	1.80
29	Sarnadiha Sand Ghat	North Koel	Mabuadani	Sarnadiha	208	1692	1.94
30	Semarbudhani Sand Ghat	North Koel	Mabuadani	Semarbudhani	130	221(P)	7.24
31	Kope Sand Ghat	Auranga	Manika	Kope	107	922 (P)	2.71
32	Rankikala Sand Ghat	Auranga	Manika	Rankikala	136	761(P) & 846(P)	26.59
33	Dundu Sand Ghat	Auranga	Manika	Dundu	322	360(P)	2.22
34	Dundu Sand Ghat	Auranga	Manika	Dundu	322	1408(P)	1.98
35	Dundu Sand Ghat	Auranga	Manika	Dundu	322	361	6.20
36	Kope Sand Ghat	Auranga	Manika	Kope	69	813(P)	9.53
37	Jamuna Sand Ghat	Auranga	Manika	Jamuna	25	263(P)	2.22

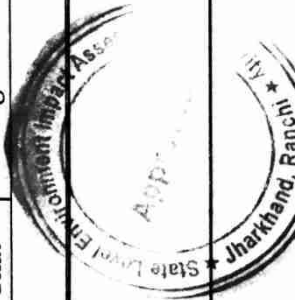


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38	Jamuna Sand Ghat	Auranga	Manika	Jamuna	25	260(P)	6.48
39	Jamuna Sand Ghat	Auranga	Manika	Jamuna	89	577	16.25
40	Jamuna Sand Ghat	Auranga	Manika	Jamuna	89	576	47.50
41	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	416(P)	6.22
42	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	416(P)	30.20
43	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	442	9.98
44	Devbar Sand Ghat	Auranga	Manika	Devbar	52	199(P)	6.33
45	Rankikala Sand Ghat	North Koel	Manika	Rankikala	233	2239	12.25
46	Dashdiha Sand Ghat	Ushree	Manika	Dash Dih	63	135(P)	1.48
47	Oochuwabal_Lanka Sand Ghat	Auranga	Manika	Lanka	136	851	0.25
48	Bhatko Sand Ghat	Auranga	Manika	Bhatko		813	10.13
49	Dundu_Deobar Sand Ghat	Auranga	Manika	Dundu		456 & 361	2.96
				Deobar		361	
50	Dundu Sand Ghat	Auranga	Manika	Dundu	322	360	2.22
51	Dundu Sand Ghat	Auranga	Manika	Dundu	322	361	6.20
52	Jamuna Sand Ghat	Auranga	Manika	Jamuna	25	236	2.22
53	Jamuna Sand Ghat	Auranga	Manika	Jamuna	89	576	47.5
54	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	441	9.98
55	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	416(P)	30.20
56	Dasdiha Sand Ghat	Ushree	Manika	Dasdiha	63	135	1.48
57	Devbar Sand Ghat	Auranga	Manika	Devbar	52	199	6.33
58	Rankikala Sand Ghat	Auranga	Manika	Rankikala	233	2540	13.40
59	Rankikala Sand Ghat	Auranga	Manika	Rankikala	233	1	8.42
60	Jeruwa Sand Ghat	North Koel	Manika	Jeruwa	148	822	20.00
61	Udaipura Jalim Khurd Sand Ghat	Auranga	Latehar	Udaipura Jalim Khurd	108	569(P)	6.74
62	Udaipura Jalim Khurd Sand Ghat	Auranga	Latehar	Udaipura Jalim Khurd	108	1369(P)	2.00



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		Auranga	Latehar	Goa Jalim Khurd	128	1389, 1391, 1392, 1393, 1394, 1398 & 1609	29.20
63	Goa Jalim Khurd Sand Ghat		Latehar	Goa Jalim Khurd			
64	Jalim Khurd Sand Ghat	Auranga	Latehar	Jalim Khurd	222	100(P)	19.40
65	Dumariyatand Sand Ghat	Auranga	Latehar	Dumariyatand	29	1 & 318	39.32
66	Hotbag Sand Ghat	Auranga	Latehar	Hotbag	89	1398	20.50
67	Hotbag Sand Ghat	Auranga	Latehar	Hotbag	89	1020(P)	6.20
68	Parsahi Sand Ghat	Auranga	Latehar	Parsahi	104	1736	19.75
69	Bhusur Sand Ghat	Damodar	Latehar	Bhusur	111	420	2.47
70	Durua Sand Ghat	Auranga	Latehar	Durua	42	134	5.60
71	Bathet Sand Ghat	Auranga	Bariyatu	Bathet	78	1400	2.37
72	Gargoma Sand Ghat	Auranga	Bariyatu	Gargoma	82	408	15.70
73	Bariyatu Sand Ghat	Subarnarekha	Bariyatu	Bariyatu	381	2	12.80
74	Hur Sand Ghat	Auranga	Herhanj	Hur	119	1343(P)	3.60
75	Herhanj Sand Ghat	Auranga	Herhanj	Herhanj	119	1104(P)	8.35
76	Katang Sand Ghat	Auranga	Herhanj	Katang	99	998/1306	9.35
77	Herhanj Sand Ghat	Auranga	Herhanj	Herhanj	38	1306	7.14
					46	1207	



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12.6 Details of Sand Ghats – Category 2:

Sl. No.	Name of Sand Ghat	Zone	River	Block Code	Mouza	Circle	Khata No.	Plot No.	Thana No.	Area (in Ha.)	Label	Latitude	Longitude
1	Tubed Sand Ghat	Zone 8	Sukri	LA_Z8_SU_1	Tubed	Latehar	102	1409	333	0.8		23° 48' 46.130" N 23° 48' 47.110" N 23° 48' 47.653" N 23° 48' 47.784" N 23° 48' 46.254" N 23° 48' 45.566" N 23° 48' 44.914" N 23° 48' 44.429" N 23° 48' 43.955" N 23° 48' 43.435" N 23° 48' 43.029" N 23° 48' 42.484" N 23° 48' 42.425" N 23° 48' 42.847" N 23° 48' 43.968" N 23° 48' 44.965" N 23° 44' 21.017" N 23° 44' 19.495" N 23° 44' 17.999" N 23° 44' 16.526" N 23° 44' 14.133" N 23° 44' 11.381" N 23° 44' 09.434" N 23° 44' 07.932" N 23° 44' 06.294" N	84° 34' 39.860" E 84° 34' 39.358" E 84° 34' 40.139" E 84° 34' 41.000" E 84° 34' 40.938" E 84° 34' 41.599" E 84° 34' 41.959" E 84° 34' 42.424" E 84° 34' 43.026" E 84° 34' 43.674" E 84° 34' 43.965" E 84° 34' 43.795" E 84° 34' 43.197" E 84° 34' 42.204" E 84° 34' 41.322" E 84° 34' 40.333" E 84° 27' 53.895" E 84° 27' 52.421" E 84° 27' 51.593" E 84° 27' 51.025" E 84° 27' 52.066" E 84° 27' 51.245" E 84° 27' 50.461" E 84° 27' 48.077" E 84° 27' 46.653" E
2	Dudwa Sand Ghat	Zone 1	Auranga	LA_Z1_AU_2	Dudwa	Latehar	42	134	187	8.49			



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J	23° 44' 05.690" N	84° 27' 45.258" E
K	23° 44' 07.460" N	84° 27' 43.555" E
L	23° 44' 09.369" N	84° 27' 45.405" E
M	23° 44' 11.896" N	84° 27' 48.275" E
N	23° 44' 15.329" N	84° 27' 49.960" E
O	23° 44' 18.877" N	84° 27' 50.635" E
P	23° 44' 20.320" N	84° 27' 51.013" E
Q	23° 44' 22.261" N	84° 27' 53.447" E
R	23° 44' 23.024" N	84° 27' 55.392" E
S	23° 44' 23.316" N	84° 27' 57.145" E
T	23° 44' 23.867" N	84° 28' 00.247" E
U	23° 44' 23.867" N	84° 28' 00.300" E
V	23° 44' 23.990" N	84° 28' 02.902" E
W	23° 44' 23.531" N	84° 28' 05.671" E
X	23° 44' 22.496" N	84° 28' 08.029" E
Y	23° 44' 22.799" N	84° 28' 10.338" E
Z	23° 44' 21.944" N	84° 28' 12.339" E
A1	23° 44' 20.967" N	84° 28' 14.269" E
B1	23° 44' 19.426" N	84° 28' 15.716" E
C1	23° 44' 18.079" N	84° 28' 17.695" E
D1	23° 44' 16.870" N	84° 28' 19.800" E
E1	23° 44' 16.067" N	84° 28' 21.440" E
F1	23° 44' 14.895" N	84° 28' 23.202" E
G1	23° 44' 14.261" N	84° 28' 25.280" E
H1	23° 44' 14.351" N	84° 28' 28.607" E
I1	23° 44' 12.664" N	84° 28' 28.161" E
J1	23° 44' 12.732" N	84° 28' 24.595" E
K1	23° 44' 13.385" N	84° 28' 21.888" E



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L1	23° 44' 15.399" N	84° 28' 18.565" E
M1	23° 44' 16.878" N	84° 28' 16.616" E
N1	23° 44' 18.817" N	84° 28' 14.448" E
O1	23° 44' 20.467" N	84° 28' 12.719" E
P1	23° 44' 21.203" N	84° 28' 11.334" E
Q1	23° 44' 21.376" N	84° 28' 08.042" E
R1	23° 44' 22.278" N	84° 28' 04.545" E
S1	23° 44' 22.605" N	84° 28' 00.671" E
T1	23° 44' 22.051" N	84° 27' 57.178" E
A	23° 43' 59.590" N	84° 28' 52.277" E
B	23° 43' 59.115" N	84° 28' 58.010" E
C	23° 44' 00.304" N	84° 29' 01.757" E
D	23° 44' 02.071" N	84° 29' 04.584" E
E	23° 44' 01.418" N	84° 29' 06.222" E
F	23° 43' 59.469" N	84° 29' 04.039" E
G	23° 43' 58.074" N	84° 29' 01.127" E
H	23° 43' 57.391" N	84° 28' 59.548" E
I	23° 43' 57.426" N	84° 28' 56.982" E
J	23° 43' 57.759" N	84° 28' 54.025" E
K	23° 43' 58.123" N	84° 28' 52.467" E
A	23° 44' 06.124" N	84° 29' 07.880" E
B	23° 44' 14.165" N	84° 29' 14.075" E
C	23° 44' 13.063" N	84° 29' 15.321" E
D	23° 44' 08.719" N	84° 29' 12.184" E
E	23° 44' 05.512" N	84° 29' 10.250" E
F	23° 44' 03.451" N	84° 29' 08.510" E
G	23° 44' 01.855" N	84° 29' 06.901" E
H	23° 44' 02.993" N	84° 29' 05.374" E

3	Bajkum Sand Ghat	Zone 1	Auranga	LA_Z1_AU_3	Bajkum	Latehar	99	9/183	227	2-39
4	Rajhar Sand Ghat	Zone 1	Auranga	LA_Z1_AU_4	Rajhar	Latehar	41	265	186	2-4

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I	23° 44' 03.863" N	84° 29' 06.099" E																		
A	23° 40' 34.826" N	84° 50' 23.190" E																		
B	23° 40' 33.734" N	84° 50' 21.110" E																		
C	23° 40' 34.299" N	84° 50' 20.339" E																		
D	23° 40' 36.210" N	84° 50' 23.336" E																		
E	23° 40' 37.175" N	84° 50' 24.768" E																		
F	23° 40' 37.943" N	84° 50' 26.306" E																		
G	23° 40' 38.687" N	84° 50' 27.587" E																		
H	23° 40' 39.571" N	84° 50' 29.067" E																		
I	23° 40' 41.047" N	84° 50' 32.125" E																		
J	23° 40' 41.320" N	84° 50' 33.311" E																		
K	23° 40' 41.618" N	84° 50' 34.778" E																		
L	23° 40' 41.586" N	84° 50' 35.580" E																		
M	23° 40' 41.813" N	84° 50' 36.861" E																		
N	23° 40' 42.292" N	84° 50' 39.289" E																		
O	23° 40' 40.962" N	84° 50' 38.784" E																		
P	23° 40' 40.015" N	84° 50' 32.900" E																		
Q	23° 40' 36.554" N	84° 50' 26.210" E																		
A	23° 40' 41.167" N	84° 50' 42.149" E																		
B	23° 40' 41.567" N	84° 50' 43.981" E																		
C	23° 40' 40.980" N	84° 50' 44.312" E																		
D	23° 40' 40.527" N	84° 50' 43.476" E																		
E	23° 40' 40.122" N	84° 50' 42.406" E																		
A	23° 44' 06.582" N	84° 29' 45.597" E																		
B	23° 44' 11.013" N	84° 29' 39.033" E																		
C	23° 44' 12.688" N	84° 29' 36.524" E																		
D	23° 44' 13.577" N	84° 29' 37.601" E																		
E	23° 44' 09.326" N	84° 29' 45.289" E																		

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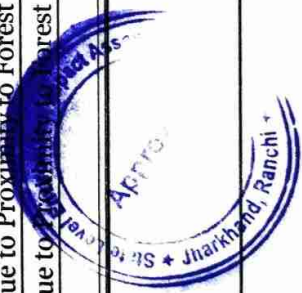
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Sl. No.	Zone No.	Zone Boundary Coordinates	Reference Point Coordinates	No. of Sand Ghats Within Zone & Total Area
1	Zone - 1	84°27'25.003"E, 23°44'9.563"N to 84°30'23.389"E, 23°44'2.939"N	84°30'35.08"E, 23°43'53.94"N	5 Nos., Total 16.79 Ha.
2	Zone - 2	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
3	Zone - 3	84°50'15.219"E, 23°40'30.501"N to 84°52'21.788"E, 23°40'32.08"N	84°50'17.16"E, 23°40'25.29"N	2 Nos. Total 2.25 Ha.
4	Zone - 4	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
5	Zone - 5	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
6	Zone - 6	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
7	Zone - 7	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
8	Zone - 8	84°34'38.929"E, 23°48'47.508"N to 84°35'47.428"E, 23°48'14.177"N	84°34'31.69"E, 23°48'54.58"N	1 No., Total 0.8 Ha.
9	Zone - 9	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
10	Zone - 10	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
11	Zone - 11	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
12	Zone - 12	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
13	Zone - 13	Eco-Sensitive Zone		

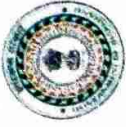
12.7 Details of Sand Deposit Zones:

Table No. - 12.7: Details of Sand Deposit Zones in Latehar District of Jharkhand State.

Sl. No.	Zone No.	Zone Boundary Coordinates	Reference Point Coordinates	No. of Sand Ghats Within Zone & Total Area
1	Zone - 1	84°27'25.003"E, 23°44'9.563"N to 84°30'23.389"E, 23°44'2.939"N	84°30'35.08"E, 23°43'53.94"N	5 Nos., Total 16.79 Ha.
2	Zone - 2	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
3	Zone - 3	84°50'15.219"E, 23°40'30.501"N to 84°52'21.788"E, 23°40'32.08"N	84°50'17.16"E, 23°40'25.29"N	2 Nos. Total 2.25 Ha.
4	Zone - 4	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
5	Zone - 5	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
6	Zone - 6	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
7	Zone - 7	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
8	Zone - 8	84°34'38.929"E, 23°48'47.508"N to 84°35'47.428"E, 23°48'14.177"N	84°34'31.69"E, 23°48'54.58"N	1 No., Total 0.8 Ha.
9	Zone - 9	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
10	Zone - 10	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
11	Zone - 11	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
12	Zone - 12	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
13	Zone - 13	Eco-Sensitive Zone		



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14	Zone - 14	Eco-Sensitive Zone	
15	Zone - 15	Eco-Sensitive Zone	
16	Zone - 16	Eco-Sensitive Zone	
17	Zone - 17	Eco-Sensitive Zone	
18	Zone - 18	Eco-Sensitive Zone	
19	Zone - 19	Identified as Category 1 due to Proximity to Forest Land (<250 m)	
20	Zone - 20	Identified as Category 1 due to Proximity to Forest Land (<250 m)	
21	Zone - 21	Identified as Category 1 due to Proximity to Forest Land (<250 m)	

### 12.8 Distance from Bridges & NH/SH for each Sand Ghat:

Table No. - 12.8: Distance from Bridges & NH/SH for each Sand Ghat in Latehar District of Jharkhand State.

Sl. No.	Sand Ghat Code	Aerial Distance from Nearest Bridge	Name of Bridge	Whether on NH or SH
1	LA_Z8_SU_1	< 500 m	Tubed Bridge	No
2	LA_Z1_AU_2	>500 m	Railway Station Bridge	No
3	LA_Z1_AU_3	< 500 m	Railway Station Bridge	No
4	LA_Z1_AU_4	>500	Auranga Bridge	No
5	LA_Z3_DAM_5	>1 Km	Deonadia Bridge	No
6	LA_Z3_DAM_6	>1 Km	Deonadia Bridge	No
7	LA_Z1_AU_7	< 500 m	Auranga Bridge	No
8	LA_Z1_AU_8	< 500 m	Auranga Shiv Mandir Bridge	No

Approved  
State Level  
Jharkhand, Ranchi

### 12.9 Replenishment Study of Sand Deposits (Category 2): [Verified & Approved]

REPLENISHMENT OF SAND ASSESSED BY "AFTER THE MONSOON" SURVEY (THIRD) CARRIED OUT DURING NOVEMBER 2022

Sl. No.	Sand Deposit Code	Pre-Monsoon [March - May 2022]				Post-Monsoon [October - December 2022]				Rate of Replenishment in %
		Surface RL	Surface Area	Surface RL	Thickness Replenished	Volume Replenished	Depth of Sand Deposit	Volume of Sand Deposit		
1	LA_Z8_SU_1	in m 362.0	in m <sup>2</sup> 800.00	in m 362.9	in m 0.9	in m <sup>3</sup> 720	in m 1.5	in m <sup>3</sup> 1200	60.00	



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2	LA_Z1_AU_2	367.3	84900.00	368.4	1.1	93390	1.6	135840	68.75
3	LA_Z1_AU_3	364.2	23900.00	365.0	0.8	19120	1.2	28680	66.67
4	LA_Z1_AU_4	369.3	24000.00	370.2	0.9	21600	1.5	36000	60.00
5	LA_Z3_DAM_5	372.8	21000.00	373.9	1.1	23100	1.8	37800	61.12
6	LA_Z3_DAM_6	456.1	1500.00	457.2	1.1	1650	1.8	2700	61.12
7	LA_Z1_AU_7	455.6	27300.00	456.3	0.7	19110	1.3	35490	53.84
8	LA_Z1_AU_8	389.6	7800.00	390.4	0.8	6240	1.5	11700	53.34
<b>TOTAL</b>							<b>184930</b>	<b>289410</b>	<b>63.89</b>

**Note:**

To estimate the replenishment of sand, the pre-monsoon (First & Second Survey) data has been assessed through study of satellite imageries and data provided by District Mining Office to establish the initial level of mining lease before the monsoon.

Keeping in view the 'Generic Structure of Replenishment Study' (as per EMGSM 2020); Third Survey after the monsoon has been carried out to estimate the quantum of material deposited/replenished in the mining lease.

The Fourth Survey shall be carry out at the end of March in coming year to know the quantity of material excavated during the financial year.

The results of year-wise surveys help the State Government to establish the replenishment rate of the river. Based on the replenishment rate future auction may be planned.



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## 12.4 Jharkhand State Sand Mining Policy 2017:

### ▪ Categorization of Streams/Rivers:

- a. Identification of the sand available in different order of streams such as 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> order or more shall be carried out by the District Survey Committee based on its size and capacity.
- b. Based on District Survey Report the Survey Committee shall categorize the sand in 1<sup>st</sup> order and 2<sup>nd</sup> order stream/river as Category-1 and 3<sup>rd</sup> order and above as Category-2.
- c. However, based on recommendation of District Survey Committee and depending upon local conditions/requirements, the State may review and change the positioning of a particular order of stream/river into a particular category of Category-1 or Category-2.

### ▪ Management of Sand Deposits of Category-1 Streams/Rivers:

- a. The sand deposits of Category-1 stream/rivers will be kept fully free from domain of grant of mining lease.
- b. The sand from this category can be used only for non-commercial purposes such as domestic purpose, Community purposes, Government Sponsored Schemes etc. or as defined in Appendix-IX of Part-II-Section-3-Sub Section-(ii) of Extraordinary Gazette of MoEF & CC, Government of India New Delhi dated 15<sup>th</sup> January 2016.
- c. Gram Panchayat/Local Self Government shall be responsible for supervision of sand collection from such area.
- d. There shall be no transfer or subletting of the sand deposits from these Streams/Rivers.
- e. The sand from these Streams/Rivers shall be free from any taxes, royalty or levy.
- f. For the purpose of maintenance of the approach road, management, supervision etc. a nominal Maintenance Charge shall be levied by Gram Panchayat/Local Self Government per unit volume of sand lifted/collected/dispatched, as per the rate decided by Department of Industries, Mines and Geology, Government of Jharkhand.
- g. It shall be responsibility of Gram Panchayat/Local Self Government to ensure that sand from these deposits is not used for any commercial purposes and to regulate the same, a receipt-cum dispatch challan will be issued by the Gram Panchayat/Local Self Government in the format as prescribed by the State.

The maintenance charge so collected shall be deposited in the account of Gram Panchayat/Local Self Government.

The book keeping of this account shall be maintained by Gram Panchayat/Local Self Government according to prevailing rules and guidelines of the Gram Panchayat/Local Self Government.

Under no circumstances the sand shall be allowed to be stored from these Streams/Rivers.

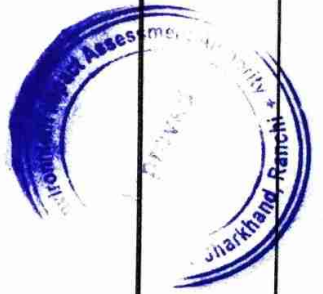
Approved  
District Survey Committee  
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- k. As mentioned in para 7-(i) - (B) of Part-II-Section-3-Sub Section-(ii) of Extraordinary Gazette of MoEF & CC, Government of India, New Delhi dated 15<sup>th</sup> January, 2016 such usage of sand shall be exempted from environmental clearance.
- l. This shall be the responsibility of the Gram Panchayat/Local Self-Government to restrict sand mining in prohibited areas as directed by the Department.
- m. Under no circumstances mechanized lifting of sand shall be allowed from these category of streams/rivers.
- n. The Deputy Commissioner shall put in place proper administrative/enforcement mechanism to ensure no commercial/illegal extraction of sand from these orders of streams/rivers.
- **Management of Sand Deposits of Category-2 Streams/Rivers: -**
- a. The Sand deposits of Category-2 shall be managed by State Government through Jharkhand State Mineral Development Corporation Limited (JSMDC).
- b. All the sand deposits in Category-2 shall be allocated to JSMDC for a minimum period of 5 years or more as decided by the Government.
- c. Sand shall be sold by the JSMDC on commercial basis.
- d. The sale price of sand shall be decided by JSMDC in consultation with the Government.
- e. JSMDC shall obtain all clearances such as Environmental Clearance, Mining Plan or any other statutory requirements for sand mining, storage and sale.
- f. JSMDC shall ensure compliance of all applicable rules, regulations, guidelines, directives of honourable courts etc.
- g. JSMDC shall ensure that no Sand mining is carried out in any such zone or depth as prohibited under MoEF&CC Guidelines.
- h. JSMDC shall adopt scientific and sustainable mining practices and shall ensure a transparent, fair and effective delivery system.
- i. JSMDC shall adopt appropriate technology such as RFID/GPS tracking of vehicles, CCTV surveillance, central monitoring, cashless online sale etc. to prevent illegal mining and transportation of sand.
- j. State shall reimburse the entire expenditure incurred by JSMDC for operation and maintenance of sand ghats and also pay suitable agency commission as fixed by the Government.
- The Government may review the Sand Mining Policy in future as and when required and issue Guidelines or Amendments accordingly.



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Sand deposit zones has been identified through field survey and study of satellite imageries over the entire stretch of the river within the district. After physical verification of those deposition zones, only sand potential areas are considered for Sand Ghats. After leaving safe distance from all physical structures, forest, habitation etc. as per statute, limiting coordinates of each Sand Ghat has been fixed.

In order to reduce the cluster formation, size of a Sand Ghat has been kept as large as possible, covering the entire sand bar inside single Sand Ghat after leaving statutory distances.

Apparently all the Sand Ghats which are located on 1<sup>st</sup> and 2<sup>nd</sup> order of stream, are considered as *Category-1* Sand Ghats. Apart from this, all such Sand Ghats, which don't comply with the statutory norms in terms of distance from habitation and forest to obtain Environment Clearance for commercial mining are also considered as *Category-1* Sand Ghats, which shall be consumed by local villagers for their domestic use. All other identified Sand Ghats are considered as *Category-2* Sand Ghats, proposed for commercial mining.

**12.5 Details of Sand Ghats – Category 1:**

Sl. No.	Name of Sand Ghat	River	Circle/Block	Mouza	Khata No.	Plot No.	Area (in Acres)
1	Dumaro-Chandwa	Damodar	Chandwa	Dumaro		1398, 1023	3.48
2	Aan Sand Ghat	Auranga	Chandwa	Aan	200	563(P)	2.22
3	Chandwa Sand Ghat	Damodar	Chandwa	Chandwa	608	2326(P)	6.17
4	Chandwa Sand Ghat	Damodar	Chandwa	Chandwa	608	2076(P)	4.32
5	Chandwa Sand Ghat	Damodar	Chandwa	Chandwa	42	356(P)	1.90
6	Devnadiya Sand Ghat	Damodar	Chandwa	Devnadiya	44	64	16.22
7	Kita Sand Ghat	Subarnarekha	Chandwa	Kita	97	367	3.65
8	Kita Sand Ghat	Subarnarekha	Chandwa	Kita	97	467	2.27
9	Malhan Sand Ghat	Damodar	Chandwa	Malhan	276	286	17.90
10	Kita Sand Ghat	Subarnarekha	Chandwa	Kita	97	919	2.57
11	Balbal Sand Ghat	Damodar	Balumath	Balbal	56	157	1.70
12	Marang Loia Sand Ghat	Damodar	Balumath	Marang Loia	136	374(P)	1.75
13	Siram Sand Ghat	Damodar	Balumath	Siram	124	1399(P) & 1470(P)	30.02

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	Keri Sand Ghat	Damodar	Balumath	Keri	222	1928(P) & 1972(P)	13.18
14	Keri Sand Ghat	North Koel	Garu	Rud	76	893(P)	2.59
15	Rud Sand Ghat	North Koel	Garu	Samodh Tola	26	1(P)	6.24
16	Samodh Tola Sand Ghat	North Koel	Barwadih	Kachanpur	44	1(P)	4.17
17	Kachanpur Sand Ghat	Auranga	Barwadih	Pokhri Khurd	130	927(P) & 928(P)	8.40
18	Pokhri Khurd Sand Ghat	North Koel	Barwadih	Chencha	252	1	10.00
19	Chencha Sand Ghat	North Koel	Barwadih	Karkatiya Tola Chencha	252	1134	10.00
20	Karkatiya Tola Chencha Sand Ghat	North Koel	Barwadih	Khura	205	1	10.00
21	Khura Sand Ghat	North Koel	Barwadih	Mangara	210	1/1501	10
22	Mangara Sand Ghat	Falgu	Barwadih	Lanka	63	1	5
23	Lanka Sand Ghat	Kangsabati	Barwadih	Chungru	254	87	5
24	Chungru Sand Ghat	Auranga	Barwadih	Ker(Bhurikhar)	208	2023	10.00
25	Ker(Bhurikhar) Sand Ghat	Kharkai	Barwadih	Semarbudhani	130	1978 & 1830(P)	5.68
26	Semarbudhani Sand Ghat	North Koel	Mahuadanr	Akshi	161	976(P)	12.24
27	Akshi Sand Ghat	North Koel	Mahuadanr	Lodh	161	964	1.80
28	Lodh Sand Ghat	North Koel	Mahuadanr	Sarnadiha	208	1692	1.34
29	Sarnadiha Sand Ghat	North Koel	Mahuadanr	Semarbudhani	130	221(P)	7.24
30	Semarbudhani Sand Ghat	North Koel	Mahuadanr	Kope	107	922 (P)	2.71
31	Kope Sand Ghat	Auranga	Manika	Rankikala	136	761(P) & 846(P)	26.59
32	Rankikala Sand Ghat	Auranga	Manika	Dundu	322	360(P)	2.22
33	Dundu Sand Ghat	Auranga	Manika	Dundu	322	1408(P)	1.98
34	Dundu Sand Ghat	Auranga	Manika	Dundu	322	361	6.20
35	Dundu Sand Ghat	Auranga	Manika	Kope	69	813(P)	9.53
36	Kope Sand Ghat	Auranga	Manika	Jamuna	25	263(P)	2.22
37	Jamuna Sand Ghat	Auranga	Manika				



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38	Jamuna Sand Ghat	Auranga	Manika	Jamuna	25	260(P)	6.48
39	Jamuna Sand Ghat	Auranga	Manika	Jamuna	89	577	16.25
40	Jamuna Sand Ghat	Auranga	Manika	Jamuna	89	576	47.50
41	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	416(P)	6.22
42	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	416(P)	30.20
43	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	442	9.98
44	Devbar Sand Ghat	Auranga	Manika	Devbar	52	199(P)	6.33
45	Rankikala Sand Ghat	North Koel	Manika	Rankikala	233	2239	12.25
46	Dasdiha Sand Ghat	Ushree	Manika	Dash Dih	63	135(P)	1.48
47	Oochuwabal_Lanka Sand Ghat	Auranga	Manika	Lanka	136	851	0.25
48	Bhatko Sand Ghat	Auranga	Manika	Bhatko		813	10.13
49	Dundu_Deobar Sand Ghat	Auranga	Manika	Dundu		456 & 361	2.96
				Deobar		361	
50	Dundu Sand Ghat	Auranga	Manika	Dundu	322	360	2.22
51	Dundu Sand Ghat	Auranga	Manika	Dundu	322	361	6.20
52	Jamuna Sand Ghat	Auranga	Manika	Jamuna	25	236	2.22
53	Jamuna Sand Ghat	Auranga	Manika	Jamuna	89	576	47.5
54	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	441	9.98
55	Nadbelba Sand Ghat	Auranga	Manika	Nadbelba	43	416(P)	30.20
56	Dasdiha Sand Ghat	Ushree	Manika	Dasdiha	63	135	1.48
57	Devbar Sand Ghat	Auranga	Manika	Devbar	52	199	6.33
58	Rankikala Sand Ghat	Auranga	Manika	Rankikala	233	2540	13.40
59	Rankikala Sand Ghat	Auranga	Manika	Rankikala	233	1	8.42
60	Jeruwa Sand Ghat	North Koel	Manika	Jeruwa	148	822	20.00
61	Udaipura Jalim Khurd Sand Ghat	Auranga	Manika	Udaipura Jalim Khurd	108	569(P)	6.74
62	Udaipura Jalim Khurd Sand Ghat	Auranga	Manika	Udaipura Jalim Khurd	108	1369(P)	2.00

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	Goa Jalim Khurd Sand Ghat	Auranga	Latehar	Goa Jalim Khurd	128	1389, 1391, 1392, 1393, 1394, 1398 & 1609	29.20
63	Goa Jalim Khurd Sand Ghat		Latehar				
64	Jalim Khurd Sand Ghat	Auranga	Latehar	Jalim Khurd	222	100(P)	19.40
65	Dumariyatand Sand Ghat	Auranga	Latehar	Dumariyatand	29	1 & 318	39.32
66	Hotbag Sand Ghat	Auranga	Latehar	Hotbag	89	1398	20.50
67	Hotbag Sand Ghat	Auranga	Latehar	Hotbag	89	1020(P)	6.20
68	Parsahi Sand Ghat	Auranga	Latehar	Parsahi	104	1736	19.75
69	Bhusur Sand Ghat	Damodar	Latehar	Bhusur	111	420	2.47
70	Durua Sand Ghat	Auranga	Latehar	Durua	42	134	5.60
71	Bathet Sand Ghat	Auranga	Bariyatu	Bathet	78	1400	2.37
72	Gargoma Sand Ghat	Auranga	Bariyatu	Gargoma	82	408	15.70
73	Bariyatu Sand Ghat	Subarnarekha	Bariyatu	Bariyatu	381	2	12.80
74	Hur Sand Ghat	Auranga	Herhanj	Hur	119	1343(P)	3.60
75	Herhanj Sand Ghat	Auranga	Herhanj	Herhanj	119	1104(P)	8.35
76	Katang Sand Ghat	Auranga	Herhanj	Katang	99	998/1306	9.35
77	Herhanj Sand Ghat	Auranga	Herhanj	Herhanj	38	1306	7.14
					46	1207	

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12.6 Details of Sand Ghats – Category 2:

Sl. No.	Name of Sand Ghat	Zone	River	Block Code	Mouza	Circle	Khata No.	Plot No.	Thana No.	Area (in Ha.)	Label	Latitude	Longitude
1	Tubed Sand Ghat	Zone 8	Sukri	LA_Z8_SU_1	Tubed	Latehar	102	1409	333	0.8		23° 48' 46.130" N 23° 48' 47.110" N 23° 48' 47.653" N 23° 48' 47.784" N 23° 48' 46.254" N 23° 48' 45.566" N 23° 48' 44.914" N 23° 48' 44.429" N 23° 48' 43.955" N 23° 48' 43.435" N 23° 48' 43.029" N 23° 48' 42.484" N 23° 48' 42.425" N 23° 48' 42.847" N 23° 48' 43.968" N 23° 48' 44.965" N 23° 44' 21.017" N 23° 44' 19.495" N 23° 44' 17.999" N 23° 44' 16.526" N 23° 44' 14.133" N 23° 44' 11.381" N 23° 44' 09.434" N 23° 44' 07.932" N 23° 44' 06.294" N	84° 34' 39.860" E 84° 34' 39.358" E 84° 34' 40.139" E 84° 34' 41.000" E 84° 34' 40.938" E 84° 34' 41.599" E 84° 34' 41.959" E 84° 34' 42.424" E 84° 34' 43.026" E 84° 34' 43.674" E 84° 34' 43.965" E 84° 34' 43.795" E 84° 34' 43.197" E 84° 34' 42.204" E 84° 34' 41.322" E 84° 34' 40.333" E 84° 27' 53.895" E 84° 27' 52.421" E 84° 27' 51.593" E 84° 27' 51.025" E 84° 27' 52.066" E 84° 27' 51.245" E 84° 27' 50.461" E 84° 27' 48.077" E 84° 27' 46.653" E
2	Dudwa Sand Ghat	Zone 1	Auranga	LA_Z1_AU_2	Dudwa	Latehar	42	134	187	8.49		23° 48' 46.130" N 23° 48' 47.110" N 23° 48' 47.653" N 23° 48' 47.784" N 23° 48' 46.254" N 23° 48' 45.566" N 23° 48' 44.914" N 23° 48' 44.429" N 23° 48' 43.955" N 23° 48' 43.435" N 23° 48' 43.029" N 23° 48' 42.484" N 23° 48' 42.425" N 23° 48' 42.847" N 23° 48' 43.968" N 23° 48' 44.965" N 23° 44' 21.017" N 23° 44' 19.495" N 23° 44' 17.999" N 23° 44' 16.526" N 23° 44' 14.133" N 23° 44' 11.381" N 23° 44' 09.434" N 23° 44' 07.932" N 23° 44' 06.294" N	84° 34' 39.860" E 84° 34' 39.358" E 84° 34' 40.139" E 84° 34' 41.000" E 84° 34' 40.938" E 84° 34' 41.599" E 84° 34' 41.959" E 84° 34' 42.424" E 84° 34' 43.026" E 84° 34' 43.674" E 84° 34' 43.965" E 84° 34' 43.795" E 84° 34' 43.197" E 84° 34' 42.204" E 84° 34' 41.322" E 84° 34' 40.333" E 84° 27' 53.895" E 84° 27' 52.421" E 84° 27' 51.593" E 84° 27' 51.025" E 84° 27' 52.066" E 84° 27' 51.245" E 84° 27' 50.461" E 84° 27' 48.077" E 84° 27' 46.653" E



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J	23° 44' 05.690" N	84° 27' 45.258" E
K	23° 44' 07.460" N	84° 27' 43.555" E
L	23° 44' 09.369" N	84° 27' 45.405" E
M	23° 44' 11.896" N	84° 27' 48.275" E
N	23° 44' 15.329" N	84° 27' 49.960" E
O	23° 44' 18.877" N	84° 27' 50.635" E
P	23° 44' 20.320" N	84° 27' 51.013" E
Q	23° 44' 22.261" N	84° 27' 53.447" E
R	23° 44' 23.024" N	84° 27' 55.392" E
S	23° 44' 23.316" N	84° 27' 57.145" E
T	23° 44' 23.867" N	84° 28' 00.247" E
U	23° 44' 23.867" N	84° 28' 00.300" E
V	23° 44' 23.990" N	84° 28' 02.902" E
W	23° 44' 23.531" N	84° 28' 05.671" E
X	23° 44' 22.496" N	84° 28' 08.029" E
Y	23° 44' 22.799" N	84° 28' 10.338" E
Z	23° 44' 21.944" N	84° 28' 12.339" E
A1	23° 44' 20.967" N	84° 28' 14.269" E
B1	23° 44' 19.426" N	84° 28' 15.716" E
C1	23° 44' 18.079" N	84° 28' 17.695" E
D1	23° 44' 16.870" N	84° 28' 19.800" E
E1	23° 44' 16.067" N	84° 28' 21.440" E
F1	23° 44' 14.895" N	84° 28' 23.202" E
G1	23° 44' 14.261" N	84° 28' 25.280" E
H1	23° 44' 14.351" N	84° 28' 28.607" E
I1	23° 44' 12.664" N	84° 28' 28.161" E
J1	23° 44' 12.732" N	84° 28' 24.595" E
K1	23° 44' 13.385" N	84° 28' 21.888" E


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3	Bajkum Sand Chat	Zone 1	Auranga	LA_Z1_AU_3	Bajkum	Latehar	99	9/183	227	2.39	L1	23° 44' 15.399" N	84° 28' 18.565" E
											M1	23° 44' 16.878" N	84° 28' 16.616" E
											N1	23° 44' 18.817" N	84° 28' 14.448" E
											O1	23° 44' 20.467" N	84° 28' 12.719" E
											P1	23° 44' 21.203" N	84° 28' 11.334" E
											Q1	23° 44' 21.376" N	84° 28' 08.042" E
											R1	23° 44' 22.278" N	84° 28' 04.545" E
											S1	23° 44' 22.605" N	84° 28' 00.671" E
											T1	23° 44' 22.051" N	84° 27' 57.178" E
											A	23° 43' 59.590" N	84° 28' 52.277" E
											B	23° 43' 59.115" N	84° 28' 58.010" E
											C	23° 44' 00.304" N	84° 29' 01.757" E
											D	23° 44' 02.071" N	84° 29' 04.584" E
E	23° 44' 01.418" N	84° 29' 06.222" E											
F	23° 43' 59.469" N	84° 29' 04.039" E											
G	23° 43' 58.074" N	84° 29' 01.127" E											
H	23° 43' 57.391" N	84° 28' 59.548" E											
I	23° 43' 57.426" N	84° 28' 56.982" E											
J	23° 43' 57.759" N	84° 28' 54.025" E											
K	23° 43' 58.123" N	84° 28' 52.467" E											
4	Rajkum Sand Chat	Zone 1	Auranga	LA_Z1_AU_4	Rajkum	Latehar	41	265	186	2.4	A	23° 44' 06.124" N	84° 29' 07.880" E
											B	23° 44' 14.165" N	84° 29' 14.075" E
											C	23° 44' 13.063" N	84° 29' 15.321" E
											D	23° 44' 08.719" N	84° 29' 12.184" E
											E	23° 44' 05.512" N	84° 29' 10.250" E
											F	23° 44' 03.451" N	84° 29' 08.510" E
											G	23° 44' 01.855" N	84° 29' 06.901" E
											H	23° 44' 02.993" N	84° 29' 05.374" E

  
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Sl. No.	Zone No.	Zone Boundary Coordinates	Reference Point Coordinates	No. of Sand Ghats Within Zone & Total Area
8	Zone - 1	84°27'25.003"E, 23°44'9.563"N to 84°30'23.389"E, 23°44'2.939"N	84°30'35.08"E, 23°43'53.94"N	5 Nos., Total 16.79 Ha.
	Zone - 2	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 3	84°50'15.219"E, 23°40'30.501"N to 84°52'21.788"E, 23°40'32.08"N	84°50'17.16"E, 23°40'25.29"N	2 Nos. Total 2.25 Ha.
	Zone - 4	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 5	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 6	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 7	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 8	84°34'38.929"E, 23°48'47.508"N to 84°35'47.428"E, 23°48'14.177"N	84°34'31.69"E, 23°48'54.58"N	1 No., Total 0.8 Ha.
	Zone - 9	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 10	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 11	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 12	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
	Zone - 13	Eco-Sensitive Zone		

12.7 Details of Sand Deposit Zones:

Table No. - 12.7: Details of Sand Deposit Zones in Latehar District of Jharkhand State.

Sl. No.	Zone No.	Zone Boundary Coordinates	Reference Point Coordinates	No. of Sand Ghats Within Zone & Total Area
1	Zone - 1	84°27'25.003"E, 23°44'9.563"N to 84°30'23.389"E, 23°44'2.939"N	84°30'35.08"E, 23°43'53.94"N	5 Nos., Total 16.79 Ha.
2	Zone - 2	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
3	Zone - 3	84°50'15.219"E, 23°40'30.501"N to 84°52'21.788"E, 23°40'32.08"N	84°50'17.16"E, 23°40'25.29"N	2 Nos. Total 2.25 Ha.
4	Zone - 4	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
5	Zone - 5	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
6	Zone - 6	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
7	Zone - 7	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
8	Zone - 8	84°34'38.929"E, 23°48'47.508"N to 84°35'47.428"E, 23°48'14.177"N	84°34'31.69"E, 23°48'54.58"N	1 No., Total 0.8 Ha.
9	Zone - 9	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
10	Zone - 10	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
11	Zone - 11	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
12	Zone - 12	Identified as Category 1 due to Proximity to Forest Land (<250 m)		
13	Zone - 13	Eco-Sensitive Zone		

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14	Zone - 14	Eco-Sensitive Zone
15	Zone - 15	Eco-Sensitive Zone
16	Zone - 16	Eco-Sensitive Zone
17	Zone - 17	Eco-Sensitive Zone
18	Zone - 18	Eco-Sensitive Zone
19	Zone - 19	Identified as Category 1 due to Proximity to Forest Land (<250 m)
20	Zone - 20	Identified as Category 1 due to Proximity to Forest Land (<250 m)
21	Zone - 21	Identified as Category 1 due to Proximity to Forest Land (<250 m)



**12.8 Distance from Bridges & NH/SH for each Sand Ghat:**

Table No. - 12.8: Distance from Bridges & NH/SH for each Sand Ghat in Latehar District of Jharkhand State.

Sl. No.	Sand Ghat Code	Aerial Distance from Nearest Bridge	Name of Bridge	Whether on NH or SH
1	LA_Z8_SU_1	< 500 m	Tubed Bridge	No
2	LA_Z1_AU_2	>500 m	Railway Station Bridge	No
3	LA_Z1_AU_3	< 500 m	Railway Station Bridge	No
4	LA_Z1_AU_4	>500	Auranga Bridge	No
5	LA_Z3_DAM_5	>1 Km	Deonadia Bridge	No
6	LA_Z3_DAM_6	>1 Km	Deonadia Bridge	No
7	LA_Z1_AU_7	< 500 m	Auranga Bridge	No
8	LA_Z1_AU_8	< 500 m	Auranga Shiv Mandir Bridge	No

**12.9 Replenishment Study of Sand Deposits (Category 2): [Verified & Approved]**

REPLENISHMENT OF SAND ASSESSED BY "AFTER THE MONSOON" SURVEY (THIRD) CARRIED OUT DURING NOVEMBER 2022									
Pre-Monsoon [March - May 2022]				Post-Monsoon [October - December 2022]					
Sl. No.	Sand Deposit Code	Surface RL	Surface Area	Surface RL	Thickness Replenished	Volume Replenished	Depth of Sand Deposit	Volume of Sand Deposit	Rate of Replenishment
		in m	in m <sup>2</sup>	in m	in m	in m <sup>3</sup>	in m	in m <sup>3</sup>	in %
1	LA_Z8_SU_1	362.0	800.00	362.9	0.9	720	1.5	1200	60.00

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2	LA_Z1_AU_2	367.3	84900.00	368.4	1.1	93390	1.6	135840	68.75
3	LA_Z1_AU_3	364.2	23900.00	365.0	0.8	19120	1.2	28680	66.67
4	LA_Z1_AU_4	369.3	24000.00	370.2	0.9	21600	1.5	36000	60.00
5	LA_Z3_DAM_5	372.8	21000.00	373.9	1.1	23100	1.8	37800	61.12
6	LA_Z3_DAM_6	456.1	1500.00	457.2	1.1	1650	1.8	2700	61.12
7	LA_Z1_AU_7	455.6	27300.00	456.3	0.7	19110	1.3	35490	53.84
8	LA_Z1_AU_8	389.6	7800.00	390.4	0.8	6240	1.5	11700	53.34
<b>TOTAL</b>							<b>184930</b>	<b>289410</b>	<b>63.89</b>

**Note:**

To estimate the replenishment of sand, the pre-monsoon (First & Second Survey) data has been assessed through study of satellite imageries and data provided by District Mining Office to establish the initial level of mining lease before the monsoon.

Keeping in view the 'Generic Structure of Replenishment Study' (as per EMGSM 2020); Third Survey after the monsoon has been carried out to estimate the quantum of material deposited/replenished in the mining lease.

The Fourth Survey shall be carry out at the end of March in coming year to know the quantity of material excavated during the financial year.

The results of year-wise surveys help the State Government to establish the replenishment rate of the river. Based on the replenishment rate future auction may be planned.



  
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### 12.10 Photographs showing Sand Ghats Visit by Sub-Divisional Committee, Latehar:



Photograph showing Malhan Sand Ghat (Category – 2)



Photograph showing Malhan Sand Ghat (Category – 1)



*[Signature]*  
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Photograph showing Latehar Sand Ghat (Category – 2)



Photograph showing Jalta Sand Ghat (Category – 1)



Photograph showing Bhusur Sand Ghat (Category – 1)



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### 13. DETAILS OF ECO-SENSITIVE AREA IN THE DISTRICT

All the proposals involving mining of minerals within the ESZ (or) one kilometer from the boundaries of National Parks and Sanctuaries whichever is higher is prohibited in accordance with the order of the Hon'ble Supreme Court dated 4.08.2006 in the matter of T. N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No. 202 of 1995 and dated 21.4.2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No. 435 of 2012 (MoEF&CC (IA Division) F. No. 22-43/2018-1a.III dated 08.08.2019). Latehar district has areas coming under ESZ of PWLS-BNP-MWS and ESZ of Lawalong Sanctuary (details below).

#### 13.1 ESZ of Palamau Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary:

The Eco-Sensitive Zone of Palamau Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary shall be to an extent of zero to 7 km around the boundary of Palamau Wildlife Sanctuary and the area of ESZ is 1253.49 km<sup>2</sup> (Zero extent of ESZ is due to Inter-state boundary).

(Source: MoEF&CC Notification S.O. 2898 (E), Dt. 9<sup>th</sup> August, 2019)

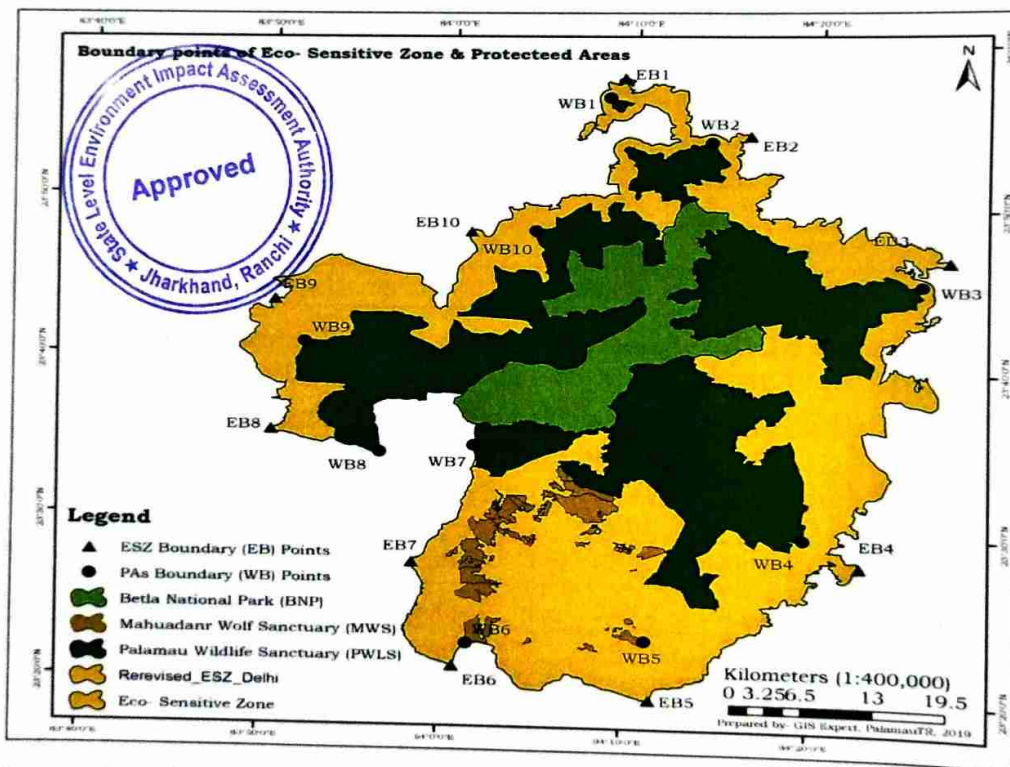


Fig. 13.1: Map of Palamau Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary, Jharkhand along with Eco-Sensitive Zone

#### • Boundary Description of Eco-Sensitive Zone:

**North East:** Rankikalan, Rabdi, Kui, Koili, Lanka, Jerua, Kope, Jagtu, Bhatko, Simri, Jamuna, Dasdih, Bari, Manasoti, Nalumanr, Jora hunhe alias jora, Rabda, Dulsulmi, Hurmur, Tumagara, Salaia, Kamaru, Chama, Hisra alias pokhraha, Polpol kalan, Karma, Banua alias sala, Chetma, Patuki, Devbar, Devbar R.F., Hotwag, Dumriyatnr, Bendi, Amwatola, Churia, Bachra.

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**South East:** Jer, Godna, Kodag, Hesla, Lundi, Orwai, Oria, Bingara, Baheratanr, Nareshgarh, Oria R.F., Pailapathal R.F., Gotag, Besra kona, Hurmundatoli, Arahans, Mail, Chormanrwa, Kurund, Korwadih, Sohar, Gobarsela, Jori, Salam Nawatoli, Banari, Nirasi, Barkadohar Alias Domkom, Dardag, Hakajang, Lapu, Tithi, Chatakpur, Balatu, Narma.

**South West:** Baresanr R.F., Jamdih (Haramagara), Tisia, Kukud, Chiro, Orsa, Jamdih, Tahir, Merhar, Jori, Sidra, Goal khar, Surkain, Champa, Bhandaria, Nauka, Marda, Ramar, Paraswar, Tumera, Rud, Korwadih, Hesatu, Binjpur, Tehri, Saruwat.

**North West:** Kechki, Saraidih, Pokharikalan, Kolpurwa, Kushabathan, Kachanpur, Pokharikhurd, Kutmu, Kalyanpur, Muru, Akhra, Amdiha, Dorami, Akhra, Betla, Hendehas, Babhandih, Bode, Luhur, Gorhwatanr (Ahipurwa), Paira, Ledgain, Putuagarh, Harilong, Putuagarh R.F., Sindhorwa, Tatha(Balbai), Mandal, Ausane, Ledki, Barkoal P.F., Parro, Bairiya, Khapia.

• **GPS Co-ordinates of 10 Important Points of Eco-Sensitive Zone and Palamau Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary.**

Table 13.1: List of Geo-Coordinates of Boundary of Protected Area

Boundary Point	Longitude (E)	Latitude (N)	Boundary Point	Longitude (E)	Latitude (N)
WB1	84°08'29.31"	23°56'34.62"	WB6	84°11'16.11"	23°23'05.90"
WB2	84°14'06.71"	23°53'54.80"	WB7	83°56'23.47"	23°34'15.07"
WB3	84°25'36.60"	23°45'17.68"	WB8	84°01'36.60"	23°34'49.59"
WB4	84°19'39.60"	23°29'35.42"	WB9	83°52'02.17"	23°40'58.31"
WB5	84°01'31.89"	23°22'36.31"	WB10	84°04'38.59"	23°48'13.52"

• **List of Geo- coordinates of boundary of Eco- Sensitive Zone of Palamau Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary**

Table 13.2: List of Geo-coordinates of Palamu Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary

Boundary Point	Longitude (E)	Latitude (N)	Boundary Point	Longitude (E)	Latitude (N)
EB1	84°09'14.95"	23°57'48.68"	EB6	84°00'47.27"	23°21'12.56"
EB2	84°16'11.11"	23°54'23.16"	EB7	83°58'22.29"	23°27'30.61"
EB3	84°27'01.08"	23°46'50.34"	EB8	83°50'20.47"	23°35'29.50"
EB4	84°22'40.11"	23°28'03.18"	EB9	83°50'19.55"	23°43'34.80"
EB5	84°11'34.91"	23°19'32.51"	EB10	84°01'06.77"	23°48'04.91"

All activities in the Eco-Sensitive Zone shall be governed by the provisions of the Environment Act and the rules made thereunder including the Coastal Regulation Zone, 2011 and the Environmental Impact Assessment Notification, 2006 and other applicable laws including the Forest (Conservation) Act, 1980 (69 of 1980), the Indian Forest Act, 1927 (16 of 1927), the Wildlife (Protection) Act 1972 (53 of 1972), and amendments made thereto and be regulated in the manner specified in the Table below, namely:-

Table No. 13.3: List of Prohibited & Regulated Activities in the Eco-Sensitive Zone



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Sl. No. (1)	Activity (2)	Description (3)
<b>A. Prohibited Activities</b>		
1.	Commercial mining, stone quarrying and crushing units.	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect except for meeting the domestic needs of bonafide local residents including digging of earth for construction or repair of houses and for manufacture of country tiles or bricks for housing and for personal consumption; (b) The mining operations shall be carried out in accordance with the order of the Hon'ble Supreme Court dated the 4 <sup>th</sup> August, 2006 in the matter of T.N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No. 2020 1995 and dated the 21 <sup>st</sup> April, 2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No. - 435 of 2012.
2.	Setting of industries causing pollution (Water, Air, Soil, Noise, etc.).	New industries and expansion of existing polluting industries in the Eco-Sensitive Zones Shall not be permitted: - Provided that non-polluting industries shall be allowed within Eco-Sensitive Zone as per classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, unless so specified in this notification and in addition the non-polluting
3.	Establishment of major hydroelectric project.	Prohibited (except as otherwise provided) as per the applicable laws.
4.	Use or production or processing of any hazardous substances.	Prohibited (except as otherwise provided) as per the applicable laws.
5.	Discharge of untreated effluents in natural water bodies or land area.	Prohibited (except as otherwise provided) as per the applicable laws.
6.	Setting up of new saw mills and wood based industries.	New or expansion of existing saw mills shall not be permitted within the Eco-Sensitive Zone.
7.	Commercial use of firewood.	Prohibited (except as otherwise provided) as per applicable laws.
8.	Setting up of brick kilns.	Prohibited (except as otherwise provided) as per the applicable laws.
<b>B. Regulated Activities</b>		



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9.	Commercial establishment of hotels and resorts.	No new commercial hotels and resorts shall be permitted within one kilometer of the boundary of the protected areas or up to the extent of Eco-Sensitive Zone, whichever is nearer, except for small temporary structures for eco-tourism activities: - Provided that, beyond one kilometer from the boundary of the protected area or up to the extent of Eco-sensitive Zone whichever is nearer, all new tourist activities or expansion of existing activities shall be in conformity with the Tourism Master Plan and guidelines as applicable.
10.	Construction activities.	(a) New commercial construction of any kind shall not be permitted within one kilometer from the boundary of the protected areas or up to extent of the Eco-Sensitive Zone, whichever is nearer: Provided that, local people shall be permitted to undertake construction in their land for their use including the activities mentioned in subparagraph (1) of paragraph 3 as per building by-laws to meet the residential needs of the local residents. - Provided further that the construction activity related to small scale industries not causing pollution shall be regulated and kept at the minimum, with the prior permission from the competent authority as per applicable rules and regulations, if any. (b) Beyond one kilometer it shall be regulated as per the Zonal Master Plan.
11.	Small scale non-polluting industries.	Non-polluting industries as per classification of industries issued by the Central Pollution Control Board in February, 2016 and non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous materials from the Eco-sensitive Zone shall be permitted by the competent Authority.
12.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted as per the applicable laws for use of locals.
13.	Establishment of large-scale commercial livestock and poultry farms by firms, corporate and companies.	Regulated (except as otherwise provided) as per applicable laws except for meeting local needs.



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14.	Felling of trees.	(a) There shall be no felling of trees in the forest or Government or revenue or private lands without prior permission of the Competent Authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
15.	Collection of Forest produce or Non-Timber Forest produce.	Regulated as per the applicable laws.
16.	Erection of electrical and communication towers and laying of cables and other infrastructures.	Regulated under applicable laws (underground cabling may be promoted).
17.	Infrastructure including civic amenities.	Taking measures of mitigation as per the applicable laws, rules, and regulations available guidelines.
18.	Widening and strengthening of existing roads and construction of new roads.	Taking measures of mitigation as per applicable laws, rules, regulations and available guidelines.
19.	Undertaking other activities related to tourism like flying over the Eco-sensitive Zone area by hot air balloon, helicopter, drones, Microlites, etc.	Regulated as per the applicable laws.
20.	Protection of hill slopes and	Regulated as per the applicable laws.
21.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.
22.	Discharge of treated waste water or effluents in natural water bodies or land area.	The discharge of treated waste water or effluents shall be avoided to enter into the water bodies and efforts shall be made for recycle and reuse of treated waste water. Otherwise the discharge of treated waste water or effluent shall be regulated as per the applicable laws.
23.	Commercial extraction of surface and ground water.	Regulated as per the applicable laws.
24.	Open Well, Bore Well etc. for agriculture or other usage.	Regulated and the activity should be strictly monitored by the appropriate authority.



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25.	Use of polythene bags.	Regulated as per the applicable laws.
26.	Solid waste management.	Regulated as per the applicable laws.
27.	Introduction of exotic species.	Regulated as per the applicable laws.
28.	Eco-tourism.	Regulated as per the applicable laws.
29.	Commercial sign boards and hoardings.	Regulated as per the applicable laws.
<b>C. Promoted Activities</b>		
30.	Rain water Harvesting.	Shall be actively promoted.
31.	Organic farming.	Shall be actively promoted.
32.	Adoption of green technology for all activities.	Shall be actively promoted.
33.	Cottage industries including village artisans, etc.	Shall be actively promoted.
34.	Use of renewable energy and fuels.	Bio-gas, solar light etc. shall be actively promoted.
35.	Agro-Forestry.	Shall be actively promoted.
36.	Plantation of Horticulture and Herbals.	Shall be actively promoted.
37.	Use of eco-friendly transport.	Shall be actively promoted.
38.	Skill Development.	Shall be actively promoted.
39.	Restoration of degraded land/ forests/ habitat.	Shall be actively promoted.
40.	Environmental awareness.	Shall be actively promoted.



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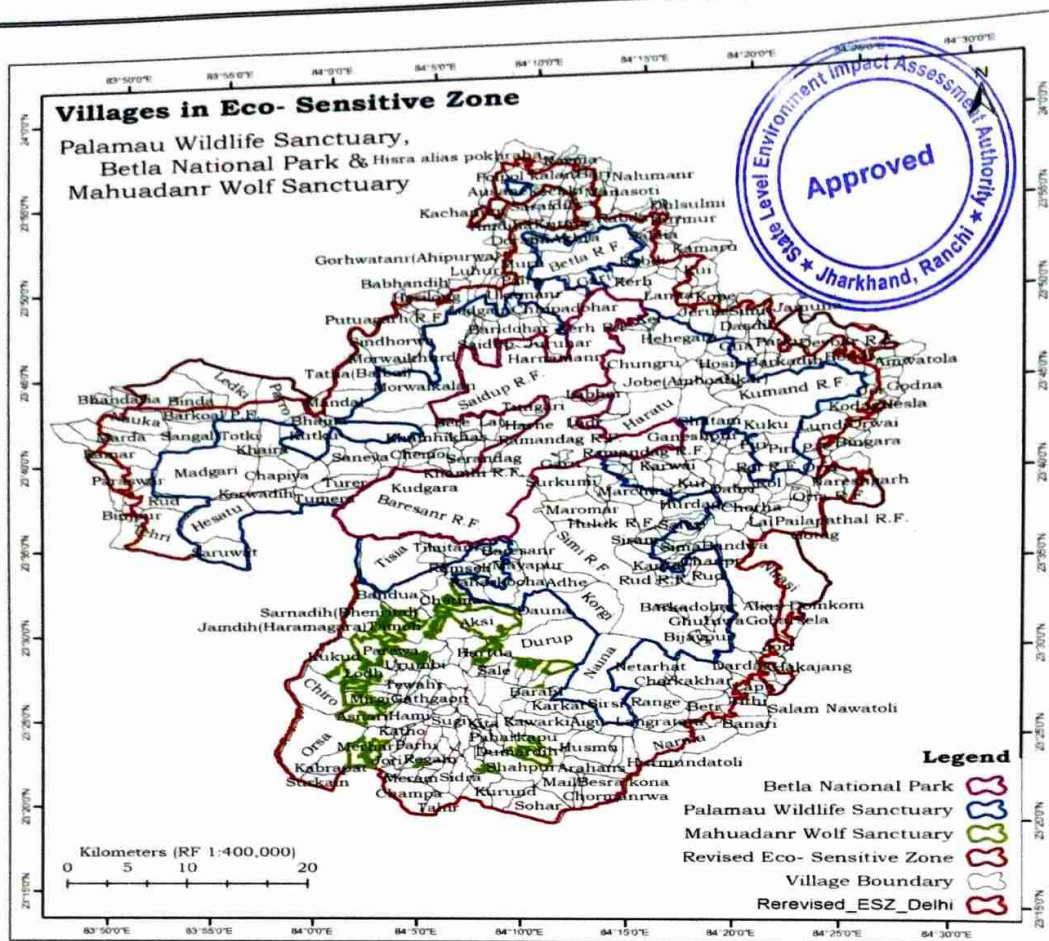


Fig. 13.2: Map showing villages fall within Eco-Sensitive Zone

Table No. 13.4: List of Villages fall within ESZ of PWLS, BNP, MWS:

Sl. No.	Name of District	Name of Taluk	Name of Village	Long. (E)	Lat. (N)
1	Garhwa	Bhandaria	Barkoal P.F.	83°52'42.73"	23°44'06.59"
2	Garhwa	Bhandaria	Bhajna	83°58'13.18"	23°42'15.72"
3	Garhwa	Bhandaria	Bhandaria	83°49'56.03"	23°44'03.74"
4	Garhwa	Bhandaria	Binda	83°53'28.39"	23°43'56.13"
5	Garhwa	Bhandaria	Binjpur	83°50'37.40"	23°37'33.91"
6	Garhwa	Bhandaria	Chapiya	83°57'31.36"	23°39'41.54"
7	Garhwa	Bhandaria	Chemo	84°03'05.70"	23°41'07.88"
8	Garhwa	Bhandaria	Hesatu	83°54'50.67"	23°37'00.44"
9	Garhwa	Bhandaria	Khaira	83°57'17.59"	23°41'48.19"
10	Garhwa	Bhandaria	Khura	83°58'37.24"	23°40'43.64"
11	Garhwa	Bhandaria	Korwadih	84°00'24.24"	23°40'54.01"
12	Garhwa	Bhandaria	Korwadih	83°57'34.68"	23°38'09.76"

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13	Garhwa	Bhandaria	Kudgara	84°02'56.06"	23°39'50.22"
14	Garhwa	Bhandaria	Kulhi	83°55'14.99"	23°38'24.65"
15	Garhwa	Bhandaria	Kutku	83°59'14.41"	23°42'01.66"
16	Garhwa	Bhandaria	Ledki	83°55'05.59"	23°44'47.59"
17	Garhwa	Bhandaria	Madgari	83°54'10.79"	23°39'48.28"
18	Garhwa	Bhandaria	Marda	83°50'02.28"	23°41'52.95"
19	Garhwa	Bhandaria	Nauka	83°50'40.92"	23°42'46.58"
20	Garhwa	Bhandaria	Paraswar	83°50'14.38"	23°39'19.71"
21	Garhwa	Bhandaria	Parro	83°57'43.57"	23°44'02.76"
22	Garhwa	Bhandaria	Polpol	83°59'23.90"	23°39'44.16"
23	Garhwa	Bhandaria	Ramar	83°49'27.20"	23°41'05.80"
24	Garhwa	Bhandaria	Rud	83°52'11.28"	23°38'10.12"
25	Garhwa	Bhandaria	Saneya	84°01'19.07"	23°40'45.20"
26	Garhwa	Bhandaria	Sangali	83°53'28.09"	23°41'58.09"
27	Garhwa	Bhandaria	Saruwat	83°55'17.82"	23°35'09.42"
28	Garhwa	Bhandaria	Tehri	83°51'52.75"	23°36'11.06"
29	Garhwa	Bhandaria	Totki	83°55'49.07"	23°41'59.82"
30	Garhwa	Bhandaria	Tumera	84°00'03.35"	23°38'29.01"
31	Garhwa	Bhandaria	Turer	84°01'00.28"	23°39'17.48"
32	Gumla	Bishunpur	Balatu	84°17'47.45"	23°25'13.81"
33	Gumla	Bishunpur	Banari	84°20'36.03"	23°25'24.46"
34	Gumla	Bishunpur	Barkadohar Alias Domkom	84°20'38.50"	23°31'00.18"
35	Gumla	Bishunpur	Beti	84°18'38.57"	23°26'22.73"
36	Gumla	Bishunpur	Birjiatoli	84°16'39.66"	23°27'53.27"
37	Gumla	Bishunpur	Chatakpur	84°18'56.53"	23°25'40.44"
38	Gumla	Bishunpur	Chorkakhar	84°18'19.80"	23°28'16.06"
39	Gumla	Bishunpur	Dardag	84°20'23.71"	23°28'45.74"
40	Gumla	Bishunpur	Gobarsela	84°22'17.55"	23°31'23.11"
41	Gumla	Bishunpur	Hakajang	84°21'52.90"	23°28'41.40"
42	Gumla	Bishunpur	Jori	84°21'56.42"	23°29'52.03"
43	Gumla	Bishunpur	Langratanr	84°16'33.46"	23°25'29.82"
44	Gumla	Bishunpur	Lapu	84°20'51.28"	23°27'35.92"
45	Gumla	Bishunpur	Marwai	84°17'53.34"	23°27'12.42"
46	Gumla	Bishunpur	Narma	84°17'19.42"	23°24'13.13"
47	Gumla	Bishunpur	Nirasi	84°21'42.67"	23°34'00.75"
48	Gumla	Bishunpur	Range	84°16'10.53"	23°26'37.66"



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49	Gumla	Bishunpur	Salam Nawatoli	84°20'25.54"	23°26'11.77"
50	Gumla	Bishunpur	Tithi	84°20'29.47"	23°26'53.81"
51	Latehar	Barwadih	Akhra	84°12'02.97"	23°53'52.40"
52	Latehar	Barwadih	Akhra	84°10'52.97"	23°53'32.40"
53	Latehar	Barwadih	Amdiha	84°08'17.99"	23°53'19.45"
54	Latehar	Barwadih	Babhandih	84°06'19.61"	23°50'09.05"
55	Latehar	Barwadih	Barichatan	84°09'50.23"	23°48'09.09"
56	Latehar	Barwadih	Barichatan R.F.	84°09'40.45"	23°49'06.98"
57	Latehar	Barwadih	Barichatan R.F.	84°07'27.21"	23°49'06.46"
58	Latehar	Barwadih	Barichatan R.F.	84°10'05.13"	23°47'38.18"
59	Latehar	Barwadih	Baridohar	84°08'47.97"	23°48'06.99"
60	Latehar	Barwadih	Barkheta	84°09'21.68"	23°43'00.33"
61	Latehar	Barwadih	Bere	84°06'08.64"	23°42'20.11"
62	Latehar	Barwadih	Betla	84°11'50.22"	23°53'25.70"
63	Latehar	Barwadih	Betla P.F.	84°12'48.54"	23°53'57.11"
64	Latehar	Barwadih	Betla P.F.	84°12'30.59"	23°53'47.22"
65	Latehar	Barwadih	Betla P.F.	84°11'03.71"	23°52'53.62"
66	Latehar	Barwadih	Betla R.F.	84°12'35.32"	23°52'17.16"
67	Latehar	Barwadih	Bode	84°05'37.87"	23°50'16.49"
68	Latehar	Barwadih	Chatam	84°18'54.67"	23°41'57.39"
69	Latehar	Barwadih	Chatam R.F.	84°18'57.95"	23°42'50.33"
70	Latehar	Barwadih	Chhipadohar	84°11'26.60"	23°49'13.71"
71	Latehar	Barwadih	Chungru	84°15'11.15"	23°46'02.24"
72	Latehar	Barwadih	Dorami	84°09'26.40"	23°53'09.48"
73	Latehar	Barwadih	Ganeshpur	84°17'44.84"	23°41'38.38"
74	Latehar	Barwadih	Gari	84°12'44.54"	23°50'47.61"
75	Latehar	Barwadih	Gasedag	84°07'03.31"	23°42'43.71"
76	Latehar	Barwadih	Gorhwatanr (Ahipurwa)	84°07'16.27"	23°51'05.49"
77	Latehar	Barwadih	Gua	84°18'49.88"	23°46'56.13"
78	Latehar	Barwadih	Haratu	84°15'20.35"	23°43'15.92"
79	Latehar	Barwadih	Harhe	84°08'57.36"	23°42'14.56"
80	Latehar	Barwadih	Harilong	84°04'46.07"	23°49'47.29"
81	Latehar	Barwadih	Harnamanr	84°10'57.20"	23°46'29.25"
82	Latehar	Barwadih	Hehegara	84°16'54.14"	23°47'27.85"
83	Latehar	Barwadih	Hendehas	84°08'27.83"	23°52'30.81"
84	Latehar	Barwadih	Hosir	84°18'51.07"	23°46'03.29"
85	Latehar	Barwadih	Jargan (Pipratam)	84°07'04.28"	23°47'54.82"



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86	Latehar	Barwadih	Jobe(Amboatikar)	84°17'50.64"	23°43'49.69"
87	Latehar	Barwadih	Juruhar	84°11'13.97"	23°47'14.86"
88	Latehar	Barwadih	Kachanpur	84°09'05.34"	23°54'43.95"
89	Latehar	Barwadih	Kalyanpur	84°08'43.80"	23°54'02.51"
90	Latehar	Barwadih	Karamdih	84°05'38.07"	23°40'39.47"
91	Latehar	Barwadih	Kechki	84°09'29.15"	23°55'52.77"
92	Latehar	Barwadih	Ker	84°15'24.59"	23°48'34.09"
93	Latehar	Barwadih	Kerh	84°14'40.32"	23°50'26.75"
94	Latehar	Barwadih	Kerh R.F.	84°14'49.67"	23°48'09.21"
95	Latehar	Barwadih	Khamhi R.F.	84°07'55.93"	23°41'16.55"
96	Latehar	Barwadih	Khamhikhas	84°05'22.51"	23°41'04.01"
97	Latehar	Barwadih	Kolpurwa	84°12'00.44"	23°54'08.40"
98	Latehar	Barwadih	Kuchila	84°10'47.11"	23°50'17.56"
99	Latehar	Barwadih	Kuku	84°20'47.09"	23°42'30.62"
100	Latehar	Barwadih	Kushabathan	84°11'33.43"	23°55'20.86"
101	Latehar	Barwadih	Kutmu	84°10'00.05"	23°54'00.97"
102	Latehar	Barwadih	Labhar	84°12'56.45"	23°44'21.68"
103	Latehar	Barwadih	Ladi	84°12'26.15"	23°42'44.59"
104	Latehar	Barwadih	Lat	84°08'01.56"	23°42'36.78"
105	Latehar	Barwadih	Ledgain	84°08'33.09"	23°50'10.49"
106	Latehar	Barwadih	Lohara R.F.	84°03'27.23"	23°45'54.74"
107	Latehar	Barwadih	Luhur	84°08'01.54"	23°51'13.15"
108	Latehar	Barwadih	Lukumkhar	84°14'09.37"	23°51'15.48"
109	Latehar	Barwadih	Manatu	84°18'55.66"	23°40'53.25"
110	Latehar	Barwadih	Mandal	84°00'39.04"	23°43'57.14"
111	Latehar	Barwadih	Morwaikalan	84°04'54.81"	23°45'43.45"
112	Latehar	Barwadih	Morwaikhurd	84°04'49.73"	23°46'24.63"
113	Latehar	Barwadih	Mundu	84°14'08.81"	23°43'45.65"
114	Latehar	Barwadih	Muru	84°09'28.42"	23°51'49.09"
115	Latehar	Barwadih	Naurnagu	84°04'29.55"	23°40'42.79"
116	Latehar	Barwadih	Nawadih	84°17'27.34"	23°45'31.16"
117	Latehar	Barwadih	Paira	84°08'00.77"	23°50'22.19"
118	Latehar	Barwadih	Patradih	84°06'45.24"	23°41'32.42"
119	Latehar	Barwadih	Pokharikalan	84°11'08.35"	23°54'47.37"
120	Latehar	Barwadih	Pokharikhurd	84°12'10.66"	23°54'40.37"
121	Latehar	Barwadih	Putuagarh	84°03'31.12"	23°49'50.67"
122	Latehar	Barwadih	Putuagarh R.F.	84°04'58.02"	23°48'57.96"



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123	Latehar	Barwadih	Rabdi	84°15'04.91"	23°52'06.49"
124	Latehar	Barwadih	Romandag	84°11'30.63"	23°40'53.44"
125	Latehar	Barwadih	Saidup	84°07'47.97"	23°47'14.86"
126	Latehar	Barwadih	Saraidih	84°10'33.21"	23°55'20.46"
127	Latehar	Barwadih	Selaritanr	84°19'05.78"	23°41'32.85"
128	Latehar	Barwadih	Serandag	84°07'13.05"	23°40'48.50"
129	Latehar	Barwadih	Sindhoriwa	84°03'08.52"	23°47'28.86"
130	Latehar	Barwadih	Sukalkatha	84°18'26.90"	23°41'37.70"
131	Latehar	Barwadih	Tanwai	84°04'25.04"	23°41'48.31"
132	Latehar	Barwadih	Tatha(Balbal)	84°01'33.88"	23°45'37.25"
133	Latehar	Barwadih	Tungari	84°10'12.96"	23°43'36.26"
134	Latehar	Barwadih	Ukamanr	84°09'27.68"	23°50'03.05"
135	Latehar	Barwadih	Wopag	84°18'25.76"	23°45'18.46"
136	Latehar	Garu	Alagdiha	84°21'39.08"	23°37'55.45"
137	Latehar	Garu	Armu	84°14'41.63"	23°39'39.47"
138	Latehar	Garu	Baherwatola	84°16'01.79"	23°40'20.24"
139	Latehar	Garu	Baigatoli	84°16'57.84"	23°36'16.08"
140	Latehar	Garu	Bandwa	84°19'44.98"	23°35'39.48"
141	Latehar	Garu	Baresanr	84°08'50.98"	23°35'33.80"
142	Latehar	Garu	Baresanr	84°07'21.55"	23°35'05.91"
143	Latehar	Garu	Baribandh	84°15'09.73"	23°34'55.64"
144	Latehar	Garu	Bhanwarband h P.F.	84°13'02.70"	23°38'58.46"
145	Latehar	Garu	Bheriabathan	84°20'07.43"	23°39'55.94"
146	Latehar	Garu	Bijaypur	84°18'11.34"	23°30'18.11"
147	Latehar	Garu	Chanchu	84°22'40.93"	23°37'57.58"
148	Latehar	Garu	Chanpi	84°18'12.91"	23°34'54.10"
149	Latehar	Garu	Chipru (Dudhimatia)	84°20'11.28"	23°39'20.03"
150	Latehar	Garu	Chiraiya	84°17'04.22"	23°34'32.01"
151	Latehar	Garu	Chorha	84°19'34.04"	23°37'19.49"
152	Latehar	Garu	Dabri	84°20'11.28"	23°38'13.41"
153	Latehar	Garu	Danrkocha	84°07'47.52"	23°33'52.29"
154	Latehar	Garu	Darichhapar	84°15'45.02"	23°35'29.55"
155	Latehar	Garu	Darichhapar P.F.	84°17'33.28"	23°37'23.72"
156	Latehar	Garu	Derhgaon	84°07'45.61"	23°35'38.77"
157	Latehar	Garu	Dhangartola	84°14'00.71"	23°40'02.28"
158	Latehar	Garu	Doram	84°18'48.99"	23°39'53.82"
159	Latehar	Garu	Garu	84°13'06.26"	23°40'24.56"





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160	Latehar	Garu	Gasigara	84°20'36.62"	23°36'23.00"
161	Latehar	Garu	Ghasitola	84°21'54.16"	23°38'31.77"
162	Latehar	Garu	Ghutuwa	84°18'51.63"	23°31'27.25"
163	Latehar	Garu	Goandi	84°16'14.21"	23°38'47.50"
164	Latehar	Garu	Gotag	84°23'38.70"	23°36'36.55"
165	Latehar	Garu	Hanumantola	84°22'31.08"	23°38'53.36"
166	Latehar	Garu	Hendehans	84°16'32.14"	23°35'09.04"
167	Latehar	Garu	Hesag	84°14'29.86"	23°39'56.37"
168	Latehar	Garu	Hethatol	84°16'45.98"	23°39'43.29"
169	Latehar	Garu	Huluk R.F.	84°15'38.97"	23°37'27.24"
170	Latehar	Garu	Hurdag	84°17'35.63"	23°38'03.69"
171	Latehar	Garu	Hurdagtola	84°17'58.73"	23°38'52.77"
172	Latehar	Garu	Kabri	84°17'02.59"	23°34'53.56"
173	Latehar	Garu	Kante	84°16'25.93"	23°34'04.88"
174	Latehar	Garu	Karitola	84°19'27.69"	23°39'25.93"
175	Latehar	Garu	Karwai	84°16'30.62"	23°40'50.01"
176	Latehar	Garu	Korwatola	84°18'04.62"	23°39'57.55"
177	Latehar	Garu	Kotam	84°18'11.51"	23°36'19.53"
178	Latehar	Garu	Kui	84°17'28.41"	23°39'14.41"
179	Latehar	Garu	Lai	84°20'59.01"	23°36'58.21"
180	Latehar	Garu	Lohargara	84°15'21.63"	23°39'35.77"
181	Latehar	Garu	Luhurtanr	84°14'31.25"	23°40'39.14"
182	Latehar	Garu	Mahuadabar	84°16'38.64"	23°34'31.27"
183	Latehar	Garu	Mangra	84°05'16.59"	23°35'00.98"
184	Latehar	Garu	Marchaia	84°14'32.17"	23°38'44.67"
185	Latehar	Garu	Maromar	84°12'28.85"	23°38'07.02"
186	Latehar	Garu	Mayapur	84°08'22.03"	23°34'52.31"
187	Latehar	Garu	Mukundpur	84°19'56.11"	23°40'24.96"
188	Latehar	Garu	Murpa	84°20'57.39"	23°38'22.85"
189	Latehar	Garu	Paharkocha	84°08'49.28"	23°33'33.87"
190	Latehar	Garu	Pailapathal R.F.	84°22'39.58"	23°37'15.91"
191	Latehar	Garu	Pandra	84°17'03.22"	23°31'55.47"
192	Latehar	Garu	Patratu	84°22'24.86"	23°39'35.42"
193	Latehar	Garu	Piri	84°20'23.80"	23°41'23.96"
194	Latehar	Garu	Piri P.F.	84°21'39.42"	23°41'08.10"
195	Latehar	Garu	Purnakidabri (Khairgi)	84°19'25.45"	23°38'34.67"
196	Latehar	Garu	Purni Hesag	84°14'41.40"	23°40'11.83"



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197	Latehar	Garu	Ramseli	84°06'41.21"	23°34'16.97"
198	Latehar	Garu	Rol	84°21'29.25"	23°39'12.64"
199	Latehar	Garu	Rol R.F.	84°21'48.17"	23°40'02.34"
200	Latehar	Garu	Rud	84°18'32.74"	23°33'58.06"
201	Latehar	Garu	Rud R.F.	84°17'16.07"	23°33'52.74"
202	Latehar	Garu	Salwe	84°17'26.65"	23°36'52.20"
203	Latehar	Garu	Samodhtola	84°13'46.00"	23°40'44.67"
204	Latehar	Garu	Sarju	84°22'46.60"	23°38'30.23"
205	Latehar	Garu	Sima	84°17'57.09"	23°35'35.93"
206	Latehar	Garu	Simi R.F.	84°15'27.45"	23°33'17.43"
207	Latehar	Garu	Siram	84°15'50.54"	23°36'03.22"
208	Latehar	Garu	Sonwar	84°23'09.39"	23°39'06.44"
209	Latehar	Garu	Surkumi	84°11'28.16"	23°39'21.02"
210	Latehar	Garu	Tati	84°17'05.67"	23°34'03.67"
211	Latehar	Garu	Tilaitanr	84°06'00.49"	23°35'36.22"
212	Latehar	Garu	Udaipur	84°22'47.62"	23°38'56.12"
213	Latehar	Latehar	Amwatola	84°26'15.24"	23°45'52.46"
214	Latehar	Latehar	Bachra	84°25'52.69"	23°44'57.99"
215	Latehar	Latehar	Baheratanr	84°23'29.35"	23°40'50.85"
216	Latehar	Latehar	Bendi	84°24'55.83"	23°46'15.36"
217	Latehar	Latehar	Bingara	84°23'49.91"	23°41'31.09"
218	Latehar	Latehar	Churia	84°26'46.60"	23°45'18.16"
219	Latehar	Latehar	Godna	84°26'45.11"	23°44'30.33"
220	Latehar	Latehar	Hesla	84°26'42.62"	23°43'43.25"
221	Latehar	Latehar	Jer	84°25'56.14"	23°44'10.87"
222	Latehar	Latehar	Kodag	84°25'07.62"	23°43'25.76"
223	Latehar	Latehar	Lundi	84°24'04.17"	23°42'25.02"
224	Latehar	Latehar	Nareshgarh	84°25'27.42"	23°39'16.26"
225	Latehar	Latehar	Oria	84°23'39.60"	23°40'01.90"
226	Latehar	Latehar	Oria R.F.	84°24'13.24"	23°38'58.87"
227	Latehar	Latehar	Orwai	84°25'27.32"	23°42'29.84"
228	Latehar	Mahuadanr	Adhe	84°11'49.64"	23°33'38.01"
229	Latehar	Mahuadanr	Ahirpurwa	84°06'45.63"	23°26'47.54"
230	Latehar	Mahuadanr	Aigu	84°13'01.58"	23°25'25.08"
231	Latehar	Mahuadanr	Aksi	84°07'31.97"	23°31'02.00"
232	Latehar	Mahuadanr	Ambatoli	84°06'10.03"	23°23'50.32"
233	Latehar	Mahuadanr	Arahans	84°13'19.84"	23°22'43.20"
234	Latehar	Mahuadanr	Asnari	84°02'28.23"	23°25'41.06"



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235	Latehar	Mahuadanr	Aunratoli (Khapartoli)	84°08'39.57"	23°27'02.63"
236	Latehar	Mahuadanr	Baheratoli	84°07'44.23"	23°26'18.81"
237	Latehar	Mahuadanr	Bandua	84°04'20.93"	23°32'59.74"
238	Latehar	Mahuadanr	Banskarcha	84°07'26.68"	23°29'53.66"
239	Latehar	Mahuadanr	Barahi	84°10'32.99"	23°27'02.88"
240	Latehar	Mahuadanr	Baraudih	84°11'34.87"	23°27'56.52"
241	Latehar	Mahuadanr	Bardaunikalan	84°09'20.40"	23°28'17.62"
242	Latehar	Mahuadanr	Bardaunikhurd (Pandeytoli)	84°09'43.30"	23°28'26.84"
243	Latehar	Mahuadanr	Bartoli	84°06'39.63"	23°23'18.70"
244	Latehar	Mahuadanr	Beltoli	84°08'10.34"	23°25'23.30"
245	Latehar	Mahuadanr	Belwar	84°11'23.31"	23°23'26.42"
246	Latehar	Mahuadanr	Besra kona	84°12'39.58"	23°21'21.03"
247	Latehar	Mahuadanr	Bisrampur	84°07'58.84"	23°23'53.11"
248	Latehar	Mahuadanr	Chainpur	84°05'55.73"	23°26'43.87"
249	Latehar	Mahuadanr	Champa	84°04'30.92"	23°21'06.98"
250	Latehar	Mahuadanr	Chatakpur	84°04'07.67"	23°27'39.79"
251	Latehar	Mahuadanr	Chetma	84°06'26.23"	23°32'28.37"
252	Latehar	Mahuadanr	Chiro	84°00'02.60"	23°26'56.78"
253	Latehar	Mahuadanr	Chormanrwa	84°13'44.12"	23°21'25.81"
254	Latehar	Mahuadanr	Chutia	84°10'07.80"	23°24'14.48"
255	Latehar	Mahuadanr	Danrkapu	84°09'36.99"	23°25'05.85"
256	Latehar	Mahuadanr	Dauna	84°10'39.76"	23°31'53.95"
257	Latehar	Mahuadanr	Dipatoli	84°06'47.35"	23°23'52.14"
258	Latehar	Mahuadanr	Duari	84°04'31.45"	23°22'16.74"
259	Latehar	Mahuadanr	Dumardih	84°09'42.91"	23°24'03.36"
260	Latehar	Mahuadanr	Durup	84°11'12.42"	23°30'03.84"
261	Latehar	Mahuadanr	Gansa	84°08'09.40"	23°21'56.87"
262	Latehar	Mahuadanr	Garhburhni	84°09'24.22"	23°26'15.68"
263	Latehar	Mahuadanr	Gathgaon	84°05'06.19"	23°27'03.37"
264	Latehar	Mahuadanr	Gaugara	84°04'19.93"	23°31'12.75"
265	Latehar	Mahuadanr	Goal khar	84°03'37.68"	23°22'26.36"
266	Latehar	Mahuadanr	Hami	84°04'20.10"	23°25'40.98"
267	Latehar	Mahuadanr	Harinaghura (Birgatola)	84°07'35.76"	23°27'25.93"
268	Latehar	Mahuadanr	Hartua	84°08'00.52"	23°29'25.42"
269	Latehar	Mahuadanr	Horheng	84°14'25.78"	23°24'59.49"
270	Latehar	Mahuadanr	Humundatoli	84°15'03.19"	23°23'21.40"
271	Latehar	Mahuadanr	Husmu	84°13'13.25"	23°23'56.51"



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272	Latehar	Mahuadanr	Jaipur	84°04'47.98"	23°27'43.22"
273	Latehar	Mahuadanr	Jamdih	84°03'17.28"	23°22'11.97"
274	Latehar	Mahuadanr	Jamdih (Haramagara)	84°02'02.28"	23°31'45.09"
275	Latehar	Mahuadanr	Jangsi	84°06'08.69"	23°26'00.19"
276	Latehar	Mahuadanr	Janta	84°04'39.72"	23°31'35.01"
277	Latehar	Mahuadanr	Jarhatoli	84°05'33.94"	23°23'10.34"
278	Latehar	Mahuadanr	Jori	84°03'31.00"	23°23'31.94"
279	Latehar	Mahuadanr	Kabrapat	84°00'42.73"	23°22'49.11"
280	Latehar	Mahuadanr	Karkat	84°11'36.20"	23°26'14.18"
281	Latehar	Mahuadanr	Katho	84°04'06.66"	23°24'44.28"
282	Latehar	Mahuadanr	Kawarki	84°11'03.97"	23°25'24.58"
283	Latehar	Mahuadanr	Khajurtola (Putmadih)	84°05'52.41"	23°29'05.69"
284	Latehar	Mahuadanr	Kita	84°07'38.68"	23°24'24.88"
285	Latehar	Mahuadanr	Korgi	84°13'11.56"	23°32'10.54"
286	Latehar	Mahuadanr	Korwadih	84°07'50.61"	23°21'01.25"
287	Latehar	Mahuadanr	Korwatoli	84°05'15.17"	23°22'11.43"
288	Latehar	Mahuadanr	Kukud	84°00'43.14"	23°29'06.10"
289	Latehar	Mahuadanr	Kurokalan	84°07'44.03"	23°22'58.19"
290	Latehar	Mahuadanr	Kurokhurd	84°07'49.86"	23°23'29.73"
291	Latehar	Mahuadanr	Kurund	84°09'13.95"	23°21'16.30"
292	Latehar	Mahuadanr	Kutudiri	84°07'31.29"	23°28'20.82"
293	Latehar	Mahuadanr	Lakhepur	84°06'35.85"	23°29'32.54"
294	Latehar	Mahuadanr	Lodh	84°02'02.27"	23°28'09.09"
295	Latehar	Mahuadanr	Lurgumikalan	84°10'03.75"	23°28'17.83"
296	Latehar	Mahuadanr	Lurgumikhurd	84°11'06.64"	23°28'18.02"
297	Latehar	Mahuadanr	Mahuadanr	84°06'27.53"	23°24'29.37"
298	Latehar	Mahuadanr	Mail	84°11'44.30"	23°21'49.10"
299	Latehar	Mahuadanr	Maunadih	84°08'35.29"	23°29'03.84"
300	Latehar	Mahuadanr	Meram	84°06'05.34"	23°22'02.08"
301	Latehar	Mahuadanr	Merhar	84°02'34.07"	23°23'50.37"
302	Latehar	Mahuadanr	Merharua	84°09'17.72"	23°30'51.83"
303	Latehar	Mahuadanr	Mirgi	84°02'29.14"	23°26'38.69"
304	Latehar	Mahuadanr	Naina	84°13'38.11"	23°28'53.40"
305	Latehar	Mahuadanr	Nawadih	84°07'07.50"	23°28'51.51"
306	Latehar	Mahuadanr	Nawatoli (Pakripat)	84°14'26.95"	23°23'45.22"
307	Latehar	Mahuadanr	Netarhat	84°15'38.15"	23°28'39.09"
308	Latehar	Mahuadanr	Orsa	83°59'59.09"	23°24'11.59"



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309	Latehar	Mahuadanr	Paharkapu	84°11'12.10"	23°24'30.35"
310	Latehar	Mahuadanr	Pakardih	84°10'36.59"	23°28'28.56"
311	Latehar	Mahuadanr	Parewa	84°02'38.16"	23°29'28.18"
312	Latehar	Mahuadanr	Parhatoli	84°08'39.94"	23°24'33.53"
313	Latehar	Mahuadanr	Parhi	84°04'27.20"	23°23'57.43"
314	Latehar	Mahuadanr	Partabpurnagar	84°08'20.56"	23°24'10.32"
315	Latehar	Mahuadanr	Patrungi	84°05'43.90"	23°22'46.56"
316	Latehar	Mahuadanr	Rajdanda	84°07'19.23"	23°25'47.53"
317	Latehar	Mahuadanr	Rampur	84°07'05.26"	23°24'42.51"
318	Latehar	Mahuadanr	Regain	84°05'13.23"	23°23'52.15"
319	Latehar	Mahuadanr	Sale	84°08'30.24"	23°28'21.59"
320	Latehar	Mahuadanr	Sarnadih (Bhenrital)	84°04'34.31"	23°29'57.18"
321	Latehar	Mahuadanr	Semarburhni	84°06'18.40"	23°28'00.57"
322	Latehar	Mahuadanr	Shahpur	84°09'35.68"	23°22'43.55"
323	Latehar	Mahuadanr	Sidra	84°06'57.02"	23°22'05.25"
324	Latehar	Mahuadanr	Sirsi	84°13'48.11"	23°26'30.49"
325	Latehar	Mahuadanr	Sohar	84°10'46.97"	23°20'29.77"
326	Latehar	Mahuadanr	Sugi	84°06'03.63"	23°25'25.24"
327	Latehar	Mahuadanr	Surkain	84°00'16.47"	23°21'51.86"
328	Latehar	Mahuadanr	Tahir	84°05'57.57"	23°20'36.27"
329	Latehar	Mahuadanr	Tamoli	84°04'00.69"	23°30'56.33"
330	Latehar	Mahuadanr	Tewahi	84°02'32.52"	23°27'18.67"
331	Latehar	Mahuadanr	Tisia	84°03'21.77"	23°34'47.50"
332	Latehar	Mahuadanr	Urumbi	84°04'09.57"	23°28'55.54"
333	Latehar	Manika	Amwatikar	84°20'34.55"	23°45'54.86"
334	Latehar	Manika	Antikheta	84°19'55.21"	23°46'35.12"
335	Latehar	Manika	Barkadih	84°21'50.84"	23°46'04.03"
336	Latehar	Manika	Bhatko	84°18'50.44"	23°48'19.78"
337	Latehar	Manika	Dasdih	84°19'30.22"	23°48'17.53"
338	Latehar	Manika	Devbar R.F.	84°23'49.61"	23°46'27.33"
339	Latehar	Manika	Hatta	84°19'48.58"	23°45'20.35"
340	Latehar	Manika	Humamara	84°20'34.76"	23°46'57.72"
341	Latehar	Manika	Jagtu	84°18'34.96"	23°49'16.74"
342	Latehar	Manika	Jamuna	84°21'37.08"	23°48'55.67"
343	Latehar	Manika	Jerua	84°18'02.55"	23°48'55.98"
344	Latehar	Manika	Jobla	84°21'11.69"	23°46'09.58"
345	Latehar	Manika	Koili	84°17'08.41"	23°50'49.59"



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346	Latehar	Manika	Kope	84°17'15.16"	23°49'04.50"
347	Latehar	Manika	Kui	84°17'46.27"	23°51'17.03"
348	Latehar	Manika	Kumand R.F.	84°22'23.54"	23°44'24.65"
349	Latehar	Manika	Kurumkheta	84°19'15.33"	23°44'59.96"
350	Latehar	Manika	Kurumkheta R.F.	84°18'55.17"	23°44'39.69"
351	Latehar	Manika	Lanka	84°16'13.19"	23°49'53.36"
352	Latehar	Manika	Lawagara	84°22'40.31"	23°45'54.80"
353	Latehar	Manika	Patki	84°21'27.78"	23°47'08.43"
354	Latehar	Manika	Rankikalan	84°16'07.25"	23°52'12.25"
355	Latehar	Manika	Sewadhara	84°16'14.19"	23°51'09.98"
356	Latehar	Manika	Simri	84°20'13.22"	23°48'57.09"
357	Latehar	Manika	Siwacharantola	84°20'42.21"	23°47'42.89"
358	Palamau	Chainpur	Ausane	84°08'03.72"	23°55'56.80"
359	Palamau	Daltonganj	Banua alias Sala	84°09'41.89"	23°57'21.38"
360	Palamau	Daltonganj	Chama	84°11'29.85"	23°57'14.72"
361	Palamau	Daltonganj	Hisra alias Pokhraha	84°09'10.52"	23°58'00.35"
362	Palamau	Daltonganj	Karma	84°11'39.78"	23°56'45.39"
363	Palamau	Daltonganj	Ledwakhar	84°12'16.16"	23°55'08.24"
364	Palamau	Daltonganj	Polpol kalan	84°10'15.48"	23°57'00.14"
365	Palamau	Satbarwa	Bari	84°12'35.78"	23°56'51.45"
366	Palamau	Satbarwa	Chetma	84°15'51.46"	23°53'36.48"
367	Palamau	Satbarwa	Dulsulmi	84°16'01.92"	23°54'35.59"
368	Palamau	Satbarwa	Hurmur	84°15'07.64"	23°54'08.55"
369	Palamau	Satbarwa	Jora Hunhe alias Jora	84°15'46.51"	23°54'48.81"
370	Palamau	Satbarwa	Kamaru	84°18'00.64"	23°52'28.61"
371	Palamau	Satbarwa	Manasoti	84°12'30.09"	23°55'47.08"
372	Palamau	Satbarwa	Nalumanr	84°13'19.14"	23°55'20.19"
373	Palamau	Satbarwa	Rabda	84°14'05.16"	23°54'21.94"
374	Palamau	Satbarwa	Salaia	84°15'34.25"	23°53'09.24"
375	Palamau	Satbarwa	Tumagara	84°16'11.60"	23°54'02.76"
376	Palamau	Chainpur	Khapia	84°07'31.19"	23°54'27.91"
377	Latehar	Latehar	Patuki	84°25'35.26"	23°47'25.47"
378	Latehar	Latehar	Hotwag	84°27'26.61"	23°46'33.53"
379	Latehar	Latehar	Dumriyatn	84°26'22.50"	23°46'24.47"
380	Latehar	Manika	Devbar R.F.	84°22'12.18"	23°47'46.87"
381	Latehar	Manika	Devbar	84°23'19.43"	23°47'32.84"
382	Palamau	Chainpur	Bairiya	84°06'42.20"	23°53'48.74"





(Source: MoEF & CC Notification S.O. 2898 (E), Dt. 9<sup>th</sup> August, 2019)

### 13.2 ESZ of Lawalong Wildlife Sanctuary:

Lawalong Wildlife Sanctuary is located in the Deccan Plateau Province of Chhotanagpur Plateau (SD) Bio-geographic Zone. The area is the habitat of leopards, wolves, cheetals, wild boars, sloth bears, jackals, porcupines, hyenas, hares, pangoline, etc. Movement of elephants from Palamau and Chatra are observed through this Sanctuary. The important bird species spotted frequently in the Sanctuary are serpent eagle, paradise fly-catcher, kingfisher, bee-eater, swift, different types of babbler, black drongo, wood pecker, lapwing, peafowl, pond heron, egret, etc. The forests of the Sanctuary also act as corridor connecting between forests of Palamau, Lawalong and Hazaribag for movement of elephant. Southern part of this Eco Sensitive Zone falls within Latehar District. The Eco-Sensitive Zone shall be to an extent of 1.80 km to 5 km around the boundary of Lawalong WLS and the area of ESZ is 570.19 km<sup>2</sup>.

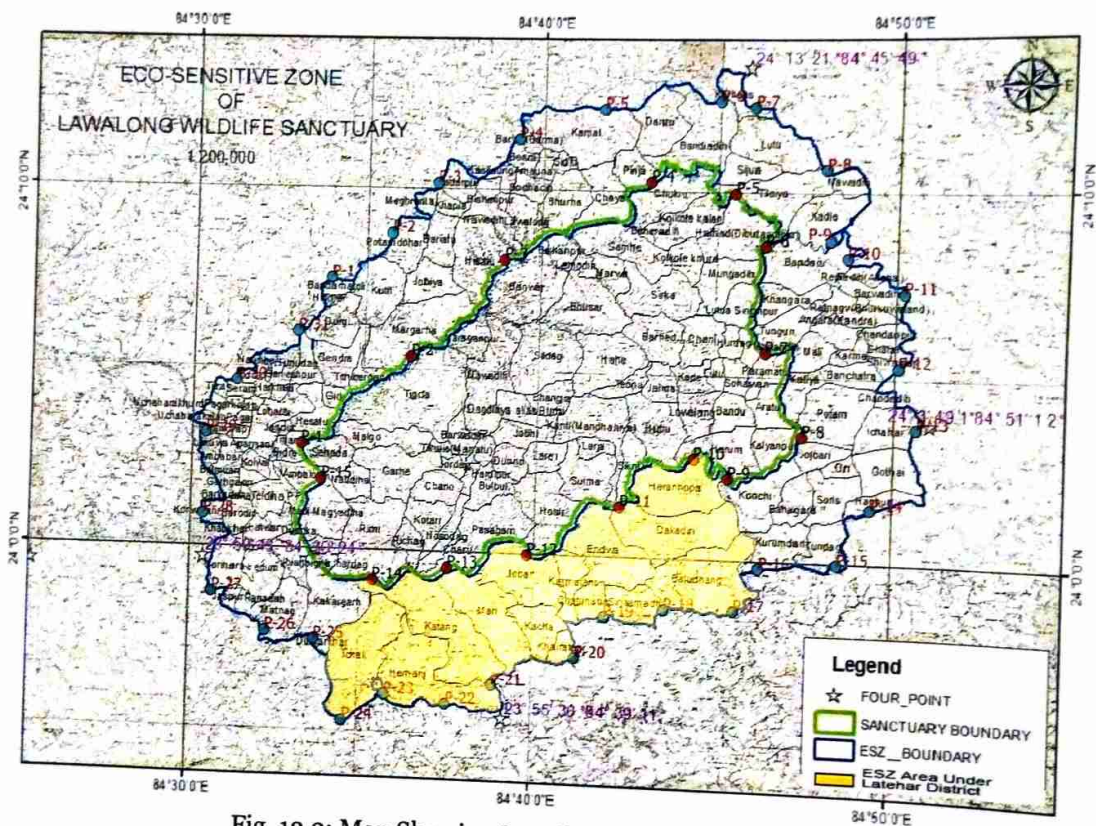


Fig. 13.3: Map Showing Lawalong Wildlife Sanctuary

(Source: MoEF&CC Notification S.O. 2896(E), Dt. 9<sup>th</sup> August 2019)

#### • Boundary Description of Eco-Sensitive Zone of Lawalong Wildlife Sanctuary in the State of Jharkhand

Boundary is marked in clockwise direction begin from the North Side, followed by East, South and West and in each side of the direction is also taken in clockwise direction. Revenue village name is in Italic.

**North:** - North and Northern-West part of *Potamdohar*, Northern-West part of *Meghrania* and *Khapia*, Northern part of *Madarpur*, *Kasilaung*, *Besra*, *Amauna*, *Barwa (Barma) Kamal*, *Danru*, *Bandiadihand Korhans* and Northern-East part of *Lutu* Revenue Villages.



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**East:** - Eastern part of Nawadih, Kadle, Bandaru, Rejhdi (Akona), Barwadih, Angara (Kandra), Chandanpur, Shivrajpur, Banchatra, Chandadih, Ichahar and Gothai and Southern and Eastern part of Haphua and Tundag Revenue Villages.

**South:** - Southern part of Kurumdari, Balubhang, Sirisamadhand Chatuhaus, South and Southern-East part of Khairatan and Southern part of Katang, Herhanj and Ichak Revenue Villages.

**West:** - Western part of Dumarkhar, Southern-West part of Mutnag, Western part of Ranadah then after it crosses the Panki river and enter into Western part of Jaspur, Gorihara, Khankhar, Barodiri, Korwatanr, Barkadaha, Garhgaon, Ambabar, Lukuwa, Biharikhap, and Pagarkalan, Western and Northern-West part of Pagar, Tilra, Seram, Bidra, Nawdiha, Tunudag, Durgi, Hindidi and Bandarhatoli Revenue Villages.

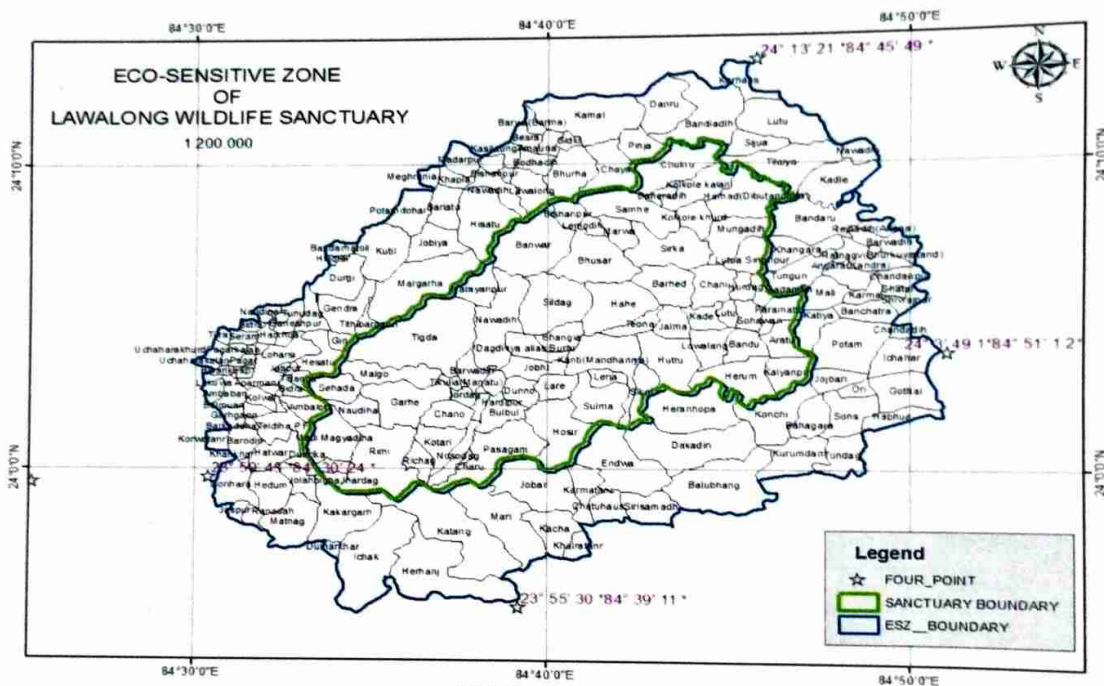


Table No. 13.5

Geo-coordinates of Eco-Sensitive Zone Boundary within Latehar District

Point No.	Latitude	Longitude	Point No.	Latitude	Longitude
P-16	84°46'22"	23°59'47"	P-21	84°38'52"	23°56'23"
P-17	84°45'41"	23°58'38"	P-22	84°37'33"	23°55'49"
P-18	84°43'43"	23°58'37"	P-23	84°35'46"	23°56'2"
P-19	84°42'1"	23°58'22"	P-24	84°34'34"	23°55'17"
P-20	84°41'14"	23°57'13"	P-25	84°33'41"	23°57'30"

• **List of villages in Latehar District falling within Lawalong Eco-Sensitive Zone:**

Ichak, Herhanj, Kakang, Mari, Kacha, Jobar, Khairatan, Karmatanr, Chatuhaus, Sirisamadhand, Endwa, Balubhang, Dakadiri, Heranhopa.



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Sl. No.	Name of Village	Admm. Block	GPS Co-Ordinates	Town/Village Code as per Census of India, 2011
1	2	3	5	6
1	Nawadih	Chatra	24.1716N,84.8107 E	348566
2	Lutua	Chatra	24.1884N,84.7748 E	348675
3	Sijua	Chatra	24.1767N,84.7622 E	348721
4	Tilaia	Chatra	24.1662N,84.7775 E	348722
5	Kadle	Chatra	24.1561N,84.7998 E	348723
6	Korhans	Kunda	24.2106N,84.7578 E	348535
7	Danru	Kunda	24.1978N,84.7213 E	348533
8	Barwaalias Barma	Kunda	24.1893N,84.6597 E	348522
9	Bandiadih	Kunda	24.1929N,84.7401 E	348534
10	Kamal	Kunda	24.1927N,84.6859 E	348517
11	Amauna	Kunda	24.1781N,84.6676 E	348519
12	Kasilaung	Kunda	24.1723N,84.6478 E	348524
13	Bodhadih	Kunda	24.1677N,84.6606 E	348520
14	Bishunpur	Kunda	24.1673N,84.6403 E	348525
15	Khapia	Kunda	24.1588N,84.6222 E	348498
16	Besra	Kunda	24.1807N,84.6563 E	348521
17	Pinja	Kunda	24.1759N,84.7101 E	348532
18	Sidki	Kunda	24.1789N,84.6763 E	348518
19	Chaya	Kunda	24.1631N,84.6963 E	348531
20	Madarpur	Kunda	24.1691 N, 84.6259 E	348497
21	Bhurha	Kunda	24.1615 N, 84.6773 E	348530
22	Nawadih	Kunda	24.1519 N, 84.6445 E	348511
23	Meghrania	Kunda	24.1600 N, 84.6109 E	348499
24	Bajrahi	Kunda	24.1613 N, 84.6469 E	348526
25	Lawalong	Kunda	24.1516 N, 84.6592 E	348529
26	Bariatu	Kunda	24.1431 N, 84.6182 E	348500
27	Hisatu	Kunda	24.1355 N, 84.6364 E	348527
28	Potamdohar	Kunda	24.1411 N, 84.6023 E	348502
29	Jobeya	Kunda	24.1233 N, 84.6131 E	348501
30	Kutil	Kunda	24.1195 N, 84.5887 E	348504
31	Margarha	Kunda	24.1002 N, 84.6070 E	348508
32	Durgi	Kunda	24.1039 N, 84.5692 E	348505
33	Gendra	Kunda	24.0874 N, 84.5713 E	348506
34	Tithibhargaon	Kunda	24.0788 N, 84.5815 E	348507



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35	Bandaru	Lawalong	24.1356 N, 84.7911 E	348613
36	Rejadih alias Akona	Lawalong	24.1311 N, 84.8194 E	348614
37	Khangara	Lawalong	24.1189 N, 84.7825 E	348612
38	Ratnag alias Bhurkuatanr	Lawalong	24.1145 N, 84.8142 E	348617
39	Tungun	Lawalong	24.1059 N, 84.7830 E	348618
40	Angara alias Kandra	Lawalong	24.1051 N, 84.8058 E	348619
41	Karma	Lawalong	24.0954 N, 84.8134 E	348623
42	Banchatra	Lawalong	24.0856 N, 84.8148 E	348622
43	Chandanpur	Lawalong	24.1042 N, 84.8295 E	348625
44	Mali	Lawalong	24.0953 N, 84.7951 E	348620
45	Shivrajpur	Lawalong	24.0919 N, 84.8319 E	348626
46	Chatar	Lawalong	24.0961 N, 84.8268 E	348624
47	Chandadih	Lawalong	24.0749 N, 84.8294 E	348633
48	Icha Ahar	Lawalong	24.0616 N, 84.8302 E	348635
49	Katia	Lawalong	24.0774 N, 84.7897 E	348621
50	Potam	Lawalong	24.0678N, 84.8064 E	348634
51	Ori	Lawalong	24.0434 N, 84.8097 E	348640
52	Jojbari	Lawalong	24.0492 N, 84.7994 E	348636
53	Konchi	Lawalong	24.0297 N, 84.7725 E	348638
54	Sons	Lawalong	24.0306 N, 84.8056 E	348639
55	Bahagara	Lawalong	24.0280 N, 84.7889 E	348637
56	Sarhachia	Lawalong	24.1180 N, 84.8170 E	348616
57	Barwadih	Lawalong	24.1223 N, 84.8240 E	348615
58	Gothai	Simaria	24.0427 N, 84.8312 E	349308
59	Haphua	Simaria	24.0287 N, 84.8280 E	349309
60	Tundag	Simaria	24.0077 N, 84.8035 E	349307
61	Kurumdari	Simaria	24.0070 N, 84.7813 E	349301
62	Endwa	Bariatu	24.0030 N, 84.7014 E	367427
63	Harauhopa	Bariatu	24.0323 N, 84.7345 E	367428
64	Dakadiri	Bariatu	24.0130 N, 84.7335 E	367429
65	Balu Bhang	Bariatu	24.9916 N, 84.7484 E	367430
66	Jaubar	Bariatu	24.9907 N, 84.6622 E	367424
67	Karmatanr	Bariatu	24.9882 N, 84.6846 E	367425
68	Sirismadh	Bariatu	24.9794 N, 84.7146 E	367426
69	Mari	Herhanj	24.9720 N, 84.6460 E	367493
70	Katang	Herhanj	24.9653 N, 84.6237 E	367480
71	Chatuhaus	Herhanj	24.9795 N, 84.6951 E	367494
72	Ichak	Herhanj	24.9512 N, 84.5848 E	367481



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73	Kacha	Herhanj	24.9672 N, 84.6700 E	367492
74	Khairatanr	Herhanj	24.9580 N, 84.6814 E	367489
75	Harhenj	Herhanj	24.9434 N, 84.6179 E	367482
76	Tunudag	Panki	24.0847 N, 84.5549 E	366412
77	Ganeshpur	Panki	24.0831 N, 84.5453 E	366410
78	Naudiha	Panki	24.0855 N, 84.5339 E	366406
79	Baherwatanr	Panki	24.0845 N, 84.5363 E	366407
80	Birtia	Panki	24.0810 N, 84.5369 E	366409
81	Bidra	Panki	24.0782 N, 84.5265 E	366382
82	Pardohar	Panki	24.0782 N, 84.5364 E	366405
83	Sirma	Panki	24.0717 N, 84.5227 E	366402
84	Pipratn	Panki	24.0708 N, 84.5422 E	366411
85	Baniadih	Panki	24.0825 N, 84.5411 E	366408
86	Harkhuwa	Panki	24.0727 N, 84.5340 E	366404
87	Tilra	Panki	24.0726 N, 84.5134 E	366401
88	Hesatu	Panki	24.0612 N, 84.5602 E	366414
89	Giri	Panki	24.0697 N, 84.5694 E	366413
90	Loharsi	Panki	24.0581 N, 84.5396 E	366419
91	Pagar Kalan	Panki	24.0632 N, 84.5152 E	366397
92	Gudipahari	Panki	24.0661 N, 84.5312 E	366403
93	Udih	Panki	24.0647 N, 84.5267 E	366399
94	Uchahra Khurd	Panki	24.0615 N, 84.5088 E	366396
95	Tilamba	Panki	24.0550 N, 84.5417 E	366418
96	Pachamba	Panki	24.0664 N, 84.5210 E	366400
97	Uchahra Kalan	Panki	24.0574 N, 84.5055 E	366395
98	Jasipur Alias Cheribar	Panki	24.0544 N, 84.5461 E	366371
99	Bihari Khap	Panki	24.0536 N, 84.5155 E	366394
100	Sarjamatu	Panki	24.0521 N, 84.5236 E	366393
101	Titlangi	Panki	24.0482 N, 84.5510 E	366415
102	Gareriadih	Panki	24.0507 N, 84.5184 E	366392
103	Bidra	Panki	24.0437 N, 84.5463 E	366416
104	Lukuwa	Panki	24.0423 N, 84.5090 E	366390
105	Aparmanri	Panki	24.0432 N, 84.5359 E	366420
106	Kelwa	Panki	24.0380 N, 84.5314 E	366423
107	Garhganw	Panki	24.0281 N, 85.188 E	366425
108	Karma	Panki	24.0494 N, 84.5075 E	366389
109	Ambabar	Panki	24.0404 N, 84.5175 E	366391
110	Ambalori	Panki	24.0330 N, 84.5537 E	366421



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111	Teldiha	Panki	24.0342 N, 84.5402 E	366422
112	Balmuwan	Panki	24.0315 N, 84.5290 E	366424
113	Barkadaha	Panki	24.0242 N, 84.5268 E	366426
114	Barodiri	Panki	24.0143 N, 84.5231 E	366427
115	Korwatanr	Panki	24.0152 N, 84.5111 E	366340
116	Hatwar	Panki	24.0080 N, 84.5379 E	366429
117	Duwarika	Panki	24.0020 N, 84.5526 E	366376
118	Khankhar	Panki	24.0030 N, 84.5242 E	366428
119	Gorihara	Panki	24.9905 N, 84.5191 E	366370
120	Ranadah	Panki	24.9732 N, 84.5281 E	366372
121	Jolah Bigha	Panki	24.9930 N, 84.5503 E	366375
122	Herum	Panki	24.9880 N, 84.5366 E	366373
123	Kakargarh	Panki	24.9755 N, 84.5701 E	366377
124	Matnag	Panki	24.9703 N, 84.5467 E	366374
125	Jaspur	Panki	24.9763 N, 84.5211 E	366417
126	Dumar Khar	Panki	24.9561 N, 84.5661 E	366378

Table No. 13.7: Geo Co-ordinates of Lawalong Wildlife Sanctuary

Point No.	Longitude (E)	Latitude (N)
P-1	84°33'12"	24°02'53"
P-2	84°36'20"	24°05'22"
P-3	84°38'57"	24°08'05"
P-4	84°43'05"	24°10'15"
P-5	84°45'29"	24°09'58"
P-6	84°46'21"	24°08'33"
P-7	84°46'24"	24°05'40"
P-8	84°47'29"	24°03'24"
P-9	84°45'26"	24°02'13"
P-10	84°44'28"	24°02'44"
P-11	84°42'25"	24°01'22"
P-12	84°39'48"	23°59'58"
P-13	84°37'31"	23°59'33"
P-14	84°35'21"	23°59'11"
P-15	84°33'49"	23°01'55"

Table No. 13.8: Geo-coordinates of Eco-Sensitive Zone Boundary

Points	Latitude (N)	Longitude (E)
P-1	24°07'30"	84°33'58"
P-2	24°08'45"	84°35'41"
P-3	24°10'09"	84°36'58"
P-4	24°11'23"	84°39'17"
P-5	24°12'13"	84°41'42"
P-6	24°12'27"	84°44'59"
P-7	24°12'18"	84°45'58"



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P-8	24°10'37"	84°47'60"
P-9	24°08'44"	84°48'10"
P-10	24°08'16"	84°48'38"
P-11	24°07'20"	84°50'13"
P-12	23°05'19"	84°50'07"
P-13	23°03'40"	84°50'38"
P-14	23°01'27"	84°39'26"
P-15	23°59'57"	84°48'32"
P-16	23°59'47"	84°46'22"
P-17	23°58'38"	84°45'41"
P-18	23°58'37"	84°43'43"
P-19	23°58'22"	84°42'01"
P-20	23°57'13"	84°41'14"
P-21	23°56'23"	84°38'52"
P-22	23°55'49"	84°37'33"
P-23	23°56'02"	84°35'46"
P-24	23°55'17"	84°34'34"
P-25	23°57'30"	84°33'41"
P-26	23°57'42"	84°32'16"
P-27	23°58'45"	84°30'40"
P-28	23°00'52"	84°30'22"
P-29	23°03'07"	84°30'23"
P-30	23°04'36"	84°31'15"
P-31	23°05'60"	84°33'02"

Table No. 13.9:  
List of Prohibited & Regulated Activities in Lawalong Eco-Sensitive Zone

Sl. No. (1)	Activity (2)	Description (3)
<b>A. Prohibited Activities</b>		
1.	Commercial mining, stone quarrying and crushing units.	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect except for meeting the domestic needs of bonafide local residents including digging of earth for construction or repair of houses and for manufacture of country tiles or bricks for housing and for personal consumption; (b) The mining operations shall be carried out in accordance with the order of the Hon'ble Supreme Court dated the 4 <sup>th</sup> August, 2006 in the matter of T. N. Godavarman Thirumulpad Vs. UOI in W.P.(C) No. - 202 of 1995 and dated the 21 <sup>st</sup> April, 2014 in the matter of Goa Foundation Vs. UOI in W.P.(C) No. 435 of 2012.



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2.	Setting of industries causing pollution (Water, Air, Soil, Noise, etc.).	New industries and expansion of existing polluting industries in the Eco-Sensitive Zone shall not be permitted: - Provided that non-polluting industries shall be allowed within Eco-Sensitive Zone as per classification of Industries in the guidelines issued by the Central Pollution Control Board in February, 2016, unless so specified in this notification and in addition the non-polluting cottage industries shall be promoted.
3.	Establishment of major hydro-electric project.	Prohibited (except as otherwise provided) as per the applicable laws.
4.	Use or production or processing of any hazardous substances.	Prohibited (except as otherwise provided) as per the applicable laws.
5.	Discharge of untreated effluents in natural water bodies or land area.	Prohibited (except as otherwise provided) as per the applicable laws.
6.	Setting up of new saw mills.	New or expansion of existing saw mills shall not be permitted within the Eco-Sensitive Zone.
7.	Setting up of brick kilns.	Prohibited (except as otherwise provided) as per the applicable laws.

**B. Regulated Activities**

8.	Commercial establishment of hotels and resorts.	No new commercial hotels and resorts shall be permitted within one kilometer of the boundary of the protected area or up to the extent of Eco-Sensitive Zone, whichever is nearer, except for small temporary structures for eco-tourism activities: - Provided that, beyond one kilometer from the boundary of the protected area or up to the extent of Eco-sensitive Zone whichever is nearer, all new tourist activities or expansion of existing activities shall be in conformity with the Tourism Master Plan and guidelines as applicable.
9.	Construction activities.	(a) New commercial construction of any kind shall not be permitted within one kilometre from the boundary of the protected area or up to extent of the Eco-Sensitive Zone, whichever is nearer: - Provided that, local people shall be permitted to undertake construction in their land for their use including the activities mentioned in sub-paragraph (1) of paragraph 3 as per building bye-laws to meet the residential needs of the local residents. - Provided further that the construction activity related to small scale industries not causing pollution shall be regulated and kept at the minimum, with the prior permission from the competent authority as per applicable rules and regulations, if any.



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10.	Small scale non-polluting industries.	Non-polluting industries as per classification of industries issued by the Central Pollution Control Board in February, 2016 and non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous materials from the Eco-sensitive Zone shall be permitted by the competent Authority.
11.	Felling of trees.	(a) There shall be no felling of trees in the forest or Government or revenue or private lands without prior permission of the Competent Authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
12.	Collection of Forest produce or Non-Timber Forest produce.	Regulated as per the applicable laws.
13.	Erection of electrical and communication towers and laying of cables and other infrastructures.	Regulated under applicable laws (underground cabling may be promoted).
14.	Infrastructure including civic amenities.	Taking measures of mitigation as per and applicable laws, rules and regulations & available guidelines.
15.	Widening and strengthening of existing roads and construction of new roads.	Taking measures of mitigation as per and applicable laws, rules and regulation and available guidelines.
16.	Undertaking other activities related to tourism like flying over the Eco-sensitive Zone area by hot air balloon, helicopter, drones, Microlites, etc.	Regulated as per the applicable laws.
17.	Protection of hill slopes and riverbanks.	Regulated as per the applicable laws.
18.	Movement of vehicular traffic at night.	Regulated for commercial purpose under applicable laws.
19.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	Permitted as per the applicable laws for use of locals.
20.	Establishment of large-scale commercial livestock and poultry farms by firms, corporate and companies.	Regulated (except as otherwise provided) as per applicable laws except for meeting local needs.



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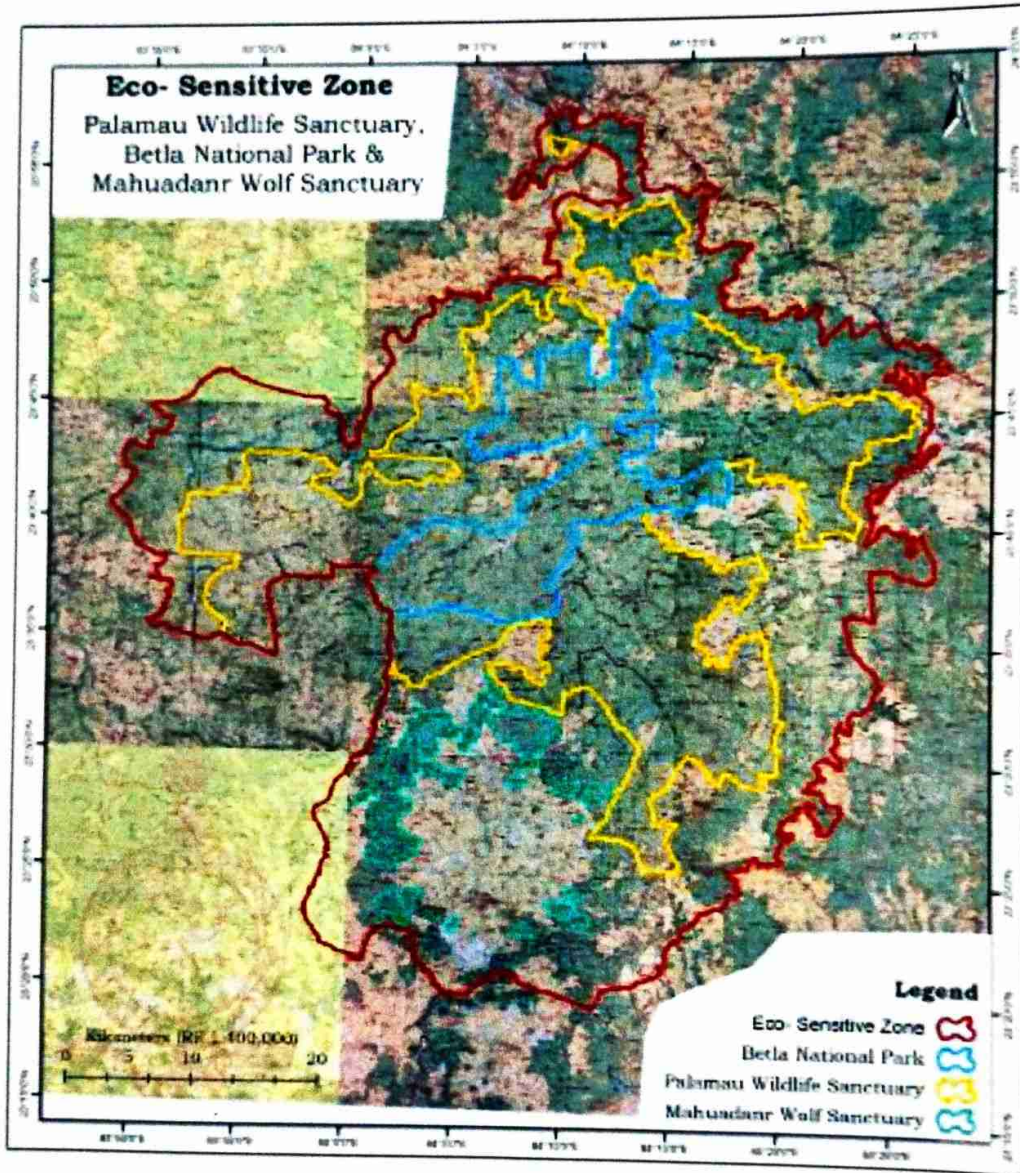
21.	Discharge of treated waste water or effluents in natural water bodies or land area.	The discharge of treated waste water or effluents shall be avoided to enter into the water bodies and efforts shall be made for recycle and reuse of treated waste water. Otherwise the discharge of treated waste water or effluent shall be regulated as per the applicable laws.
22.	Commercial extraction of surface and groundwater.	Regulated as per the applicable laws.
23.	Open Well, Bore Well etc. for agriculture or other usage.	Regulated and the activity should be strictly monitored by the appropriate authority.
24.	Solid waste management.	Regulated as per the applicable laws.
25.	Introduction of exotic species.	Regulated as per the applicable laws.
26.	Eco-tourism.	Regulated as per the applicable laws.
27.	Use of polythene bags.	Regulated as per the applicable laws.
28.	Commercial sign boards and hoardings.	Regulated as per the applicable laws.
<b>C. Promoted Activities</b>		
29.	Rain water harvesting.	Shall be actively promoted.
30.	Organic farming.	Shall be actively promoted.
31.	Adoption of green technology for all activities.	Shall be actively promoted.
32.	Cottage industries including village artisans, etc.	Shall be actively promoted.
33.	Use of renewable energy and fuels.	Bio-gas, solar light etc. shall be actively promoted.
34.	Agro-Forestry.	Shall be actively promoted.
35.	Plantation of Horticulture and Herbals.	Shall be actively promoted.
36.	Use of eco-friendly transport.	Shall be actively promoted.
37.	Skill Development.	Shall be actively promoted.
38.	Restoration of degraded land/forests/habitat.	Shall be actively promoted.
39.	Environmental awareness.	Shall be actively promoted.



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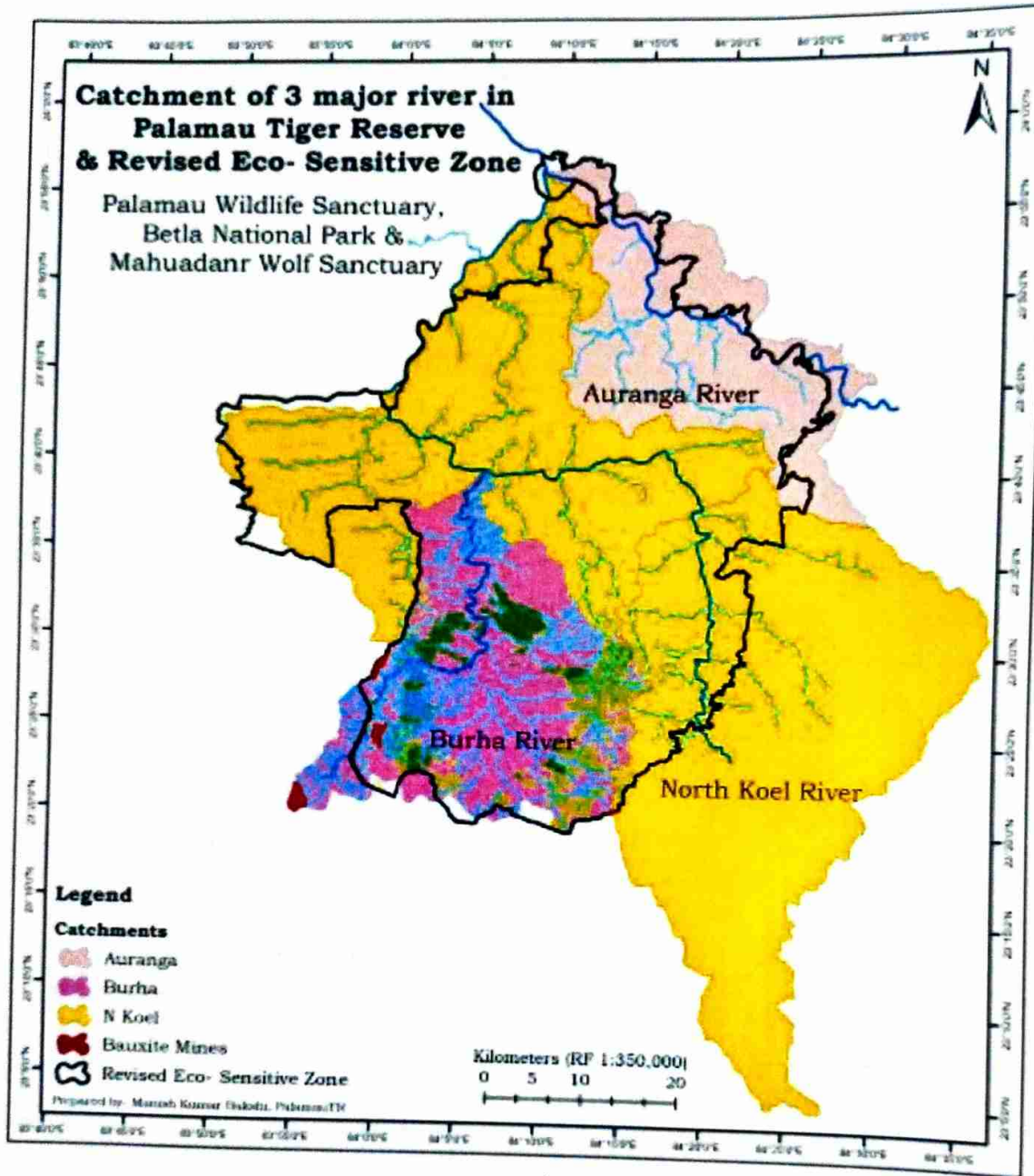
Map of Eco-Sensitive Zone of Palamau Wildlife Sanctuary, Betla National Park



(Source – Gazette Notification August 9, 2019)



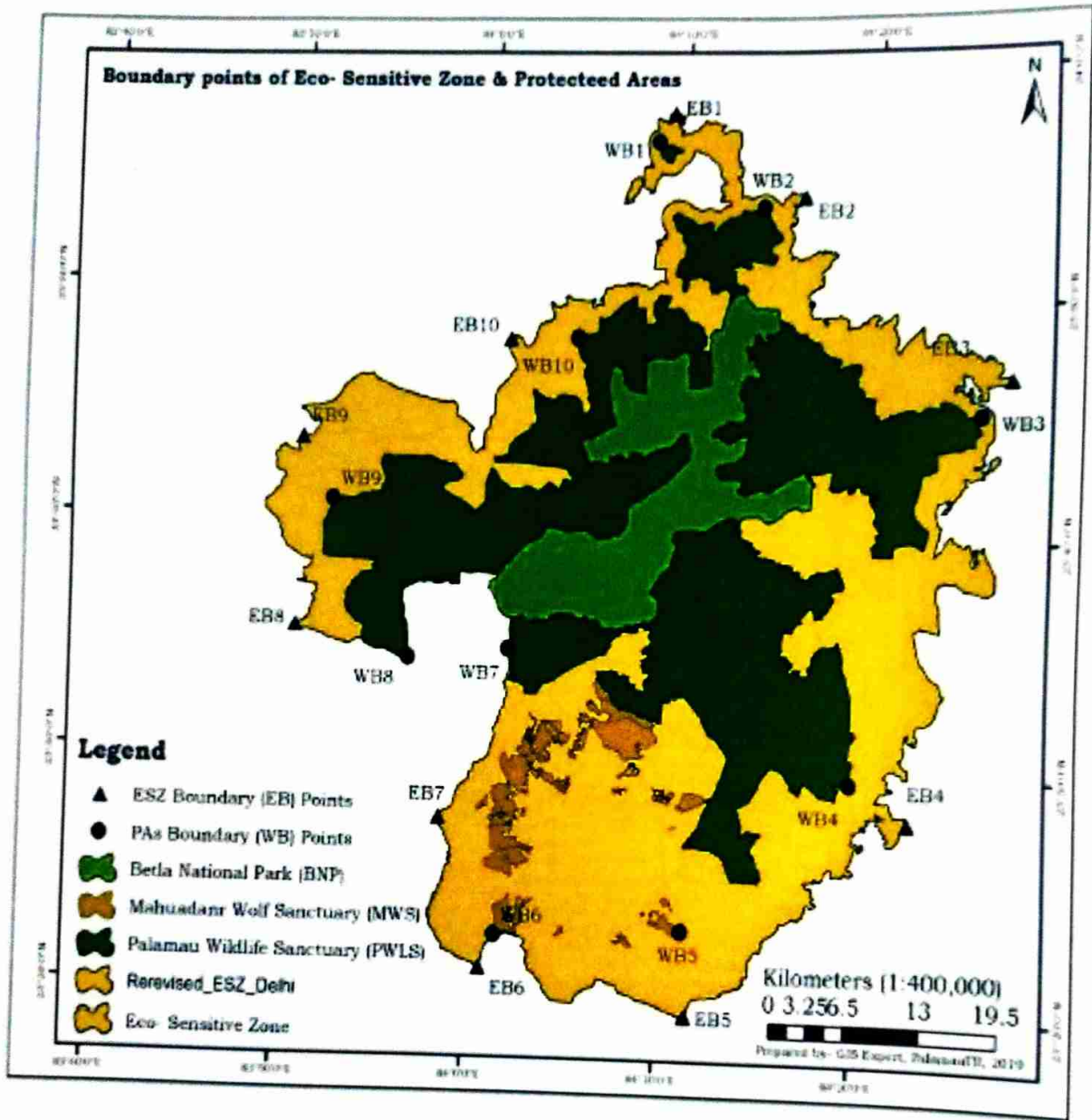
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(Source – Gazette Notification August 9, 2019)



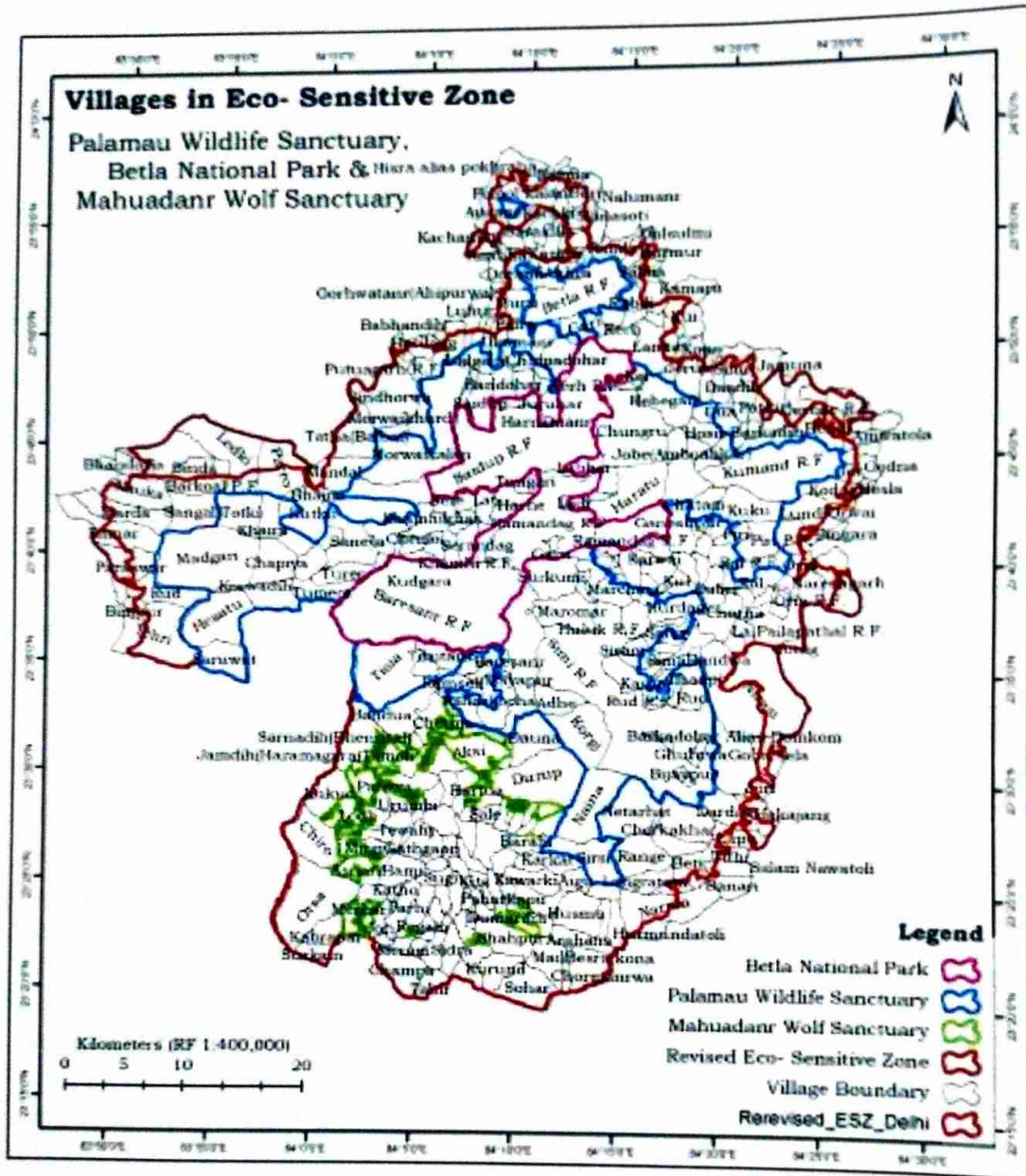
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(Source – Gazette Notification August 9, 2019)



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**Boundary description of Eco-Sensitive Zone:**

(Source – Gazette Notification August 9, 2019)



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## 14. IMPACT ON THE ENVIRONMENT DUE TO MINING

### 14.1 For Sand Mining:

The environmental components that are likely to be influenced or modified by the continuation of mining activities are: Air, Water, Noise, Soil, Hydrology, Ecology & Bio-diversity, Socio-economic status etc.

Major activities involve in the operation phase are -

- Excavation,
- Loading of material on truck by excavator
- Movement of vehicle on 'kaccha' road of villages

#### ✓ Air Pollution

In mining activity, the only source of air pollution is excavation, transportation, loading and handling of minerals etc. The proposed mining operations are not anticipated to raise the concentration of pollutants beyond prescribed limits. However, the measures are suggested to mitigate the negative impact of the proposed mining activity to control the pollutants by plantation of trees along haul roads, specially near settlements, to help to reduce the impact of dust on the nearby villages; planning transportation routes of mined material so as to reach the nearest paved roads by shortest route (minimize transportation over unpaved road); regular water sprinkling on unpaved roads to avoid dust generation during transportation etc.

#### Emission of PM<sub>10</sub>

The major sources of PM<sub>10</sub> emission in case of sand mining project are the loading activity at mine site (loading of material over trucks / trucks by excavators) and the movement of vehicles on unpaved haul roads.

#### Loading of Material

The excavated materials will be loaded on dumpers using excavators.

#### Emission of PM<sub>10</sub> due to Transportation

The hauling of minerals from the mine lease area to the end users via haul road (unpaved road) will cause emission of particulate matters. This emission will be limited to the extent of unpaved haul road starting from mining pit to nearest paved road connectivity.

#### Emission of CO from Vehicles

The excavated minerals will be transported outside the mining area for end use. The ARAI emission factors for CO emitting from heavy vehicles (diesel) is 3.92 gm/km or 6.32 g/mile.

#### Air Emissions

- Dust and air emission particularly due to the excavation, construction and movement of vehicles resulting in air pollution.
- No. of PCU/Hr. will increase due to mining in existing traffic scenario lead to air pollution which can cause adverse effect on human health of neighboring villagers like effect on breathing and respiratory system, damage to lung tissue, cancer and premature death, influenza or asthma.

#### ✓ Noise Pollution

- Noise Impact due to mining activities.
- Human Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc. due to prolonged exposure.




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- Increase in the existing traffic due to this mining activity may occur unwanted sound and can also cause impact on human health of neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, cancer and premature death, influenza or asthma.
- ✓ **Water Pollution**
  - Flow pattern might be changed due to river bed mining.
  - Mining activities depth will be increased, which may result in increase of flow velocity.
  - Change in surface water quality and ground water quality.
  - Impact on ground water recharge potential as the thickness of the natural filter materials (sediments) is reduce causing less infiltration.
  - Waste water discharge.
- ✓ **Soil Environment**
  - Mining activity may increase the soil erosion and soil degradation which have adverse impact on soil fertility.
  - Top soil extraction from outside riverbed may also affect the soil fertility and productivity.
  - During the flood, the soil erosion may occur.
- ✓ **Solid Waste Generation/Management**
  - Flow pattern might be changed due to river bed mining.
  - Mining activities depth will be increased, which may result in increase of flow velocity.
  - Waste water discharge.
- ✓ **Land Use**
  - The mining activity in the outside riverbed will be converted into the pit, which may cause soil erosion, soil degradation etc.
  - Mining in the riverbed may change complete land use pattern including channel geometry, bed elevation, sediment transportation capacity which can reduce flow of the river and downstream erosion.
- ✓ **Hydrology**
  - The mining in the riverbed area may cause the ground water contamination due to intersection of the water table.
  - Change the topography will divert the river flow.
  - Change in topography can change the river flow and flood may occur.
  - Slope of mining area will change which can create soil erosion and divert rain water runoff channel.
- ✓ **Topography, Drainage and Ground Water Contamination**
  - Spillage of oil from construction/transportation vehicles and equipment.
- ✓ **Biological Environment**
  - Transportation of sand in the trucks/dumper will disturb the movement of wild animals like jungle cat, jackal, and other reptiles. Fugitive emission from vehicle movement will form a layer in leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants. Chances of vehicle collisions with wildlife attempting to cross roads are possible.
  - Any human settlement in the mining area will disturb the vegetation cover and reptiles
  - Indiscriminate mining from active channels of rivers causes many adverse effects on the benthic fauna, which inhabits the bottom sandy substratum. Excessive sand extraction from rivers affects the eco-biology of many terrestrial insects whose initial life history begins in aquatic environments
  - Stomatal index may be minimized due to dust deposit on leaf.



  
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✓ **Socio-economic**

- Such shops along the roads will generate solid waste and waste water which will have adverse impact on human health.
- Further, the deep pits created in the channel also can contribute to an increase in accidents in the working environment.

Adequate control measures will be adopted to check not only the wash-off from soil erosion but also uncontrolled flow of mine water.

✓ **Noise Pollution**

Mining operations involve deployment of mining machineries, drilling, blasting, excavation and transportation of stone. Noise may be generated by the impact from drill bits and mechanical vibration from drill casings, as well as impulse noise from exhaust and ancillary equipment such as fans and blowers for mine ventilation.

✓ **Land Environment**

The creation of landscape blots like open pits and piles of waste rocks due to mining operations can lead to the physical destruction of the land at the mining site. Such disruptions can contribute to the deterioration of the area's flora and fauna. There is also a huge possibility that many of the surface features that were present before mining activities cannot be replaced after the process has ended. The removal of soil layers and deep underground digging can destabilize the ground which threatens the future of roads and buildings in the area.





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

### 15.1 Remedial Measures for Sand Mining:

#### ✓ Air Environment:

During mining activity, the only source of air pollution is excavation, transportation, loading and handling of minerals etc. However, the measures are suggested to mitigate the negative impact of the proposed mining activity to control the pollutants by plantation of trees along haul roads, specially near settlements, to help to reduce the impact of dust on the nearby villages; planning transportation routes of mined material so as to reach the nearest paved roads by shortest route (minimize transportation over unpaved road); regular water sprinkling on unpaved roads to avoid dust generation during transportation etc.

Impact	Mitigation Measures
<b>Air Emissions</b> <ul style="list-style-type: none"><li>• Dust and air emission particularly due to the excavation, construction and movement of vehicles resulting in air pollution.</li></ul>	<ul style="list-style-type: none"><li>• Provision of spraying water to reduce dust emission on roads and particularly near existing settlements.</li><li>• Excavated topsoil to be preserved and reused for landscaping.</li><li>• The amount of exposed ground and stockpiles will be minimized so that re-suspension due to wind and subsequent dust fall is prevented. Heights of stock piles should control dust fall in nearby areas.</li><li>• Arrangement of the soil will be such that existing drainage pattern, though altered, will still ensure that runoff does not carry away topsoil but reaches the water bodies with which it is linked.</li></ul> <p>Ensuring all vehicles, generators and compressors are well maintained and regularly serviced.</p>

The following measures are suggested to mitigate any negative impacts of mining:

- Planned multiple transportation routes in different direction to minimize the dust generation.
- Planned paved roads outside mine lease area to minimize the dust generation. Alternatively, planning transportation routes so as to reach the nearest paved roads by shortest route. (Minimize transportation over unpaved road).
- Frequent water sprinkling on unpaved roads ( $>2L/m^2$ ).
- Plantation of trees along haul roads, especially near settlements, to reduce the impact of dust on the nearby villages.
- Dust mask shall be provided to the workers engaged at dust generation points like excavations and loading points.
- Transportation of material shall be carried out during day time only.
- The speed of trucks plying on the haul road should limited to 20 km/hour to avoid generation of dust.
- Covering of material by tarpaulin during transportation on trucks to prevent spillage of materials from the trucks.
- Overloading shall be avoided.



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**Movement of Traffic:**

Impact	Mitigation Measures
<ul style="list-style-type: none"><li>No. of PCU/Hr. will increase due to mining in existing traffic scenario lead to air pollution which can cause adverse effect on human health of neighboring villagers like effect on breathing and respiratory system, damage to lung tissue, cancer and premature death, influenza or asthma.</li><li>No. of PCU /Hr. will increase in the existing traffic due to this mining activity hence vehicle collision may occur unwanted sound and can also cause impact on human health.</li><li>Accidents may be occurring due to fast movement of vehicles.</li></ul>	<ul style="list-style-type: none"><li>Vehicles with PUC Certificate will be hired. Regular maintenance of vehicles will be done to ensure smooth running of vehicle. It is proposed to plant local species trees per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the lease area to prevent the impact of dust in the nearby village. Regular Health checkup camps will be organized.</li><li>In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones. It is proposed to plant local species trees per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the lease area to reduce the impact of noise in the study area. Regular Health checkup camps will be organized.</li><li>To avoid accidents, the speed of vehicles will be low near habitation areas.</li></ul>

✓ **Noise Pollution:**

It can be stated that the impact on the present noise levels due to mining operations will be minimal and shall be restricted to transportation route only. There is no drilling and blasting envisaged in the sand mining so there is no impact of vibration.

Impact	Mitigation Measures
<ul style="list-style-type: none"><li>Noise Impact due to mining activities.</li><li>Human Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc. due to prolonged exposure.</li><li>Increase in the existing traffic due to the mining activity may occur unwanted sound and can also cause impact on human health of neighboring villagers like effect on breathing and respiratory system, damage to lung tissue, cancer and premature death, influenza or asthma.</li></ul>	<ul style="list-style-type: none"><li>Noise generated by this equipment will be intermittent and does not cause much adverse impact.</li><li>The noise measurement data indicated that present noise levels in the study area is within the permissible limits of National Ambient Noise Quality Standards.</li><li>Periodical monitoring of noise will be done.</li><li>No other equipment except the transportation vehicles and excavator for loading will be allowed.</li><li>Proper maintenance of all equipment / machines will be carried out which help in reducing noise during operations.</li><li>In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones.</li><li>Plantation will be taken up along the approach roads and vicinity of river bank. The plantation minimizes propagation of noise and also arrests dust.</li><li>Ear muffs will be provided while working on mining equipment.</li><li>Regular health check-ups will be conducted for any such health implications.</li></ul>

✓ **Water Environment:**



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Impact	Mitigation Measures
<ul style="list-style-type: none"><li>• Flow pattern might be changed due to river bed mining.</li><li>• Mining activities depth will be increased, which may result in increase of flow velocity.</li><li>• Change in surface water quality and ground water quality.</li><li>• Impact on ground water recharge potential as the thickness of the natural filter materials (sediments) is reduce causing less infiltration.</li><li>• Waste water discharge.</li></ul>	<ul style="list-style-type: none"><li>• No diversion is anticipated. There will not be any adverse impact on flow pattern, surface hydrology and ground water regime.</li><li>• Mining activities will be restricted to maximum 3 m depth, which will not cause much change in flow pattern of the river.</li><li>• The mining will not be allowed below the water table.</li><li>• Regular monitoring of water samples will be done as precautionary measures.</li><li>• Mining will be done as per approved Mine Plan and applicable Rules &amp; Regulation, so that there is no damage on ground water recharge potential due to sand mining.</li><li>• Portable Bio-toilets will be used; hence no sewage/liquid effluent will be generated and contamination is also not expected due to percolation.</li></ul>

✓ **Soil Environment:**

Impact	Mitigation Measures
<ul style="list-style-type: none"><li>• Mining activity may increase the soil erosion and soil degradation which have adverse impact on soil fertility.</li><li>• Top soil extraction from outside riverbed may also affect the soil fertility and productivity.</li><li>• During the flood, the soil erosion may occur.</li></ul>	<ul style="list-style-type: none"><li>• It is already proposed to plant local species trees per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the mining area which enhances the binding property of the soil to check the erosion.</li><li>• Water will be sprinkled on unpaved roads to avoid dust generation and soil erosion.</li><li>• In case of riverbed, no top soil will be generated during the mining activity.</li><li>• Mine lease area has been proposed leaving a safety distance from the bank inwards which will protect the banks. Check dams have been constructed at various places for protection of banks against direct attack of the rivers and avoid bank cutting.</li></ul>

✓ **Solid Waste Generation/Management:**

Impact	Mitigation Measures
<ul style="list-style-type: none"><li>• Flow pattern might be changed due to river bed mining.</li><li>• Mining activities depth will be increased, which may result in increase of flow velocity.</li><li>• Waste water discharge.</li></ul>	<ul style="list-style-type: none"><li>• No diversion is proposed. There will not be any adverse impact on flow pattern, surface hydrology and ground water regime.</li><li>• Mining activities will be restricted to maximum 3 m depth, which will not cause much change in flow pattern of the river.</li><li>• Portable Bio-toilets will be used; hence no sewage/liquid effluent will be generated and contamination is also not expected due to percolation.</li></ul>

✓ **Land Use:**



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### Impact

- The mining activity in the outside riverbed will be converted into the pit. Which may cause soil erosion, soil degradation etc.
- Mining in the riverbed may change complete land use pattern including channel geometry, bed elevation, sediment transportation capacity which can reduce flow of the river and downstream erosion.

### Mitigation Measures

- It is proposed to plant of local species trees per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the mining area which enhances the binding property of the soil.
- The mining is planned in non-monsoon seasons only so that the excavated area will be replenished naturally during the subsequent rainy season for the river bed mining block.
- Mine lease area has been proposed leaving a safety distance from the bank inwards which will protect the banks so channel geometry will not be disturbed. Check dams have been constructed at various places for protection of banks against direct attack of the rivers and avoid bank cutting.
- Pre and post monsoon survey for sedimentation in the riverbed will be done regularly

### ✓ Hydrogeology:

#### Impact

- The mining in the riverbed area may cause the ground water contamination due to intersection of the water table.
- Change the topography will divert the river flow.
- Change in topography can change the river flow and flood may occur.
- Slope of mining area will change which can create soil erosion and divert rain water runoff channel.

#### Mitigation Measures

- The water table will not be intersected during mining in the riverbed as ultimate depth is limited Proper Analysis/Monitoring will be done to check the ground and surface water
- There is no proposal of any stream modification/diversion due to this mining activity hence there will be no any impact on flow of the river.
- Mining will be prohibited in monsoon season.
- The maximum depth of mining in the river bed will not exceed 3 meters and the maximum depth of mining in outside riverbed will not exceed.

### ✓ Topography, Drainage and Ground Water Contamination:

#### Impact

- Spillage of oil from construction/transportation vehicles and equipment.

#### Mitigation Measures

- Spillage of oil from construction vehicles and equipment will be avoided. These should be inspected by supervisor for any leakage of oil.
- Collection of water in pits will be avoided.
- Contamination of soil will be avoided by suitable soil conservation measures.

### ✓ Biological Environment:

#### Impact

- Transportation of sand in the trucks/dumper will disturb the movement of wild animals like jungle cat, jackal, and other reptiles. Fugitive emission from vehicle movement will form a layer in leaves thus reducing the gaseous exchange process. This ultimately affects the

#### Mitigation Measures

- Transportation of sand will only be day time. Access roads will not encroach into the riparian zones.



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Impact	Mitigation Measures
<p>growth of plants. Chances of vehicle collisions with wildlife attempting to cross roads are possible.</p> <ul style="list-style-type: none"> <li>• Any human settlement in the mining area will disturb the vegetation cover and reptiles</li> <li>• Indiscriminate mining from active channels of rivers causes many adverse effects on the benthic fauna, which inhabits the bottom sandy substratum. Excessive sand extraction from rivers affects the eco-biology of many terrestrial insects whose initial life history begins in aquatic environments.</li> </ul>	<ul style="list-style-type: none"> <li>• No human settlement will be permitted in the lease mining or nearby area. No mining will be carried out during the rainy season to minimize impact on aquatic life.</li> <li>• Mining will be done only in riverbed and outside riverbed as per provided by DMG so there will be no impact on benthic fauna in riverbed hence no mitigation will be required.</li> </ul>

✓ **Socio-economic:**

Impact	Mitigation Measures
<ul style="list-style-type: none"> <li>• Due to mining and transportation of sand will generate the small shops, dhabas, garage, restaurant, vegetable shops etc. along the road and generate direct employment.</li> <li>• Mining activity will generate direct employment which will be employed locally and preference will be given to local people.</li> <li>• Such shops along the roads will generate solid waste and waste water which will have adverse impact on human health.</li> <li>• Further, the deep pits created in the channel also can contribute to an increase in accidents in the working environment.</li> <li>• This creates serious threat to residents in the area who depend on river water for their domestic purposes.</li> <li>• The major source of socio-health impacts of transportation will generate from truck, dust etc. Increase in accidents as a result of rash driving of dumpers carrying mineral through the roads may be possible.</li> </ul>	<ul style="list-style-type: none"> <li>• Positive Impact</li> <li>• Positive Impact</li> <li>• Garbage bins will be provided for proper disposal of solid waste.</li> <li>• The mined-out area outside river bed block will be reclaimed and any stored water will be pumped out.</li> <li>• The mining is planned in non-monsoon seasons only so that the excavated area will be replenished naturally during the subsequent rainy season for the river bed mining block.</li> <li>• It is proposed to plant of local species per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the mining area to control the dust.</li> <li>• Planning transportation routes of mined material so as to reach the nearest paved roads by shortest route. (minimize transportation over unpaved road). Alternatively, gravelled road may be constructed between mine lease area and nearest paved road connectivity; The speed of trucks plying on the haul road should be limited to avoid generation of dust; and</li> </ul>



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Impact	Mitigation Measures
	<p>Covering of material during transportation on trucks to prevent spillage of sand from the trucks. The trucks will be covered by tarpaulin. Overloading will be avoided.</p> <ul style="list-style-type: none"><li>• Regular water sprinkling on unpaved roads to avoid dust generation during transportation.</li></ul>

## 15.2 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 'kaccha' 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.



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- 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.



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## 16. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

### 16.1 Risk Assessment for Sand Mining:

Since Sand Mining Operation does not attract Mine Act 1952, it does not require any statutory personals, however the entire operation must be under the supervision of experience qualified person who can handle the labour employment effectively. The person must have knowledge of transportation activities with traffic rule & safety. It is always advisable to appoint such person who can understand the language of Mine plan & implement the same.

1. As such in case of sand mining activities does not have any short of risk in operational activity except prior to start the monsoon period all the manpower & equipment's to be withdrawn to safe location.
2. In case of temporary discontinuation of operation due to natural calamity or labour strike & Risk management plan to be developed based in the local condition.

### • Accidents due to Transportation and Movement of Mining Machineries

#### Risks:

Most of the accidents occur during transportation by tippers/trucks and movement of Mining machineries.

#### Mitigation Measures:

- This can be prevented by regular training of all vehicle/machinery drivers/operators, regular maintenance of equipment and ensuring safe operations.
- All safety precautions and provision of MMR 1961 shall be strictly followed during all mining operations.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- All transportation within the main working area should be carried out under the direct supervision and control of the management;
- The vehicles must be maintained in good repairs and checked thoroughly at least once a week by a competent person authorized for this purpose by the management;
- Broad signs should be provided at each and every turning point especially for the guidance of the drivers of vehicles.
- To avoid dangers while reversing the trackless vehicles, especially at the embankment and tripping points, all areas for reversing of lorries should, as far as possible, be made man free, and there should be a light and sound device to indicate reversing of trucks; and
- A statutory provision of the fence, constant education, training etc. will go a long way in reducing the incidence of such accidents.

#### ▪ Risk Assessment:

#### **Hazard Identification & Risk Assessment (HIRA)**

The entire mining operation will be done under the supervision of the Mines Engineer/Mines manager having second class mines manager's certificate of competency and supported by a team of competent persons. Nevertheless, the following natural/industrial problems may be encountered during the mining operation:

- Accident due to Transportation or movement of heavy machineries
- Operation of mining equipment
- Accident due to storage of Fuel
- Filling of Mine due to excessive rain

#### **Risk and Mitigation Measures:**

#### Over Burden

#### Risks:



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The overburden dumps may cause landslides. High overburden dumps created at the quarry edge may cause sliding of the overburden dump or may cause failure of the pit slope due to excessive loading, thereby causing loss of life and property. Siltation of surface water may also cause run-off from overburden dumps.

**Mitigation Measures:**

- To prevent the failure of overburden slopes, especially during the rainy season, proper garland drain & bund are constructed around the dump.
- To prevent this, height of overburden dumps will be restricted. Further, no stone or loose rock or loose tree will be allowed to remain within 3 meters of the edge of the quarry. To prevent siltation of surface water, retaining wall will be constructed on the down side of each OB dump.

**Accidents Due to Transportation and Movement of Mining Machineries**

**Risks:**

Most of the accidents occur during transportation by tippers/ trucks and movement of Mining machineries.

- Operations of jackhammers are often attributable to mechanical failures and human errors.

**Mitigation Measures:**

- This can be prevented by regular training of all vehicle/machinery drivers/operators, regular maintenance of equipment and ensuring safe operations.
- All safety precautions and provision of MMR 1961 shall be strictly followed during all mining operations.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- All transportation within the main working area should be carried out under the direct supervision and control of the management;
- The vehicles must be maintained in good repairs and checked thoroughly at least once a week by a competent person authorized for this purpose by the management;
- Broad signs should be provided at each and every turning point specially for the guidance of the drivers of vehicles.
- To avoid dangers while reversing the trackless vehicles, especially at the embankment and tripping points, all areas for reversing of lorries should, as far as possible, be made man free, and there should be a light and sound device to indicate reversing of trucks; and
- A statutory provision of the fence, constant education, training etc. will go a long way in reducing the incidence of such accidents.

**Fuel Storage:**

- No major storage of fuel envisaged in the mining lease area.

**Water Logging:**

**Risks:**

Filling of mine pit with excessive rain

**Mitigation Measures:**

- Provision of adequate capacity pumps for pumping out water from the mining pit with standby arrangements.
- Checking and regular maintenance of garland drainage and earthen bunds to avoid any inflow of surface water into the mine pit.



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**District Survey Report  
Latehar, Jharkhand**

- Proper drainage will be maintained to eliminate inundation of working pits during rains from run-off water. Suitable garland drain will be provided around pit along with sedimentation pits on each side.
- There is no danger of flood or inundation as the ground level is well below the plateau top, where mining will be carried out.

**Safety Measures at Mine:**

- The gradient of the haul road inside the pit, access trench and on the dumps will not be steeper than 1 in 16.
- The quarries will be protected by garland drains around the periphery for storm water drainage;

**Care and Maintenance during Temporary Discontinuance:**

In case of emergency arise as situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances pit will be fenced and locked properly so as no one can enter in pit. All plantation will be protected with all due care for their survival. Maintenance and monitoring of discontinued mining operations i.e. maintenance of haul roads, will be done in view of re-open in near future.

**16.2 Disaster Management Plan:**

High risk incidents like land slide subsidence, flood, inundation, in the mine, fire, tailing damp failures etc. may occur for which an emergency plan for individual mine to ebb proposed for quick evacuation of men & machinery.

**16.3 Vulnerability of the State:**

Almost all the 24 districts are affected by different kind of Disaster. There is great need to strengthen the capacity of State, District, Block and newly formed Panchayat level of departments, institutions and functionaries to respond to the Disaster at their own level in participation of community. Jharkhand is vulnerable to following kind of Hazards: -

- Drought,
- Mining Accidents,
- Chemical and Industrial Hazards,
- Lightning,
- Bird Flu,
- Flood,
- Earthquake,
- Fire/Forest Fire,
- Elephant Attacks,
- Climate Change, Biodiversity loss,
- Naxalism/Landmine Blasts etc.

Major Hazards affected districts	Name of Hazards	No. of districts affected	Name of the district
1.	Drought	All the 24 Districts (2010)	All districts affected
2.	Flood	01	(Sahibganj)
3.	Flash Flood	03	(Jamshedpur, Saraikela , Ranchi)
4.	Forest Fire	09	(Garhwa, Palamau, Latehar, Chatra, Hazaribagh, E. & W. Singhbhum, Simdega, Gumla)



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5.	Lightening	09	(Palamau, Chatra, Latehar, Koderma, Ranchi, Giridih)
6.	Mining Hazards	09	(Hazaribagh, Lohardaga, Dumka) Latehar, Ramgarh, Dhanbad, Lohardaga, Giridih E & W Singhbhum & Koderma
7.	Earthquake Hazard	02 Districts	(Godda & Sahibganj – Partially)
	-	15 Districts	(Godda, Sahibganj, Garhwa, Palamu, Chatra, Hazaribagh, Koderma, Giridih, Bokaro, Dhanbad, Deoghar, Dumka, Godda, Pakur, Jamtara)
	Zone – IV		
	Zone – III		
	Zone - II	7 Districts	(Lohardaga, Ranchi, Ramgarh, Khunti, Gumla, E & W Singhbhum)

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**REPORT FROM CIRCLE OFFICE, LATEHAR**

**अंचल अधिकारी का कार्यालय, लातेहार।**

पत्रांक...1.2.2

प्रेषक,

अंचल अधिकारी,  
लातेहार।

सेवा में,

जिला खनन पदाधिकारी,  
लातेहार।

लातेहार, दिनांक:- 23/2/23

विषय:- लातेहार अंचल अंतर्गत मीजा-बाजकुम, राजहार के बालू घाट का जाँच प्रतिवेदन के संबंध में।

प्रसंग:- आपका पत्रांक-212/एम0 लातेहार दिनांक- 21.02.2023

महाशय, उपर्युक्त विषयक एवं प्रसंगाधीन पत्र के संदर्भ में कहना है कि पर्यावरण, वन, एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के अधिसूचना संख्या 2827, दिनांक -25.07.2018 के आलोक में श्रेणी-2 के बालू घाटों के District Survey Report (DSR) Of Sand Prepared के लिए लातेहार अंचल अंतर्गत चिन्हित श्रेणी-2 (Category-II) के बालू घाट की स्थल से संबंधित विस्तृत विवरणी निम्नवत् है:-

भूमि का विवरण:-

क्र० सं०	मीजा/थाना नं०	खाता सं०	प्लॉट सं०	रकबा / हेक्टेयर	अभ्युक्ति
1.	बाजकुम/227	99	9/183	2.39 हे०	
2.	राजहार/188	41	265	2.40 हे०	

1. बाजकुम बालू घाट:-

बाजकुम बालू घाट जिसका खाता सं०-99, प्लॉट सं०-9/183, रकबा-2.39 हेक्टेयर का मांगी गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

I. आवेदित भूमि ग्राम-बाजकुम के खात सं०-99, प्लॉट सं०-9/183, रकबा-2.39 हेक्टेयर भूमि गैरजमरूआ मालिक खाते की है। जिसका किस्म नदी है।

II. 500 मीटर की दूरी के अंदर मानव बसाहट स्थित है।

III. 500 मीटर की दूरी के अंदर जलीय निकाय/नदी है।

IV. 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।

V. 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।

VI. 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय सीमा नहीं है।

VII. 500 मीटर की दूरी के अंदर कोई राष्ट्रीय पुरातात्विक महत्व के स्थल स्थित नहीं है।

VIII. 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।



जिला खनन पदाधिकारी



2. राजहार बालू घाट-

राजहार बालू घाट जिसका खाता सं०-41, प्लॉट सं०-265, रकबा-2.40 हेक्टेयर का गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

- I. आवेदित भूमि ग्राम-राजहार के खाता सं०-41, प्लॉट सं०-265 रकबा-2.40 हेक्टेयर भूमि गैरजमरूआ मालिक खाते की है। जिसका किस्म नदी है।
- II. 500 मीटर की दूरी के अंदर मानव बसाहट स्थित है।
- III. 500 मीटर की दूरी के अंदर कोई जलीय निकाय/नदी नहीं है।
- IV. 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- V. 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- VI. 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय सीमा नहीं है।
- VII. 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/ पुरातत्विक महत्व के स्थल स्थित नहीं है।
- VIII. 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।

पत्र के साथ बालू घाट का ट्रेस नक्सा संलग्न कर अग्रोत्तर कार्रवाई हेतु भेजा जा रहा है।

अनुलग्नक:- यथोक्त।

विश्वासभाजन

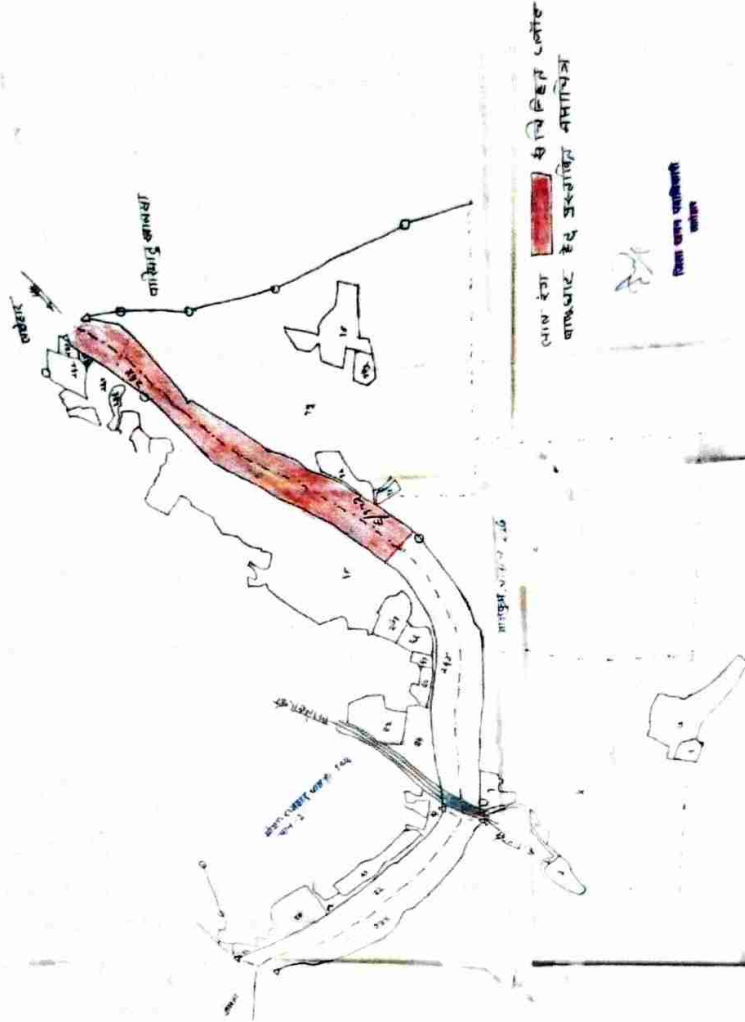
23/2/23  
अंचल अधिकारी,  
लातेहार।



जिला स्विचम पिदाधिकारी



District Survey Report  
Latehar, Jharkhand



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जिला खण्डागवतिका 166  
लातेहार



## अंचल अधिकारी का कार्यालय, लातेहार।

पत्रांक. 123

प्रेषक,  
अंचल अधिकारी,  
लातेहार।

सेवा में,  
जिला खनन पदाधिकारी,  
लातेहार।

लातेहार, दिनांक:- 23/2/23

विषय:- लातेहार अंचल अंतर्गत मौजा-डुडवा, जलता के बालू घाट का जाँच प्रतिवेदन के संबंध में।

प्रसंग:- आपका पत्रांक-215/एम0 लातेहार दिनांक- 21.02.2023

महाशय,  
उपर्युक्त विषयक एवं प्रसंगाधीन पत्र के संदर्भ में कहना है कि पर्यावरण, वन, एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के अधिसूचना संख्या 2827, दिनांक -25.07.2018 के आलोक में श्रेणी-2 के बालू घाटों के District Survey Report (DSR) Of Sand Prepared के लिए लातेहार अंचल अंतर्गत चिन्हित श्रेणी-2 (Category-II) के बालू घाट की स्थल से संबंधित विस्तृत विवरणी निम्नवत् है:-

### भूमि का विवरण:-

क्र० सं०	मौजा/थाना नं०	खाता सं०	प्लॉट सं०	रकबा /हेक्टेयर	अभ्युक्ति
1.	डुडवा/187	42	134	8.49 हे०	
2.	जलता/188	58	143/597	2.76 हे०	

### 1. डुडवा बालू घाट:-

डुडवा बालू घाट जिसका खाता सं०-42, प्लॉट सं०-134, रकबा-8.49 हेक्टेयर का मांगी गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

- I. आवेदित भूमि ग्राम-डुरुवा के खाता सं०-42, प्लॉट सं०-134, रकबा-8.49 हेक्टेयर भूमि गैरजमरूआ मालिक खाते की है। जिसका किस्म नदी है।
- II. 500 मीटर की दूरी के अंदर मानव बसाहट स्थित है।
- III. 500 मीटर की दूरी के अंदर जलीय निकाय/नदी है।
- IV. 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- V. 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- VI. 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय सीमा नहीं है।
- VII. 500 मीटर की दूरी के अंदर कोई राष्ट्रीय पुरातात्विक महत्व के स्थल स्थित नहीं है।
- VIII. 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।



जिला खनन पदाधिकारी  
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लातेहार



**2 जलता बालू घाट-**

जलता बालू घाट जिसका खाता सं०-58, प्लॉट सं०-597, रकबा-2.76 हेक्टेयर का गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है-

- I. आवेदित भूमि ग्राम-जलता के खाता सं०-58, प्लॉट सं०-597 रकबा-2.76 हेक्टेयर भूमि गैरजमरूआ मालिक खाते की है। जिसका किस्म नदी है।
- II. 500 मीटर की दूरी के अंदर मानव बसाहट स्थित नहीं है।
- III. 500 मीटर की दूरी के अंदर कोई जलीय निकाय/नदी नहीं है।
- IV. 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- V. 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- VI. 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय सीमा नहीं है।
- VII. 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/ पुरातत्वीक महत्व के स्थल स्थित नहीं है।
- VIII. 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।

पत्र के साथ बालू घाट का ट्रेस नक्सा संलग्न कर अग्रोत्तर कार्रवाई हेतु भेजा जा रहा है।

अनुलग्नक- यथोक्त।

विश्वासमाजन

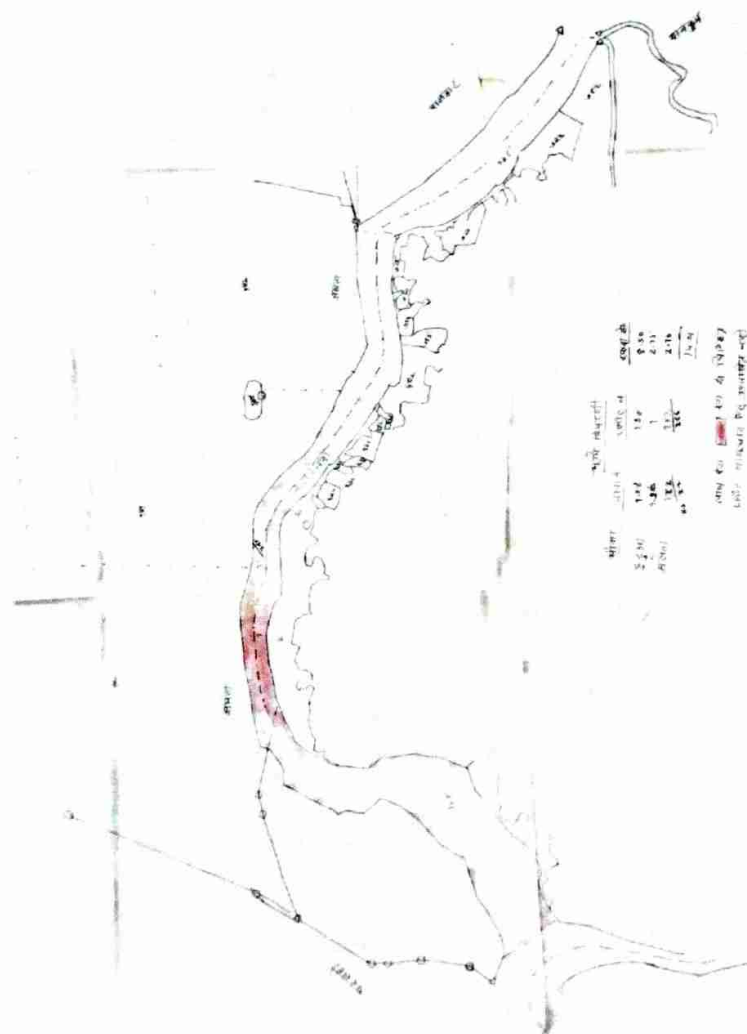
23/2/23  
अंचल अधिकारी,  
लातेहार।



जिला खनिज पदाधिकारी  
लातेहार



District Survey Report  
Latehar, Jharkhand



क्र.सं.	विवरण	क्षेत्रफल (हेक्.मी.)	मूल्य (₹)
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जिला खनन पदाधिकारी  
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लातेहार



## अंचल अधिकारी का कार्यालय, लातेहार।

पत्रांक-124

प्रेषक,

अंचल अधिकारी,  
लातेहार।

सेवा में,

जिला खनन पदाधिकारी,  
लातेहार।

विषय:-

लातेहार अंचल अंतर्गत मौजा-लातेहार, तापाखास, बारियातु खालसा के बालू घाट का जाँच प्रतिवेदन के संबंध में।

लातेहार, दिनांक- 23/2/23

प्रसंग:-

आपका पत्रांक-216/एम0 लातेहार दिनांक- 21.02.2023

महाशय,

उपर्युक्त विषयक एवं प्रसंगाधीन पत्र के संदर्भ में कहना है कि पर्यावरण, वन, एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के अधिसूचना संख्या 2827, दिनांक -25.07.2018 के आलोक में श्रेणी-2 के बालू घाटों के District Survey Report (DSR) Of Sand Prepared के लिए लातेहार अंचल अंतर्गत चिन्हित श्रेणी-2 (Category-II) के बालू घाटों की स्थल से संबंधित विस्तृत विवरणी निम्नवत् है:-

### भूमि का विवरण:-

क्र० सं०	मौजा/थाना नं०	खाता सं०	प्लॉट सं०	रकबा / हेक्टेयर	अभ्युक्ति
1.	लातेहार/250	121	860	0.78 हे०	
2.	तापाखास/249	64	531, 414	5.14 हे०	
3.	बारियातु खालसा/244	126	620/1	0.72	
			588/1165	3.23	
			2/201	1.69	

### 1. लातेहार बालू घाट:-

लातेहार बालू घाट जिसका खाता सं०-121, प्लॉट सं०-860, रकबा-0.78 हेक्टेयर का मांगी गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

- आवेदित भूमि ग्राम-लातेहार के खाता सं०-121, प्लॉट सं०-860 रकबा-0.78 हेक्टेयर भूमि गैरजमरूआ मालिक खाते की है। जिसका किस्म नदी है।
- 500 मीटर की दूरी के अंदर मानव बसाहट स्थित है।
- 500 मीटर की दूरी के अंदर कोई जलीय निकाय/नदी नहीं है।
- 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय सीमा नहीं है।
- 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/ पुरातत्वीक महत्व के स्थल स्थित नहीं है।
- 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।



जिला खनन पदाधिकारी



2. तापाखास बालू घाट:-  
तापाखास बालू घाट जिसका खाता सं०-84, प्लॉट सं०-531, 414 रकबा-5.14 हेक्टेयर का

मांगी गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

- I. आवेदित भूमि ग्राम-तापाखास के खाता सं०-84, प्लॉट सं०-531, 414 रकबा-5.14 हेक्टेयर भूमि गैरजमरूआ मालिक खाते की है। जिसका किस्म नदी है।
- II. 500 मीटर की दूरी के अंदर मानव बसाहट स्थित है।
- III. 500 मीटर की दूरी के अंदर कोई जलीय निकाय/नदी नहीं है।
- IV. 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- V. 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- VI. 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय सीमा नहीं है।
- VII. 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/ पुरातात्विक महत्व के स्थल स्थित नहीं है।
- VIII. 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।

3. बारियातु खालसा बालू घाट:-

बारियातु खालसा बालू घाट जिसका खाता सं०-126, प्लॉट सं०-620/1, 588/1165,

2/201, रकबा क्रमशः-0.72, 3.23, 1.69 हेक्टेयर का मांगी गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

- I. आवेदित भूमि ग्राम-बारियातु खालसा के खाता सं०-126, प्लॉट सं०-620/1, 588/1165, 02/201 रकबा क्र०-0.72, 3.23, 1.69 हेक्टेयर भूमि गैरजमरूआ मालिक खाते की है। जिसका किस्म नदी है।
- II. 500 मीटर की दूरी के अंदर मानव बसाहट स्थित है।
- III. 500 मीटर की दूरी के अंदर जलीय निकाय/नदी है।
- IV. 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- V. 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- VI. 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय सीमा नहीं है।
- VII. 500 मीटर की दूरी के अंदर कोई राष्ट्रीय पुरातात्विक महत्व के स्थल स्थित नहीं है।
- VIII. 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।

पत्र के साथ बालू घाट का ट्रेस नक्सा संलग्न कर अग्रेत्तर कार्रवाई हेतु भेजा जा रहा है।

अनुलग्नक:- यथोक्त।

विश्वासभाजन

  
23/2/23

अंचल अधिकारी,

लातेहार।



जिला/खनि मन्त्रालय अधिकारी

लातेहार





अंचल अधिकारी का कार्यालय, लातेहार।

पत्रांक 54

प्रेषक,  
अंचल अधिकारी,  
लातेहार।

सेवा में,  
जिला खनन पदाधिकारी,  
लातेहार।

लातेहार, दिनांक:- 13.01.2023

विषय:- लातेहार अंचल अंतर्गत मौजा-भूसुर, तुबैद, डुरुवा, के बालू घाट का जाँच प्रतिवेदन के संबंध में।

प्रसंग:- आपका पत्रांक-1246/एम0 लातेहार दिनांक- 24.12.2022

महाशय,  
उपर्युक्त विषयक एवं प्रसंगाधीन पत्र के संदर्भ में कहना है कि पर्यावरण, वन, एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के अधिसूचना संख्या 2827, दिनांक -25.07.2018 के आलोक में श्रेणी-2 के बालू घाटों के District Survey Report (DSR) Of Sand Prepared के लिए लातेहार अंचल अंतर्गत चिन्हित श्रेणी-2 (Category-II) के कुल तीन बालू घाटों की स्थल से संबंधित विस्तृत विवरणी निम्नवत् है:-

भूमि का विवरण:-

क्र० सं०	मौजा/थाना नं०	खाता सं०	प्लॉट सं०	रकबा /हेक्टेयर	अभ्युक्ति
1.	भूसुर/268	111	420	1.40 हे०	
2.	तुबैद/333	102	1409	0.80 हे०	
3.	डुरुवा/187	42	134	2.27 हे०	

1. भूसुर बालू घाट:-

भूसुर बालू घाट जिसका खाता सं०-111, प्लॉट सं०-420, रकबा-1.41 हेक्टेयर का मांगी गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

- आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज नहीं है। हाल सर्वे खतियान में किस्म नदी है।
- 500 मीटर की दूरी के अंदर कोई मानव बसाहट स्थित नहीं है।
- 500 मीटर की दूरी के अंदर जलीय निकाय/नदी स्थित है।
- 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- 10 कि० मी० की परिधि में कोई अन्तरराज्यीय सीमा नहीं है।
- 500 मीटर की दूरी के अंदर कोई राष्ट्रीय पुरातात्विक महत्व के स्थल स्थित नहीं है।
- 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।



जिला खनन पदाधिकारी

लातेहार



2. तुवेद बालू घाट:-

तुवेद बालू घाट जिसका खात सं०-102, प्लॉट सं०-1409, रकबा-0.80 हेक्टेयर का मांगी गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

- I. आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज नहीं है। हाल सर्वे खतियान में किस्म नदी है।
- II. 500 मीटर की दूरी के अंदर कोई मानव बसाहट स्थित नहीं है।
- III. 500 मीटर की दूरी के अंदर जलीय निकाय/नदी स्थित है।
- IV. 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- V. 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- VI. 10 कि० मी० की परिधि में कोई अन्तराजतीय सीमा नहीं है।
- VII. 500 मीटर की दूरी के अंदर कोई राष्ट्रीय पुरातात्विक महत्व के स्थल स्थित नहीं है।
- VIII. 500 मीटर की दूरी के अंदर कोई अन्य नदी स्थित नहीं है।

3. डुरुवा बालू घाट:-

डुरुवा बालू घाट जिसका खात सं०-42, प्लॉट सं०-134, रकबा-2.27 हेक्टेयर का मांगी गई बिन्दुवार जाँच प्रतिवेदन निम्नवत् है:-

- I. आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज नहीं है। गत् सर्वे खतियान में किस्म नदी है।
- II. 500 मीटर की दूरी के अंदर मानव बसाहट स्थित है।
- III. 500 मीटर की दूरी के अंदर जलीय निकाय/नदी है।
- IV. 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान स्थित नहीं है।
- V. 500 मीटर की दूरी के अंदर कोई चिकित्सालय स्थित नहीं है।
- VI. 10 कि० मी० की परिधि में कोई अन्तराजतीय सीमा नहीं है।
- VII. 500 मीटर की दूरी के अंदर कोई राष्ट्रीय पुरातात्विक महत्व के स्थल स्थित नहीं है।
- VIII. 500 मीटर की दूरी के अंदर दूसरी नदी स्थित है।

अग्रतर कार्रवाई हेतु प्रेषित।

अनुलग्नक:- यथोक्त।



जिला खिन्नन निदेशाधिकारी

लखनौ

Page 132 of 166



**REPORT FROM CIRCLE OFFICE, CHANDWA (LATEHAR)**

**कार्यालय:- अंचल अधिकारी, चन्दवा (लातेहार)।**

Email Id - chandwaco@gmail.com

पत्रांक 141 दिनांक 24/04/23

प्रेषक, अंचल अधिकारी  
चन्दवा।  
सेवा में, जिला खनन पदाधिकारी,  
लातेहार।  
विषय :- बालूघाटो का भूमि से संबंधित बिन्दुवार प्रतिवेदन का प्रेषण।  
प्रसंग :- आपका पत्रांक 207/एम0, लातेहार, दिनांक 21/02/2023  
महाशय,

उपरोक्त विषयक प्रासंगिक पत्र के आलोक में कहना है कि पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के अभिलेखना संख्या 2827, दिनांक 25.07.2018 के आलोक में लातेहार जिला अंतर्गत श्रेणी-2 के बालूघाटो के District Survey Report (DSR) of Sand Prepared किया जाना है। संबंधित राजस्व उप निरीक्षक/अंचल निरीक्षक ने प्रतिवेदित किया है कि मौज्जा- भरमर, थाना- चन्दवा, के खाता संख्या 72 प्लॉट संख्या 619, रकबा 520 ए0 भूमि अनाबाद बिहार सरकार की खाते की भूमि है। भूमि का जाच प्रतिवेदन बिन्दुवार निम्नवत है -

1. आवेदित भूमि गैजमजूरआ खास खाते की भूमि है। खतियान के अनुसार आवेदित क्षेत्र का किरम जंगल/ झाड़ी नहीं है।
2. आवेदित क्षेत्र के 500 मी0 की दूरी के अंदर भानव बसाहट नहीं है।
3. आवेदित क्षेत्र के 500 मी0 की दूरी के अंदर कोई पत्तरीय निकाय नहीं है।
4. आवेदित क्षेत्र के 500 मी0 की दूरी के अंदर नदी स्थित है।
5. आवेदित क्षेत्र के 500 मी0 की दूरी के अंदर कोई शैक्षणिक संस्थान नहीं है।
6. आवेदित क्षेत्र के 500 मी0 की दूरी के अंदर कोई चिकित्सालय नहीं है।
7. आवेदित भूमि के 10 कि0मी0 की परिधि में कोई अन्तरराज्यीय सीमा नहीं है।
8. आवेदित क्षेत्र के 500 मी0 की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्व विभाग महत्व के स्थल स्थित नहीं है।

विश्यासभाजन

अंचल अधिकारी  
चन्दवा (लातेहार)

24-02-23



जिला खनन पदाधिकारी  
लातेहार



## कार्यालय:- अंचल अधिकारी, चन्दवा (लातेहार)।

Email Id - chandwaco@emati.com

पत्रांक 148 दिनांक 24/02/23

प्रेषक

अंचल अधिकारी  
चन्दवा।

प्रेषक में

जिला खनन पदाधिकारी,  
लातेहार।

विषय

बानूघाटों का भूमि से संबंधित विन्दुवार प्रतिवेदन का प्रेषण।

प्रमाण

आपका पत्रांक 207/एचओ लातेहार दिनांक 21.02.2023

सहाय्य

उपरोक्त विषयक प्राथमिक पत्र के आलोक में कहना है कि पर्यावरण वन एवं जलवायु परिपक्व संश्लेषण भारत सरकार के अधिसूचना संख्या 2827 दिनांक 25.07.2018 के आलोक में लातेहार जिला अंतर्गत भेजी-2 के बानूघाटों के District Survey Report (DSR) of Sand Prepared किया जाना है। संबंधित राजस्व उप निरीक्षक/अंचल निरीक्षक ने प्रतिवेदन किया है कि मीठा नालहन थाना-चन्दवा के ताला संख्या 276 प्लॉट संख्या 1 रकबा 0.39 50 भूमि अनाबंद बिहार सरकार की खान की भूमि है। भूमि का उच्च प्रतिवेदन विन्दुवार विन्वत है -

1. आवंटित भूमि गैजमजुआ सारस खाते की भूमि है। खनियान के अनुसार आवंटित क्षेत्र का किरम जंगल/झाड़ी नहीं है।
2. आवंटित क्षेत्र के 500 मी० की दूरी के अंदर मानव बसावह नहीं है।
3. आवंटित क्षेत्र के 500 मी० की दूरी के अंदर कोई जलीय तिकाय नहीं है।
4. आवंटित क्षेत्र के 500 मी० की दूरी के अंदर नदी स्थित है।
5. आवंटित क्षेत्र के 500 मी० की दूरी के अंदर कोई पेशपिक संस्थान नहीं है।
6. आवंटित क्षेत्र के 500 मी० की दूरी के अंदर कोई विकिसालय नहीं है।
7. आवंटित भूमि के 10 कि०मी० की परिधि में कोई अन्तरराज्यीय सीमा नहीं है।
8. आवंटित क्षेत्र के 500 मी० की दूरी के अंदर कोई राष्ट्रीय परोहर/पुराल्लवीय महत्व के स्थान स्थित नहीं है।

विषयक संश्लेषण

*[Signature]*  
24.02.23

अंचल निरीक्षक

चन्दवा

लातेहार

24/02/23



जिला खनन पदाधिकारी

लातेहार



## REPORT FROM DIVISIONAL FOREST OFFICER (LATEHAR)



—: कार्यालय :—

वन प्रमण्डल पदाधिकारी, लातेहार वन प्रमण्डल।

Email - [dfi-latehar@gov.in](mailto:dfi-latehar@gov.in)

Mobile No. - 8987790240

Pin Code - 829206

पत्रांक 349 / दिनांक 24.02.2023

सेवा में,

जिला खनन पदाधिकारी,  
लातेहार।

विषय :- बालू घाटों के District Survey Report (DSR) के संबंध में।

प्रसंग :- आपका पत्रांक 211, 213, 214, 217 / एम0, दिनांक 21.02.2023

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि आपके द्वारा District Survey Report (DSR) of Sand हेतु चार बालूघाटों के प्रतिवेदन हेतु पत्र प्राप्त है।

प्राप्त पत्र के आलोक में समर्पित मानचित्र के आधार पर District Survey Report (DSR) of Sand हेतु बिन्दुवार प्रतिवेदन इस पत्र के साथ संलग्न कर भेजी जा रही है।

सूचनार्थ प्रेषित।

अनुलग्नक : यथोक्त।

विश्वासभाजन

वन प्रमण्डल पदाधिकारी,  
लातेहार वन प्रमण्डल।

*[Signature]*



जिला खनन पदाधिकारी  
लातेहार



लातेहार जिला अंतर्गत बालूघाटों के District Survey Report (DSR) of Sand हेतु प्रतिवेदन

बिन्दु	बालू घाट का नाम			
	डुरुवा, परसही	मरसर, माल्हन	बाजकुम, राजहार	लातेहार, तापाखास
क्या परियोजना स्थल से आरक्षित/संरक्षित वन भूमि से दूरी 250 मी० है?	हाँ। आरक्षित/संरक्षित वन से दूरी 250 मीटर है।	हाँ। आरक्षित/संरक्षित वन से दूरी 250 मीटर है।	हाँ। आरक्षित/संरक्षित वन से दूरी 250 मीटर है।	हाँ। आरक्षित/संरक्षित वन से दूरी 250 मीटर है।
क्या परियोजना स्थल No Mining Zone अंतर्गत आता है?	नहीं।	नहीं।	नहीं।	नहीं।
क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क (National Park) है?	नहीं।	नहीं।	नहीं।	नहीं।
क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभयारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है?	हाँ। पशु, वन्यजीव अभयारण्य से दूरी लगभग 3.5 कि०मी० है।	नहीं।	हाँ। पशु, वन्यजीव अभयारण्य से दूरी लगभग 5.5 कि०मी० है।	हाँ। पशु, वन्यजीव अभयारण्य से दूरी लगभग 6.0 कि०मी० है।
क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है?	हाँ। Eco-Sensitive Zone से दूरी लगभग 2.5 कि०मी० है।	नहीं।	हाँ। Eco-Sensitive Zone से दूरी लगभग 4.5 कि०मी० है।	हाँ। Eco-Sensitive Zone से दूरी लगभग 5.0 कि०मी० है।
क्या आवेदित परियोजना Eco-Sensitive Zone के अंतर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं?	हाँ। आवेदित परियोजना Eco-Sensitive Zone के अंतर्गत (Commercial mining) के प्रतिबंधित श्रेणी में आता है परन्तु विद्यमान ग्राम Eco-Sensitive Zone की दूरी में नहीं है।	हाँ। आवेदित परियोजना Eco-Sensitive Zone के अंतर्गत (Commercial mining) के प्रतिबंधित श्रेणी में आता है परन्तु विद्यमान ग्राम Eco-Sensitive Zone की दूरी में नहीं है।	हाँ। आवेदित परियोजना Eco-Sensitive Zone के अंतर्गत (Commercial mining) के प्रतिबंधित श्रेणी में आता है परन्तु विद्यमान ग्राम Eco-Sensitive Zone की दूरी में नहीं है।	हाँ। आवेदित परियोजना Eco-Sensitive Zone के अंतर्गत (Commercial mining) के प्रतिबंधित श्रेणी में आता है परन्तु विद्यमान ग्राम Eco-Sensitive Zone की दूरी में नहीं है।

❖ GPS Co-ordinates/K.M.L के अभाव में प्रतिवेदन जिला खनन पदाधिकारी, लातेहार के पत्रांक 211, 213, 214, 217 दिनांक 21.02.2023 के आधार पर तैयार किया गया है।



जिला खनन पदाधिकारी  
लातेहार

वन प्रमण्डल पदाधिकारी,  
लातेहार वन प्रमण्डल।



--: कार्यालय :-

वन प्रमण्डल पदाधिकारी, लातेहार वन प्रमण्डल।

Email - dfo-latehar@gov.in

Mobile No. - 8987790240

Pin Code - 829206

पत्रांक 243 / दिनांक 08.02.2023

श्री सुनेश्वर  
सेवा में,

विषय :-  
प्रसंग :-

जिला खनन पदाधिकारी,  
लातेहार।

जौंच प्रतिवेदन उपलब्ध कराने के संबंध में।

आपका पत्रांक 1247/एम0, दिनांक 24.12.2022

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि आपके द्वारा श्रेणी-2 के बालूघाटों के District Survey Report (DSR) of Sand Prepared हेतु मागी गयी प्रतिवेदन बिन्दुवार इस पत्र के साथ संलग्न कर भेजी जा रही है।

सूचनार्थ प्रेषित।

अनुलग्नक : यथोक्त।

दिनेशसमाज  
8.2.23

वन प्रमण्डल पदाधिकारी,  
लातेहार वन प्रमण्डल।



पड़-पौधे मत डालें

जिला खनन पदाधिकारी

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श्रेणी-2 के बालूघाटों के District Survey Report (DSR) of Sand Prepared हेतु मांगी गयी प्रतिवेदन

बिन्दु	बालू घाट का नाम						
	हेरहज	दोमुहान नदबेलवा	भूसुर	दुधुवा	तुबेद	डुमारो चंदवा	
क्या परियोजना स्थल से आवेदित/संरक्षित वन भूमि से दूरी 250 मी0 है?	नहीं। परियोजना स्थल से आवेदित/संरक्षित वन की दूरी 50 मीटर है।	नहीं। परियोजना स्थल से आवेदित/संरक्षित वन की दूरी 50 मीटर है।	नहीं। परियोजना स्थल से आवेदित/संरक्षित वन की दूरी 50 मीटर है।	नहीं। परियोजना स्थल से आवेदित/संरक्षित वन की दूरी 50 मीटर है।	हैं। परियोजना स्थल से आवेदित/संरक्षित वन की दूरी 50 मीटर है।	नहीं। परियोजना स्थल से आवेदित/संरक्षित वन की दूरी 50 मीटर है।	
क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं।	नहीं।	नहीं।	नहीं।	नहीं।	नहीं।	
क्या परियोजना स्थल से 10 कि0मी0 की दूरी के अन्दर कोई नेशनल पार्क (National Park) है?	नहीं।	नहीं।	नहीं।	नहीं।	नहीं।	नहीं।	
क्या परियोजना स्थल से 10 कि0मी0 की दूरी के अन्दर कोई अभ्यारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है?	हैं। लखीम जयजीव अभ्यारण्य से दूरी लगभग 5.0 कि0मी0 है।	हैं। परियोजना स्थल से दूरी लगभग 05 कि0मी0 है।	नहीं।	हैं। परियोजना स्थल से दूरी लगभग 3.5 कि0मी0 है।	नहीं।	नहीं।	
क्या परियोजना स्थल से 10 कि0मी0 की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है?	हैं। परियोजना स्थल से दूरी 50 मीटर है।	हैं। परियोजना स्थल से दूरी 50 मीटर है।	नहीं।	हैं। परियोजना स्थल से दूरी 50 मीटर है।	नहीं।	नहीं।	
क्या आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं?	हैं। आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है। हेरहज परियोजना Eco-Sensitive Zone की दूरी 50 मीटर है।	हैं। आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है। देवघर परियोजना Eco-Sensitive Zone की दूरी 50 मीटर है।	हैं। आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है।	हैं। आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है।	हैं। आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है।	हैं। आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है।	



जिला खनिज पदाधिकारी  
लातेहार  
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वन प्रमण्डल पदाधिकारी  
लातेहार वन प्रमण्डल।



हेरहंज बालू घाट

क्र० सं०	बिन्दु	जांच प्रतिवेदन
01	क्या परियोजना स्थल से आरक्षित / सरक्षित वन भूमि से दूरी 250 मी० है?	नहीं।
02	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं।
03	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क (National Park) है?	नहीं।
04	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है?	हाँ।
05	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है?	हाँ।
06	क्या आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं?	हाँ।

Shankar Singh  
वनरक्षी

Abhishek Singh  
प्रभारी / वनपाल

21/03/20  
वन क्षेत्र पदाधिकारी  
Range Forest Officer  
Balumath Forest Range

दोमुहान-नदबेलवा बालू घाट

क्र० सं०	बिन्दु	जांच प्रतिवेदन
01	क्या परियोजना स्थल से आरक्षित / सरक्षित वन भूमि से दूरी 250 मी० है?	नहीं।
02	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं।
03	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क (National Park) है?	नहीं।
04	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है?	हाँ।
05	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है?	हाँ।
06	क्या आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं?	हाँ।

Shankar Singh  
वनरक्षी

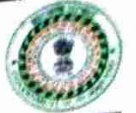
Abhishek Singh  
प्रभारी / वनपाल

Shankar Singh  
वन क्षेत्र पदाधिकारी



जिला खनन पदाधिकारी

लातेहार



**गूसुर बालू घाट**

क्र० स०	विन्दु	जांच प्रतिवेदन
01	क्या परियोजना स्थल से आरक्षित/संरक्षित वन भूमि से दूरी 250 मी० है?	नहीं। <small>परियोजना स्थल से आरक्षित/संरक्षित वन की दूरी 250 मी० है।</small>
02	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं।
03	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क (National Park) है?	नहीं।
04	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है?	नहीं।
05	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है?	नहीं।
06	क्या आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं?	हाँ। <small>आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं।</small>

*Ranjana Das*  
वनरक्षी

*Eva Rathi Khatka*  
प्रभारी/वनपाल

*S. Kumar*  
वन क्षेत्र पदाधिकारी  
लातेहार वन प्रखेत्र।

**दुधुआ बालू घाट**

क्र० स०	विन्दु	जांच प्रतिवेदन
01	क्या परियोजना स्थल से आरक्षित/संरक्षित वन भूमि से दूरी 250 मी० है?	नहीं। <small>परियोजना स्थल से आरक्षित/संरक्षित वन की दूरी 250 मी० है।</small>
02	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं।
03	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क (National Park) है?	नहीं।
04	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है?	हाँ। <small>परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है।</small>
05	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है?	हाँ। <small>परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है।</small>
06	क्या आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं?	हाँ। <small>आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं।</small>

*Arshad K. Khan*  
वनरक्षी

*Eva Rathi Khatka*  
प्रभारी, वनपाल

*S. Kumar*  
वन क्षेत्र पदाधिकारी  
लातेहार वन प्रखेत्र।



जिला खनिज पदाधिकारी

लातेहार



तुबैद बालू घाट

क्र० सं०	बिन्दु	जांच प्रतिवेदन
01	क्या परियोजना स्थल से आरक्षित/संरक्षित वन भूमि से दूरी 250 मी० है?	हाँ। परियोजना स्थल से आरक्षित/संरक्षित वन की दूरी अन्तर्गत 250 मीटर है।
02	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं।
03	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क (National Park) है?	नहीं।
04	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है?	नहीं।
05	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है?	नहीं।
06	क्या आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं?	हाँ। आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत Conservation Category के प्रतिबंधित श्रेणी में आता है, परन्तु विकल्पगत वन Eco-Sensitive Zone की सुची में नहीं है।

वनरक्षी

*Suray*  
(Fg)

प्रभारी, वनपाल

*Dilip Kumar*

*Sumar*  
वन क्षेत्र पदाधिकारी  
लातेहार वन प्रक्षेत्र

डुमारो-चंदवा बालू घाट

क्र० सं०	बिन्दु	जांच प्रतिवेदन
01	क्या परियोजना स्थल से आरक्षित/संरक्षित वन भूमि से दूरी 250 मी० है?	नहीं। परियोजना स्थल से आरक्षित/संरक्षित वन की दूरी मूल्य नीचे है।
02	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं।
03	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क (National Park) है?	नहीं।
04	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण्य (Sanctuary) एवं जैव विविधता (Bio-Diversity) क्षेत्र है?	नहीं।
05	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco-Sensitive Zone) है?	नहीं।
06	क्या आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत प्रतिबंधित श्रेणी में आता है अथवा नहीं?	हाँ। आवेदित परियोजना Eco-Sensitive Zone के अन्तर्गत Conservation Category के प्रतिबंधित श्रेणी में आता है, परन्तु विकल्पगत वन Eco-Sensitive Zone की सुची में नहीं है।

वनरक्षी - Chandali  
Sakti Ch. Pandey  
P. G | Chandali  
09/02/2023

*Sumit Kumar Gupta*  
प्रभारी/वनपाल

*Sumar*  
वन क्षेत्र पदाधिकारी  
JANGHE FOREST OFFICER  
CHANDWARANGE



जिला वन क्षेत्र पदाधिकारी  
लातेहार



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राष्ट्रीय नदीन मेल

डालटनगंज (मेदिनीनगर), मंगलवार 29 नवम्बर 2022

11

वन्दना डाडेल ने सीसीएल मुख्यालय में दो-दिवसीय वेंडर डेवलपमेंट औद्योगिक प्रदर्शनी का किया उद्घाटन

उद्यमी इस प्रकार के औद्योगिक प्रदर्शनी का पूरी तरह से लाभ उठावें

**नवीन मेन संवाददाता**  
रांची। सीसीएल को सीसीएल मुख्यालय में दो-दिवसीय वेंडर डेवलपमेंट कार्यक्रम, 2022 एवं औद्योगिक प्रदर्शनी का आयोजन किया गया। सेंट्रल कोलकोलेजियम सिटीयटिड रांची एवं पर्यावरणमंडल विकास कार्यालय कोकर, रांची द्वारा समूह रूप में आयोजित एवं कार्यक्रम का उद्घाटन वन्दना डाडेल, प्रधान सचिव, उद्योग विभाग, झारखण्ड सरकार के कर कमलों द्वारा सीसीएल सरकार, दरभंगा हाऊस, रांची में किया गया। इस अवसर पर विभिन्न औद्योगिक सीसीएल के सीएमडी वीएस प्रसाद के साथ-साथ निदेशक (कर्मिकी), संस्थान (असली प्रसाद, निदेशक (कर्मिकी), सी एस एर) वी सारंगम, निदेशक (ग्रिन) पीके सिन्हा, मुख्य सहायक अधिकारी



उद्यमि विना एकमात्र प्रदर्शनी कार्यक्रम कार्यालय, रांची के समूह निदेशक एवं कार्यालय प्रमुख इन्टर-लॉक वाटन उपस्थित थे। मुख्य औद्योगिक वन्दना डाडेल प्रधान सचिव उद्योग विभाग, झारखण्ड सरकार ने ऐसे कार्यक्रम के महत्व आयोजन के लिए सीसीएल तथा पर्यावरणमंडल कोकर-ओ रांची को प्रशंसा की और दोनों को इसके लिए कर्मांडी। उन्होंने कहा कि सीसीएल,

सीएमडी वीएस प्रसाद, गेल, सेल, पीपीएनएल, डेल्टा, सेंट्रल इत्यादि का झारखण्ड के औद्योगिक विकास में बहुत बड़ा योगदान है इसके लिए उन्होंने इन उपकरणों को धन्यवाद भी दिया। उन्होंने कहा कि उद्यमी इस प्रकार के कार्यक्रम से लाभ उठावें। उन्होंने आग्रहमान दिया कि पर्यावरणमंडल से संबंधित विभिन्न विधियों पर झारखण्ड सरकार के उद्योग विभाग द्वारा औद्योगिक समूहों के साथ हर घंटी के प्रथम कार्योत्सव को मूल्यांकन परिचयवा हा-नी शक्ति। उन्होंने मुख्य एवं लघु उद्यमियों को उद्योग विभाग की आर में हर संभव सहायता देने की बात कही। कार्यक्रम के अन्त में उन्होंने औद्योगिक प्रदर्शनी का उद्घाटन फोटो काटकर किया। सीएमडी, सीसीएल वी एस प्रसाद ने अपने सम्बोधन में कहा कि सीसीएल

द्वारा प्रदान की गई प्रदर्शनी पॉलिमर का पूरी तरह से पालन किया जा रहा है और त्यक्त से व्यापक इन्फोर्मेशन मुख्य एवं लघु उद्यमों में किया जा रहा है। उन्होंने बताया कि इस तरह के कार्यक्रम से क्रेता एवं विक्रेता दोनों को फायदा होगा।

एक दिवसीय हेल्थ कैंप का आयोजन

रांची। नतीकाले मानस्य डॉक्टरों में से एक के रूप में एक दिवसीय हेल्थ कैंप का आयोजन किया गया जिसमें दृष्टि सेग विभाजन इन्फोर्मेट में आर टी एनकेन टेक्निक ने मैकटो की मजदूरों में आर लोको का कमांडर दृष्टि को जांच और उपाय लोको का टॉट का सम्बन्धन सीएमडी पसीन के द्वारा किया गया टी निम्न-उप विभाग ने कैंप के उद्घाटन में उपस्थित करके हुए बताया कि मनुष्य सामान्य रूप में अधिक कमांडर लोको के लिए यह कैंप रखा गया है। यदि उपरका लाभ ले सकें तो यह अधिक लोको के काम में मदद करने में सक्षम रह जाते हैं और टॉट का टैल टैकने हुए जिनकी विभागों को मजदूर हो जाते हैं। टी एनकेन टेक्निक ने उपाय के बटने पत्रिका पर लोको को उपलब्ध करने हुए बताया कि शरीर की एक अवस्था ऐसी आती है कि जोर और घुटने का बीच कमांडर पट जाती है लोको कमांडर होने लगती है टी उपाय के पत्रिका में विशेष मदद करने की आवश्यकता है।

आरयू: शोध निदेशक नहीं मिलने से नाराज शोधार्थियों ने किया प्रदर्शन

रांची। रांची विश्वविद्यालय के 30 शोध विद्यार्थी सीएमएल को घेरावटी रोकथाम करने के लिए विश्वविद्यालय मुख्यालय पहुंचे। बताया कि वे पिछले 9 माह से इन-जातीय एवं अंतर-भाषा विभाग और रांची विश्वविद्यालय का रुककर लगा रहे हैं। शोध निदेशक नहीं मिलने के कारण इनका पीएचडी रोकथाम नहीं हो पा रहा है। वे अपनी निरक्षरता लेकर कुतर्कीय कार्यालय

मधुमक्खी पालन को लेकर पंद्रह दिवसीय प्रशिक्षण कार्यक्रम आयोजित

**नवीन मेन संवाददाता**  
रांची। झारखण्ड टूटवाल डेकनोपरेट संस्थाओं के आयोजन से एवं भारतीय लोककल्याण संस्थान के किन्वायन द्वारा 15 दिवसीय प्रशिक्षण कार्यक्रम आयोजित किया गया।

झारखण्ड सरकार एवं पत्रिका विभाग  
**जिला खनन कार्यालय, लातेहार।**  
(आम सूचना)  
एतद द्वारा सर्वसाधारण का सूचित किया जाता है कि लातेहार जिले के बालू खनिज का Interim District Survey Report जिला सर्वेक्षण रिपोर्ट लातेहार जिले के Website- latehar.nic.in पर प्रकाशित किया गया है जिसके माध्यम से आम जनता / सर्वसाधारण को उपलब्ध करायी जाती है। 30 दिनों के अन्दर आपति या सुझाव यदि कोई हो, तो जिला खनन कार्यालय, लातेहार अथवा ई-मेल-dc-lat@nic.in, dmo-latehar@jharkhandmail.gov.in पर प्रेषित किया जा सकता है।  
FR 283643 Mines and Geology(22-23)D  
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जिला खनन प्रदाधिकारी  
लातेहार 142 of 166.



**SITE VISIT PHOTOGRAPHS OF SAND GHATS IN LATEHAR DISTRICT**



Photograph showing Latehar Sand Ghat (Category – 2)



Photograph showing Jalta Sand Ghat (Category – 1)



जिला खनिज पदाधिकारी

लातेहार



GPS Map Camera



**Jalta, Jharkhand, India**  
Unnamed Road, Jalta, Jharkhand 829207, India  
Lat 23.736908°  
Long 84.474913°  
21/10/22 10:23 AM GMT +05:30

Photograph showing Jalta Sand Ghat (Category – 1)



GPS Map Camera



**Bhusur, Jharkhand, India**  
Unnamed Road, Bhusur, Jharkhand 829203,  
India  
Lat 23.716811°  
Long 84.600828°  
22/10/22 11:26 AM GMT +05:30

Photograph showing Bhusur Sand Ghat (Category - 1)





GPS Map Camera  
**Bhusur, Jharkhand, India**  
Unnamed Road, Bhusur, Jharkhand 829203,  
India  
Lat 23.716191°  
Long 84.600895°  
22/10/22 11:34 AM GMT +05:30

Photograph showing Bhusur Sand Ghat (Category – 1)



GPS Map Camera  
**Bhusur, Jharkhand, India**  
Unnamed Road, Bhusur, Jharkhand 829203,  
India  
Lat 23.715047°  
Long 84.600776°  
22/10/22 12:24 PM GMT +05:30

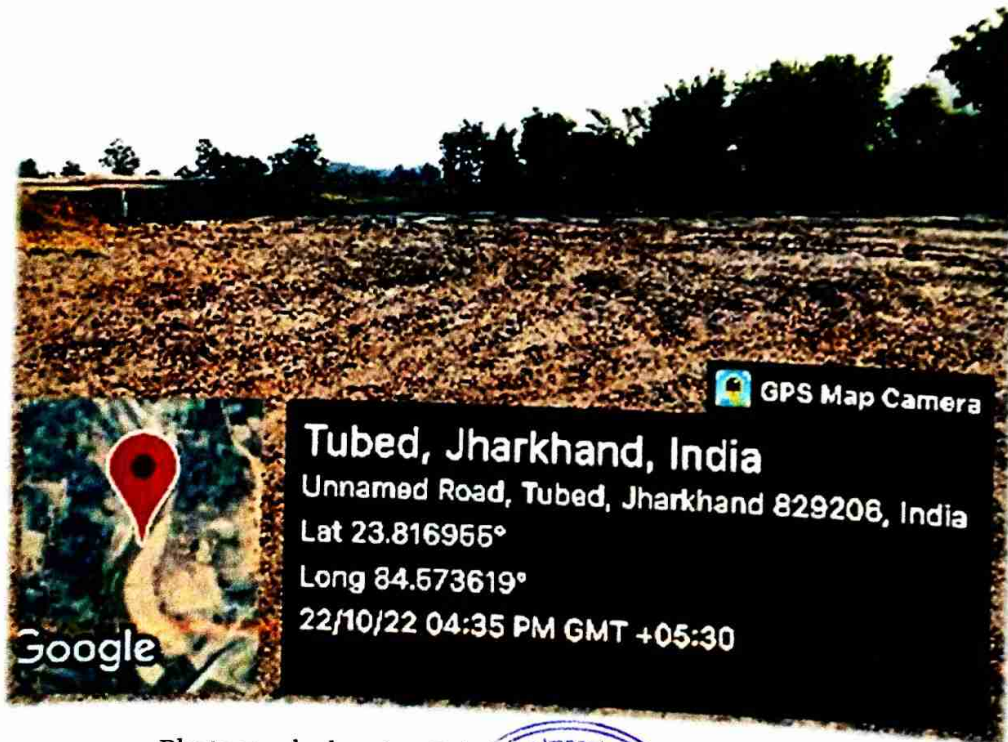
Photograph showing Bhusur Sand Ghat (Category – 1)



*[Signature]*  
जिला विनियम प्रशाधिकारी  
लतेहार



Photograph showing Tubed Sand Ghat (Category - 2)



Photograph showing Tubed Sand Ghat (Category - 2)



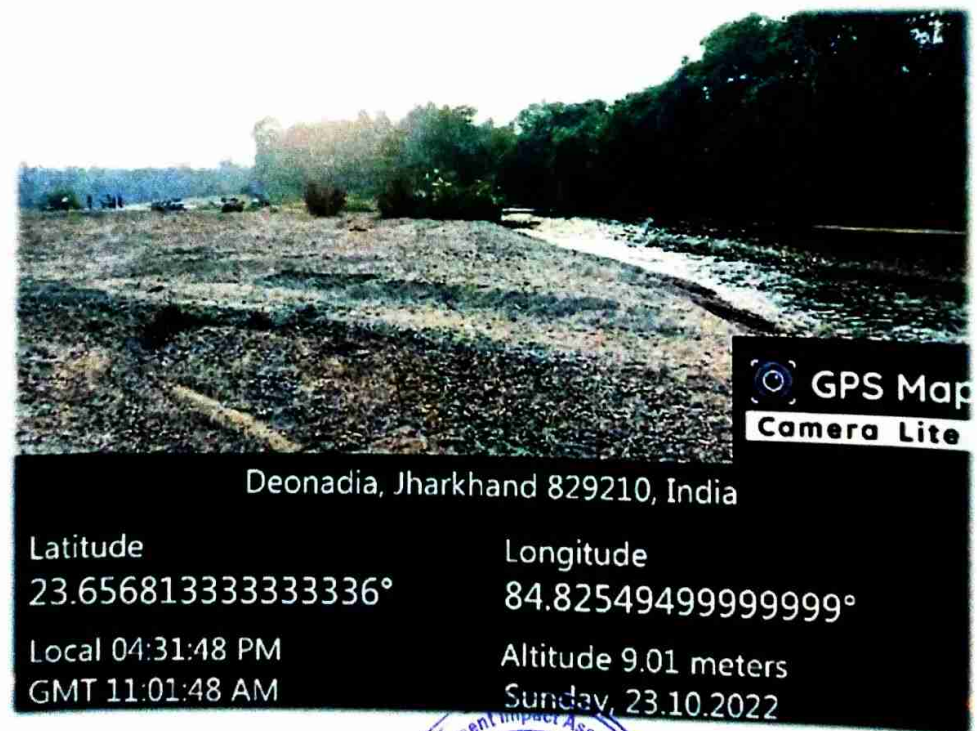
जिला खनिज पदाधिकारी  
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District Survey Report  
Latehar, Jharkhand



Photograph showing Parsahi Sand Ghat (Category – 1)



Photograph showing Deonadia Sand Ghat (Category – 1)



*[Signature]*  
जिला खनन एवं पर्यावरण विभाग  
लातेहार



District Survey Report  
Latehar, Jharkhand



Unnamed Road, Dumaro, Jharkhand 829210, India

Latitude  
23.693686666666668°

Longitude  
84.93354°

Local 02:41:11 PM  
GMT 09:11:11 AM

Altitude 8.97 meters  
Sunday, 23.10.2022

Photograph showing Dumaro Sand Ghat (Category – 1)



Unnamed Road, Dumaro, Jharkhand 829210, India

Latitude  
23.694143333333333°

Longitude  
84.93387499999999°

Local 02:22:01 PM  
GMT 08:52:01 AM

Altitude 8.97 meters  
Sunday, 23.10.2022

Photograph showing Dumaro Sand Ghat (Category – 1)



जिला खिन्न पदाधिकारी  
बलेश्वर



Bhatko, Jharkhand, India

Latitude	Longitude
23.813283333333334°	84.31700666666666°
Local 04:32:38 PM	Altitude 9.14 meters
GMT 11:02:38 AM	Wednesday, 26.10.2022

Photograph showing Bhatko Sand Ghat (Category - 1)



Unnamed Road, Bhatko, Jharkhand 822126, India

Latitude	Longitude
23.813238333333334°	84.31309666666667°
Local 04:13:59 PM	Altitude 9.15 meters
GMT 10:43:59 AM	Wednesday, 26.10.2022

Photograph showing Bhatko Sand Ghat (Category - 1)



जिला खनन एवं पत्थर निगम  
लातेहार  
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NH-39 Nadbelwa Domuhan, Nadbelwa, Jharkhand 822126, India

Latitude  
23.82114°

Longitude  
84.39483333333334°

Local 12:54:11 PM  
GMT 07:24:11 AM

Altitude 9.09 meters  
Wednesday, 26.10.2022

Photograph showing Nadbelwa Sand Ghat (Category – 1)



Deobar, Jharkhand 829207, India

Latitude  
23.812161666666665°

Longitude  
84.39438°

Local 12:26:56 PM  
GMT 06:56:56 AM

Altitude 9.09 meters  
Wednesday, 26.10.2022

Photograph showing Deobar Sand Ghat (Category – 1)



जिला स्तर पर 150 मि.वर्ग  
लातेहार



R99V+RM6, Nadbelwa, Jharkhand 822126, India

Latitude  
23.81900166666667°

Longitude  
84.39404166666667°

Local 11:49:36 AM  
GMT 06:19:36 AM

Altitude 9.09 meters  
Wednesday, 26.10.2022

Photograph showing Nadbelwa Sand Ghat (Category - 1)



R99V+RM6, Nadbelwa, Jharkhand 822126, India

Latitude  
23.81904666666667°

Longitude  
84.394055°

Local 11:49:28 AM  
GMT 06:19:28 AM

Altitude 9.09 meters  
Wednesday, 26.10.2022

Photograph showing Nadbelwa Sand Ghat (Category - 1)



जिला स्तर पर पदाधिकारी



District Survey Report  
Latehar, Jharkhand



GPS Map  
Camera Lite

V795+C7H, Ranki kalan, Jharkhand 822126, India

Latitude	Longitude
23.871046666666665°	84.257401666666668°
Local 02:36:52 PM	Altitude 9.19 meters
GMT 09:06:52 AM	Thursday, 27.10.2022

Photograph showing Rankikalan Sand Ghat (Category – 1)



GPS Map  
Camera Lite

Unnamed Road, Dundu, Jharkhand, India

Latitude	Longitude
23.813661666666667°	84.405623333333334°
Local 12:59:33 PM	Altitude 9.09 meters
GMT 07:29:33 AM	Thursday, 27.10.2022

Photograph showing Dundu Sand Ghat (Category – 1)



जिला खनिज पदाधिकारी  
लातेहार



GPS Map  
Camera Lite

Unnamed Road, Lanka, Jharkhand 822126, India

Latitude	Longitude
23.817231666666665°	84.264365°
Local 10:44:54 AM	Altitude 9.18 meters
GMT 05:14:54 AM	Thursday, 27.10.2022

Photograph showing Lanka Sand Ghat (Category – 1)



GPS Map  
Camera Lite

Unnamed Road, Lanka, Jharkhand 822126, India

Latitude	Longitude
23.815203333333336°	84.26773499999999°
Local 10:23:22 AM	Altitude 9.17 meters
GMT 04:53:22 AM	Thursday, 27.10.2022

Photograph showing Lanka Sand Ghat (Category – 1)



जिला प्रमुख, राँची  
लातेहार  
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GPS Map  
Camera Lite

Keri, Jharkhand, India

Latitude  
23.74965666666667°

Longitude  
84.91887833333334°

Local 12:59:36 PM  
GMT 07:29:36 AM

Altitude 8.98 meters  
Friday, 28.10.2022

Photograph showing Keri Sand Ghat (Category - 1)



GPS Map  
Camera Lite

Keri, Jharkhand, India

Latitude  
23.74960666666667°

Longitude  
84.918835°

Local 12:59:31 PM  
GMT 07:29:31 AM

Altitude 8.98 meters  
Friday, 28.10.2022

Photograph showing Keri Sand Ghat (Category - 1)



जिला/खनन विभागाधिकारी

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District Survey Report  
Latehar, Jharkhand



Hur, Jharkhand, India

Latitude  
23.918821666666666°

Longitude  
84.66227833333332°

Local 12:26:49 PM  
GMT 06:56:49 AM

Altitude 8.97 meters  
Saturday, 29.10.2022

Photograph showing Hur Sand Ghat (Category – 1)



Hur, Jharkhand, India

Latitude  
23.918875000000003°

Longitude  
84.66228833333335°

Local 12:26:45 PM  
GMT 06:56:45 AM

Altitude 8.97 meters  
Saturday, 29.10.2022

Photograph showing Hur Sand Ghat (Category – 1)



जिला खनन पदाधिकारी  
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District Survey Report  
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GPS Map  
Camera Lite

Unnamed Road, Herhanj, Jharkhand 822122, India

Latitude  
23.94382°

Longitude  
84.64101333333335°

Local 11:20:33 AM  
GMT 05:50:33 AM

Altitude 8.99 meters  
Saturday, 29.10.2022

Photograph showing Herhanj Sand Ghat (Category – 1)



GPS Map  
Camera Lite

Unnamed Road, Chhencha, Jharkhand 822111, India

Latitude  
23.840169999999997°

Longitude  
84.05852166666666°

Local 01:06:47 PM  
GMT 07:36:47 AM

Altitude 9.15 meters  
Wednesday, 02.11.2022

Photograph showing Chhencha Sand Ghat (Category – 1)



जिला खनिज विकास अधिकारी  
लातेहार



Photograph showing Latehar Sand Ghat (Category - 2)



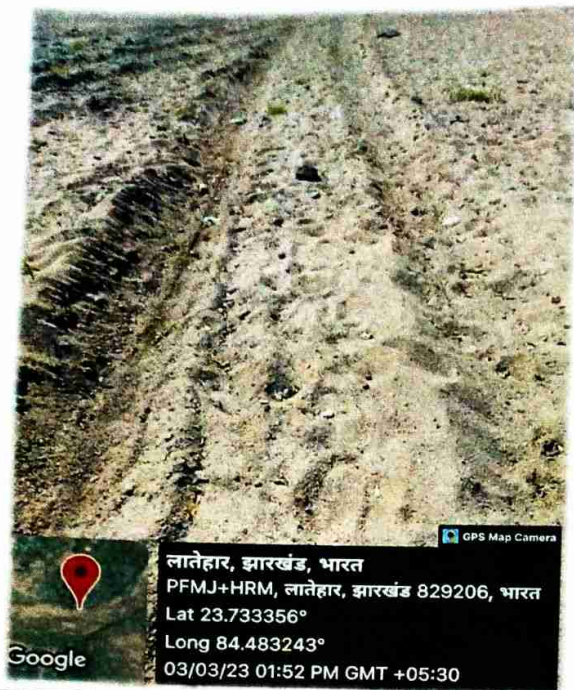
Photograph showing Latehar Sand Ghat (Category - 2)



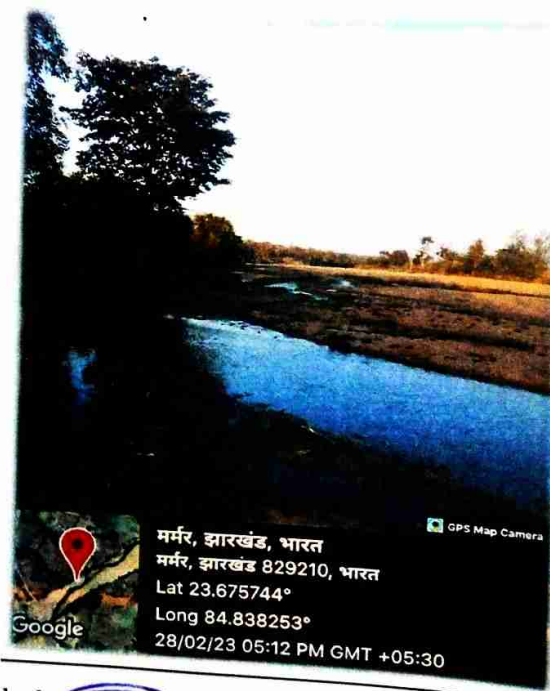
जिला/खेत्रन पदाधिकारी  
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Photograph showing Latehar Sand Ghat (Category - 2)



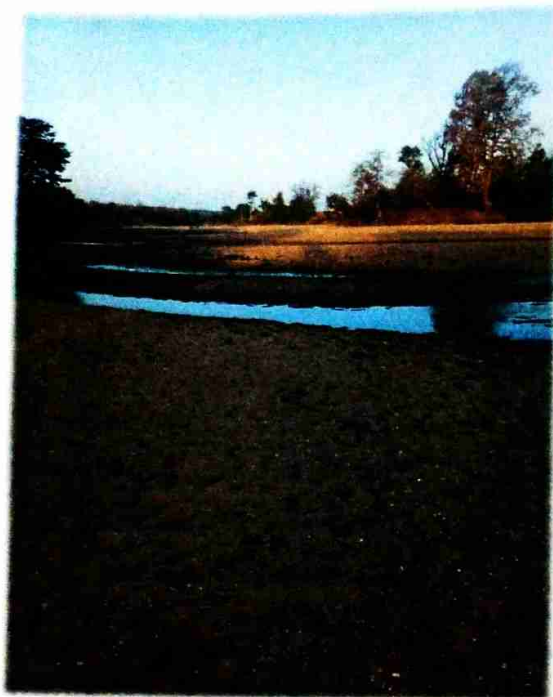
Photograph showing Mal near Sand Ghat (Category - 2)



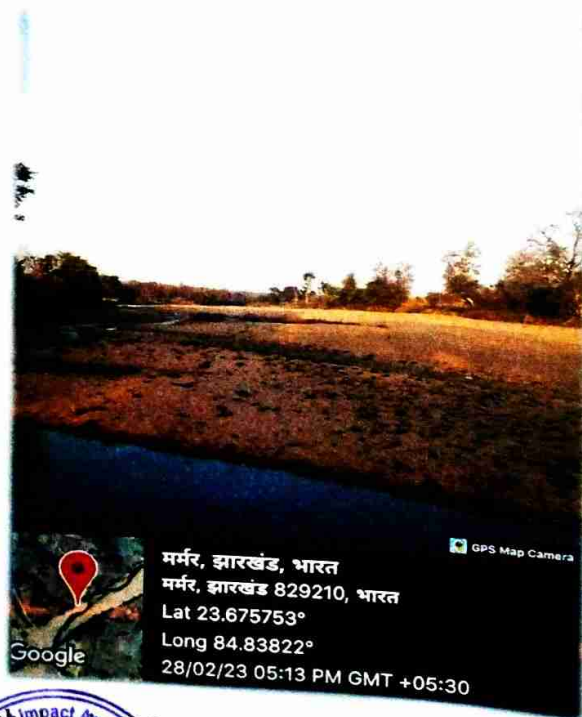
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District Survey Report  
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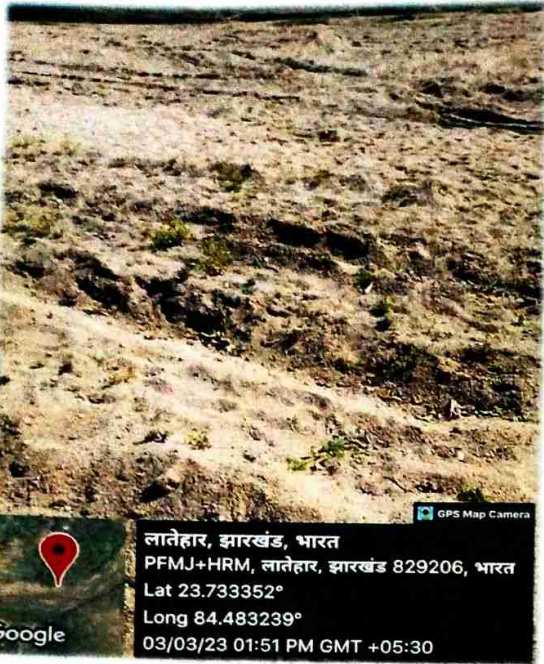
Photograph showing Marmar Sand Ghat (Category - 2)



Photograph showing Marmar Sand Ghat (Category - 2)



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Photograph showing Latehar Sand Ghat (Category - 2)



Photograph showing Latehar Sand Ghat (Category - 2)



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## Annexure - I

### Details of Sand Sources:

Sl. No.	River Name	Total Stretch of River (in Km)	Type of River (Perennial/Non-Perennial)
1	Auranga	78	Non-Perennial
2	North Koel	45	Non-Perennial
3	Damodar	40	Non-Perennial
4	Sukri	56	Non-Perennial

### a) De-Siltation Location: (Lakes/Ponds/Dams etc.):

Sl. No.	Name of Reservoir/Dams	Maintain/Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha.)
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil

### b) Patta Lands/Khatedari Land:

Sl. No.	Owner	Sy. No	Area (Ha.)	District	Tehsil	Village	Agricultural Land (Yes/No)
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil

### c) M-Sand Plants:

Sl. No.	Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil

**Note:** For inclusion of M-Sand Plant/Patta Land in DSR the plant/landowners need to submit the request to the Mining Department with complete details. Inclusion in DSR does not give them the right to operate the M-Sand Plant/Sand Mining lease.





District Survey Report  
Latehar, Jharkhand

## Annexure – II

### List of Potential Mining Leases (existing & proposed):

Sl. No.	River Details	Lease Details	Area (in Ha.)	Distance from PA/BR/WC (in KM)	Distance from Forest Area (in KM)	Mining Leases within 500m (if yes, Cluster area)	Total excavation (Mine depth max as 3 m) in (m <sup>3</sup> /Yr.)	Bulk Density Tonne/m <sup>3</sup>	Total excavation (Tonne/Yr.)	Mineral to be mined (Sand/Bajri/RBM etc.)	Existing /Proposed
1	Sukri	Tubed	0.80	>0.25 Km	>0.25 Km	No	1200	1.72	2064.0	Sand	Proposed
2	Auranga	Dudwa	8.49	>0.25 Km	>0.25 Km	No	135840	1.70	23086.0	Sand	Proposed
3	Auranga	Bajkum	2.39	>0.25 Km	>0.25 Km	No	28680	1.71	49042.8	Sand	Proposed
4	Auranga	Bajhar	2.40	>0.25 Km	>0.25 Km	No	36000	1.71	61560.0	Sand	Proposed
5	Damodar	Marmar	2.10	>0.25 Km	>0.25 Km	No	37800	1.70	64260.0	Sand	Proposed
6	Damodar	Malhan	0.15	>0.25 Km	>0.25 Km	No	2700	1.74	4698.0	Sand	Proposed
7	Auranga	Tapakhias	2.73	>0.25 Km	>0.25 Km	No	35490	1.73	61397.7	Sand	Proposed
8	Auranga	Latchar	0.78	>0.25 Km	>0.25 Km	No	11700	1.70	1870.0	Sand	Proposed

### a) De-Siltation Location: (Lakes/Ponds/Dams etc.):

Sl. No.	Name of Reservoir /Dams	Maintained/Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha.)	Quantity MT/Year	Existing /Proposed
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

### b) Patta Lands/Khatedari Land:

Sl. No.	Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

### c) M-Sand Plants:

Sl. No.	Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum	Existing/Proposed
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil



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### Annexure - III

#### Cluster & Contiguous Cluster details:

##### Clusters:

Sl. No.	River Name	Cluster No.	Lease No.	Location (River-bed /Patta Land)	Village	Area (in Ha.)	Total Excavation (Ton)	Total Mineral Excavation (Ton)
1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

##### Contiguous Clusters:

Sl. No.	River Name	Contiguous Cluster No.	Cluster No.	Number of leases in the Cluster	Location (River-bed /Patta Land)	Distance between Clusters	Village	Area of Cluster (Ha.)	Total Mineral Excavation (Ton)
1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.





**Annexure – IV**

**Transportation Routes for individual leases and leases in Cluster:**

Sl. No.	Lease No.	Transportation Route No.	Number of tippers/day of lease	Number of tippers/day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/unpaved)	Recommendation for road (Black Topped/unpaved)	The road will be Constructed by Govt./Lease Owner	Route Map & Location
1	1	1	@16 Tonnes/Tipper (Avg.)	@16 Tonnes/Tipper (Avg.)	16.41	Unpaved	Black Topped	Lease Owner	Attached as Map No. D1
2	2	3.86			Black Topped	Lease Owner	D2		
3	3	0.28			Black Topped	Lease Owner	D3		
4	4	0.32			Black Topped	Lease Owner	D4		
5	5	13.11			Black Topped	Lease Owner	D5		
6	6	15.06			Black Topped	Lease Owner	D6		
7	7	0.88			Black Topped	Lease Owner	D7		
8	8	1.57			Black Topped	Lease Owner	D8		

Sl. No.	Cluster No.	Transportation Route No.	Number of tippers/day of cluster	Number of tippers/day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/unpaved)	Recommendation for road (Black Topped/unpaved)	The road will be Constructed by Govt./Lease Owner	Route Map & Location
1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Environment Impact Assessment Authority  
Approved  
Jharkhand, Ranchi

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लातेहार



District Survey Report  
Latehar, Jharkhand

## Annexure – V

### Final List of Potential Mining Leases (existing & proposed):

Sl. No.	River Details	Lease Details	Area (in Ha.)	Distance from PA/BR/WC (in KM)	Distance from Forest Area (in KM)	Mining Leases within 500m (if yes, Cluster area)	Total excavation (Mine depth max as 3 m) in (m <sup>3</sup> /Yr.)	Bulk Density Tonne/m <sup>3</sup>	Total excavation (Tonne/Yr.)	Mineral to be mined (Sand/Bajri/RBM etc.)	Existing /Proposed
1	Sukri	Tubed	0.80	>0.25 Km	>0.25 Km	No	1200	1.72	2064.0	Sand	Proposed
2	Auranga	Dudwa	8.49	>0.25 Km	>0.25 Km	No	135840	1.70	23086.0	Sand	Proposed
3	Auranga	Bajkum	2.39	>0.25 Km	>0.25 Km	No	28680	1.71	49042.8	Sand	Proposed
4	Auranga	Rajhar	2.40	>0.25 Km	>0.25 Km	No	36000	1.71	61560.0	Sand	Proposed
5	Damodar	Marmar	2.10	>0.25 Km	>0.25 Km	No	37800	1.70	64260.0	Sand	Proposed
6	Damodar	Malhan	0.15	>0.25 Km	>0.25 Km	No	2700	1.74	4698.0	Sand	Proposed
7	Auranga	Tapakhas	2.73	>0.25 Km	>0.25 Km	No	35490	1.73	61397.7	Sand	Proposed
8	Auranga	Latehar	0.78	>0.25 Km	>0.25 Km	No	11700	1.70	1870.0	Sand	Proposed

### a) De-Siltation Location: (Lakes/Ponds/Dams etc.):

Sl. No.	Name of Reservoir /Dams	Maintained/Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha.)	Quantity MT/Year	Existing /Proposed
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

### b) Patta Lands/Khatedari Land:

Sl. No.	Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

### c) M-Sand Plants:

Sl. No.	Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum	Existing /Proposed
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil



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## Annexure - VI

### Final List of Cluster & Contiguous Cluster:

#### Clusters:

Sl. No.	River Name	Cluster No.	Lease No.	Location (River-bed /Patta Land)	Village	Area (in Ha.)	Total Excavation (Ton)	Total Mineral Excavation (Ton)
1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

#### Contiguous Clusters:

Sl. No.	River Name	Contiguous Cluster No.	Cluster No.	Number of leases in the Cluster	Location (River-bed /Patta Land)	Distance between Clusters	Village	Area of Cluster (Ha.)	Total Mineral Excavation (Ton)
1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.



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District Survey Report  
Latehar, Jharkhand

## Annexure – VII

### Final Transportation Routes for individual leases and leases in Cluster:

Sl. No.	Lease No.	Transportation Route No.	Number of tippers/day of lease	Number of tippers/day of the lease on route	Length of Route in KM	Type of Road (Black Topped/unpaved)	Recommendation for road (Black Topped/unpaved)	The road will be Constructed by Govt./Lease Owner	Route Map & Location	
1	1	1	@16 Tonne/Tipper (Avg.)	@16 Tonne/Tipper (Avg.)	16.41	Unpaved	Black Topped	Lease Owner	Attached as Map No. D1	
2	2	2			D2	3.86	Unpaved	Black Topped	Lease Owner	D2
3	3	3			D3	0.28	Unpaved	Black Topped	Lease Owner	D3
4	4	4			D4	0.32	Unpaved	Black Topped	Lease Owner	D4
5	5	5			D5	13.11	Unpaved	Black Topped	Lease Owner	D5
6	6	6			D6	15.06	Unpaved	Black Topped	Lease Owner	D6
7	7	7			D7	0.88	Unpaved	Black Topped	Lease Owner	D7
8	8	8			D8	1.57	Unpaved	Black Topped	Lease Owner	D8

Sl. No.	Cluster No.	Transportation Route No.	Number of tippers/day of cluster	Number of tippers/day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/unpaved)	Recommendation for road (Black Topped/unpaved)	The road will be Constructed by Govt./Lease Owner	Route Map & Location
1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.



जिला खनिज विदाधिकारी

## To whom it may concern

This is to certify that all sitting criteria/provisions of JSPCB & SEIAA, JHARKHAND has been complied.

As per JSPCB notification no. B-21, Ranchi dated 16/08/13.

Sl. No	Minimum distance from	Distance (in meter)
1	NH	100
2	SH	100
3	Distance metal road	50
4	Railway line	100
5	River	100
6	Any other river	100
7	Habitation	200
8	Forest/ Forest land	400

As per 58th-MOM-of-SEIAA Jharkhand

III. Revised format for PP to get the following information/certification from Circle Officer:-

क्रम सं०	निर्धारित बिन्दु	हाँ / नहीं
1	क्या आवंटित भूमि की कोटि सर्वे खतियान पथा रजिस्टर-II में जंगल झाड़ी के रूप में दर्ज है?	
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है?	
3	क्या 500 मीटर की दूरी के अंदर कोई जलयोज निकाय (Dam/Reservoir) स्थित है?	
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है?	
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है?	
7	क्या 10 कि०मी० की परिधि में कोई अंतरराज्यीय (Interstate) सीमा है?	
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातात्विक (Monuments/Archaeological) महत्व के स्थल स्थित है?	

As per 67th-MOM-of-SEIAA Jharkhand

iv. Revised format for project proponent to get the following information / certification from Divisional Forest Officer concerned :-

क्रम सं०	निर्धारित बिन्दु	हाँ / नहीं
1.	क्या परियोजना स्थल से आरक्षित वन / सरक्षित वन भूमि से दूरी 250 मी० है?	
2.	क्या परियोजना स्थल No Mining Zone अंतर्गत आता है?	
3.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई नो लान पार्क है?	
4.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई अभयारण्य एवं जीव विविधता क्षेत्र है?	
5.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई इको संसिटिव जोन (Eco Sensitive Zone) है?	
6.	क्या आवंटित परियोजना ESZ के अंतर्गत प्रबंधित वर्गी न आता है अथवा नहीं?	

  
District Mining Officer,  
Latehar





# EcoCare

Specialised House on Environmental Monitoring, Analysis, Assessment & Management  
ISO 9001:2015 Certified, OHSAS 45001:2018 Certified

Sl. No. 9  
Page no. 168  
Phone : (0341) 2252011  
Fax : (0341) 2252011  
Email : ecocareasansol@rediffmail.com  
Manoj Talkies Basement, Kumarpur  
Asansol - 713304  
Paschim Bardhaman (W.B.)

ULR No. TC51092300000456F

Date of Print: 27.12.2022

## Sand Texture Analysis Report

Client Name: Sathi Planners Private Limited  
Client Address: Lake Avenue, Kanke Road, Ranchi,  
Jharkhand, PIN - 834008  
Sample Type: Riverbed Sand  
Period of Sampling: 12. 12. 2022 to 17.12.2022  
Sampling Density: Two per Hectare


Source: Multiple Rivers in Latehar District  
Period of Analysis: 19.12.2022 to 23.12.2022  
Sample Condition: Sealed

Ghat ID	Area (Ha)	Length (m)	No. of Samples	Sand Sample Collected for texture analysis						Bulk Density (Ton/m <sup>3</sup> )
				4.75mm to 2.00 mm		2.00mm to 425 micron		425 to 75 micron		
				Nos.	%	Nos.	%	Nos.	%	
LA_Z8_SU_1	0.8	195	2	0	0	2	100	0	0	1.72
LA_Z1_AU_2	8.49	1642	17	3	17.65	9	52.94	5	29.41	1.70
LA_Z1_AU_3	2.39	400	5	0	0	3	60	2	40	1.71
LA_Z1_AU_4	2.4	422	5	0	0	3	60	2	40	1.71
LA_Z3_DAM_5	5.2	580	11	2	18.18	6	54.55	3	27.27	1.70
LA_Z3_DAM_6	0.39	56	1	0	0	1	100	0	0	1.74
LA_Z1_AU_7	2.73	500	6	0	0	4	66.67	2	33.33	1.73
LA_Z1_AU_8	0.78	118	2	0	0	2	100	0	0	1.70

1. Test values are reported based on the samples received.
2. Samples will be destroyed after 7 days from the date of issues of the Test Report, subject to nature of preservation sample will be preserved as per the standard method.
3. The Test report shall not be reproduced without the written approval of the laboratory.

  
जिला खनन पदाधिकारी  
लातेहार



  
Authorised Signatory  
Dr. Mousumi Pal  
Ph.D (Env.), Scientist  
Authorised Signatory

# Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Latehar District, Jharkhand



ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z1	Zone 1	
River	AU	Auranga	

**Legend**

- Latehar District Boundary
- Railway
- Bridge
- Sand Deposit Zone
- No Mining Zone
- Sand Ghat
- Safety Barrier
- River Flow Direction

Sand Ghat Code	Area (in Ha)
LA_Z1_AU_2	8.49
LA_Z1_AU_3	2.39
LA_Z1_AU_4	2.4
LA_Z1_AU_7	2.73
LA_Z1_AU_8	0.78

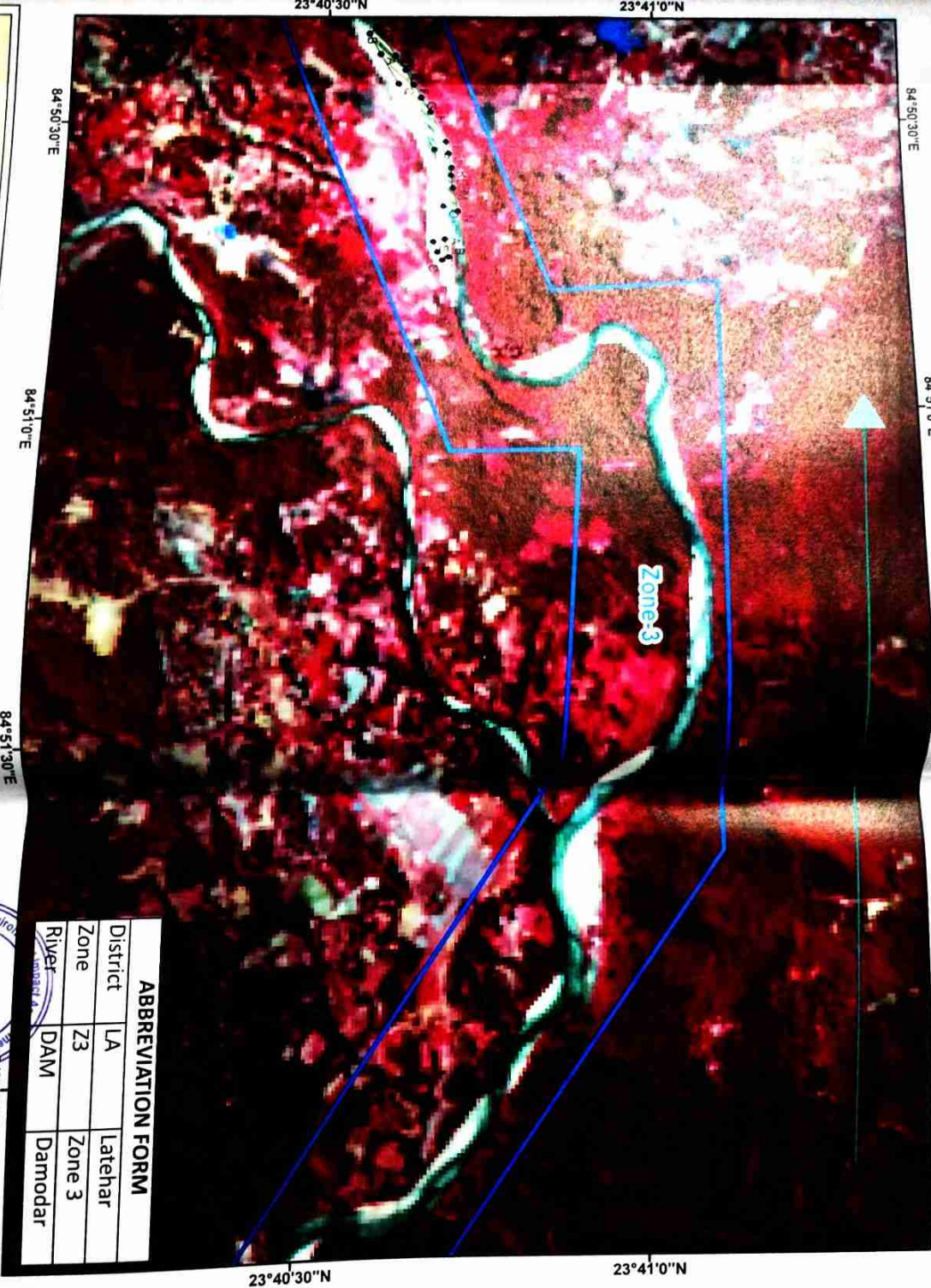
State Level Environmental Impact Assessment Authority & Jharkhand State Pollution Control Board  
**Approved**  
 Date: 23/11/2022

Dr. *[Signature]*  
 राकेश कुमार  
 जिला खनिज पदाधिकारी  
 राँचेर

River-Auranga Nadi  
 Sentinel 2 Satellite Imagery  
 Date of Capture: November, 2022 (Post-Monsoon)  
 Spatial Resolution: 10m



# Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Latehar District, Jharkhand



**ABBREVIATION FORM**

District	LA	Latehar
Zone	Z3	Zone 3
River	DAM	Damodar

**Legend**

- Latehar District Boundary
- Railway
- Bridge
- Sand Deposit Zone
- No Mining Zone
- Sand Ghat
- Safety Barrier
- River Flow Direction

**Sand Ghat Code**

LA_Z3_DAM_5	2.1
LA_Z3_DAM_6	0.15

**Limiting Coordinates of Zone 3**

Starting Point	84°50'13.675\"E 23°40'32.778\"N
Ending point	84°52'22.1\"E 23°40'31.824\"N

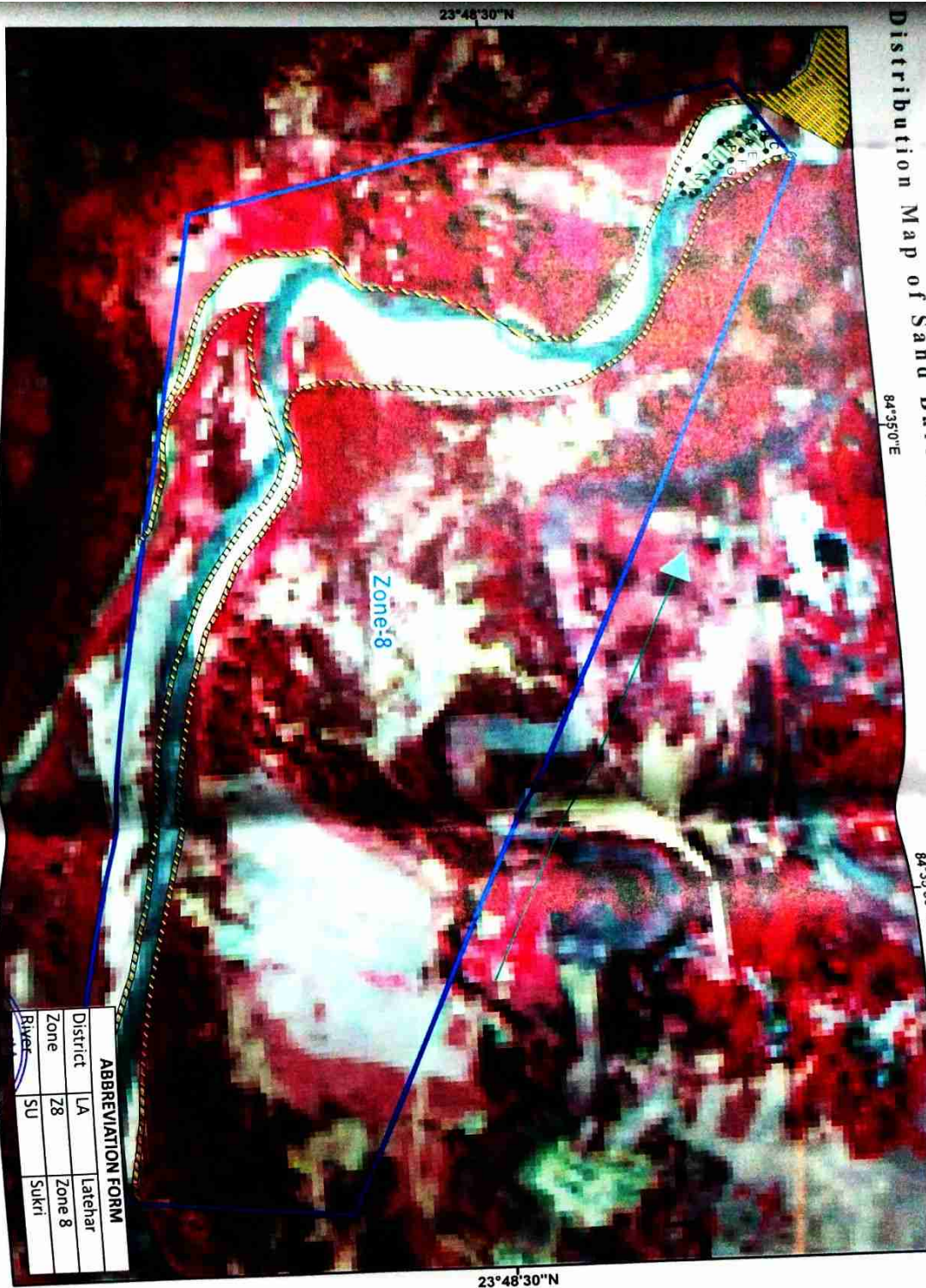
State Level Environment  
 Approved  
 District Authority  
 Latehar

River - Damodar Nadi  
 Sentinel 2 Satellite Imagery  
 Date of Capture: November, 2022 (Post-Monsoon)  
 Spatial Resolution: 10m



**Geo-Tagged Site Photograph**

# Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Latehar District, Jharkhand



Geo-Tagged Site Photographs



ABBREVIATION FORM		
District	LA	Latehar
Zone	Z8	Zone 8
River	SU	Sukri

Sand Ghat Code	Area (in Ha)
LA_Z8_SU_1	0.8

Limiting Coordinates of Zone 8	
Starting Point	84°34'38.453"E 23°48'47.684"N
Ending Point	84°35'47.337"E 23°48'13.341"N

State Environment Impact Assessment Authority, Ranchi \* Jharkhand

River - Sukri Nadi  
 Sentinel 2 Satellite Imagery  
 Date of Capture: November, 2022 (Post-Monsoon)  
 Spatial Resolution: 10m



**Legend**

- Yellow box: Latehar District Boundary
- Black line: Railway
- Blue line: Bridge
- Blue box: Sand Deposit Zone
- Yellow box with diagonal lines: No Mining Zone
- White box with diagonal lines: Sand Ghat
- Green arrow: River Flow Direction
- Yellow box with diagonal lines: Safety Barrier

23°48'30"N

84°35'0"E

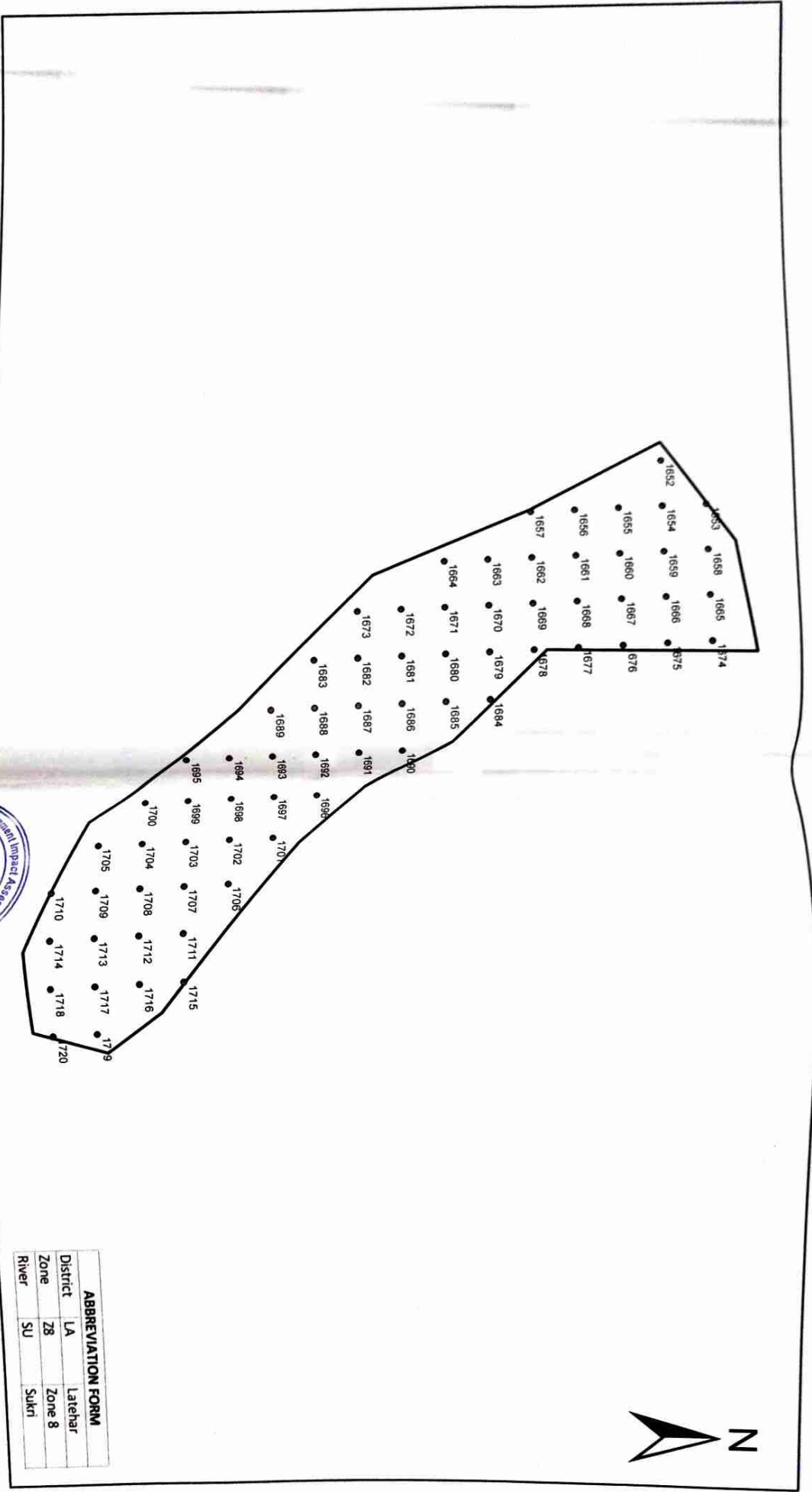
84°35'30"E

23°48'30"N

84°35'0"E

84°35'30"E

Map showing 10m x 10m Grid Points Inside Sand Ghat In Sukri River In Latehar District



ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z8	Zone 8	
River	SU	Sukri	

**Legend**

- Sand Ghat Grid Points
- Sand Ghat Boundary

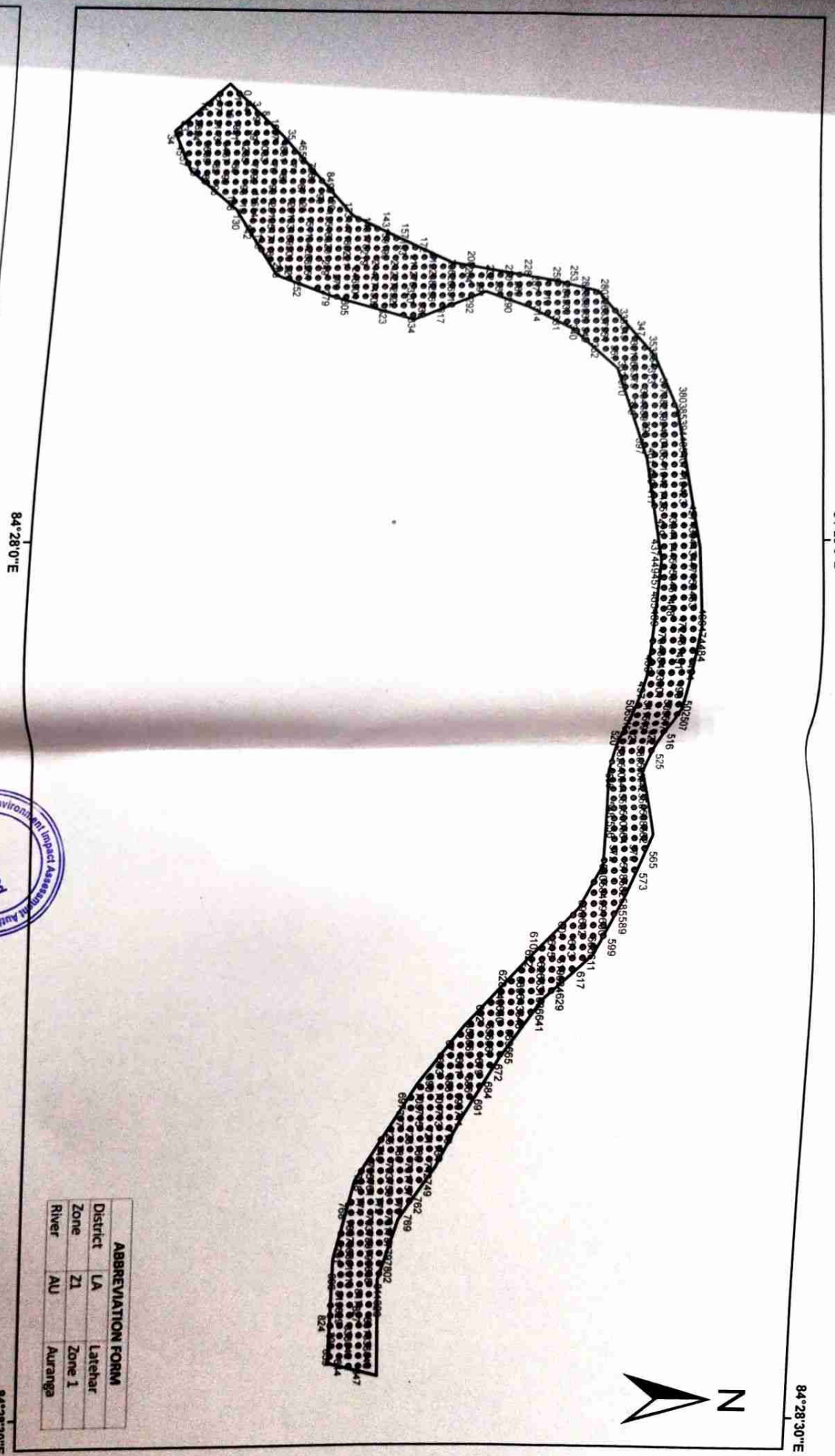
<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z8_SU_1	0.8



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Map showing 10m x 10m Grid Points Inside Sand Ghat In Auranga River In Latehar District



84°28'0"E

84°28'30"E

84°28'0"E

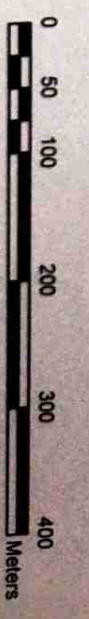
84°28'30"E

**Legend**

- Sand Ghat Grid Points
- Sand Ghat Boundary

Sand Ghat Code	Area (in Ha)
LA_Z1_AU_2	8.49

ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z1	Zone 1	
River	AU	Auranga	

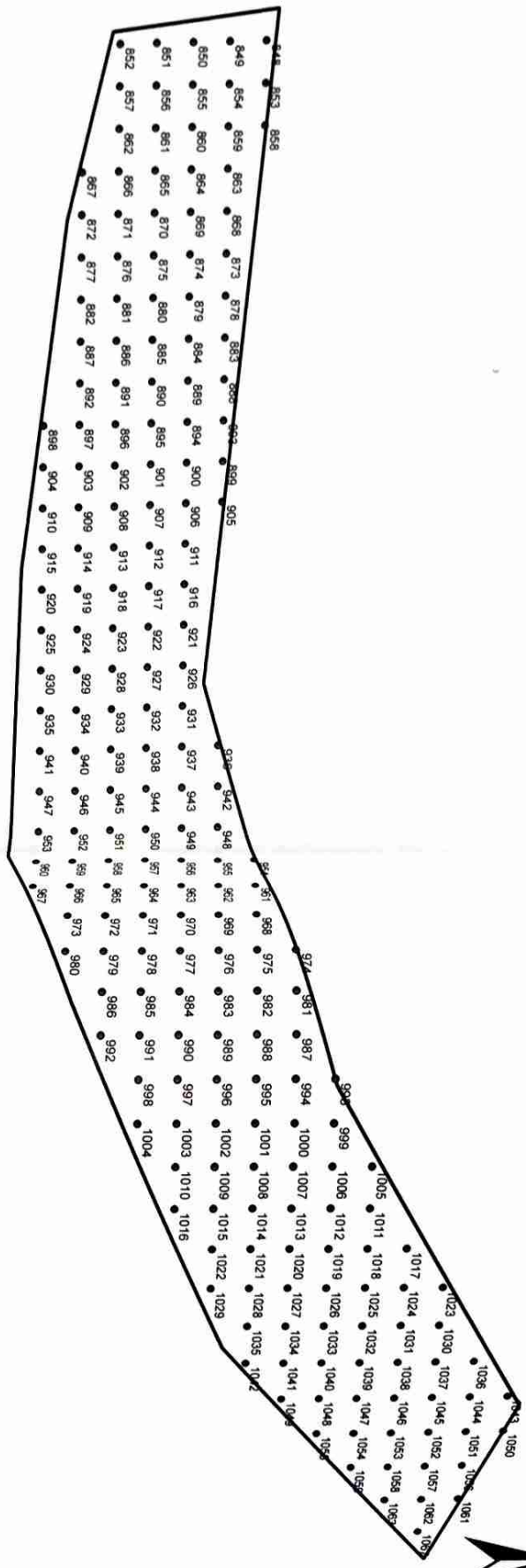


Map showing 10m x 10m Grid Points Inside Sand Ghat In Auranga River In Lathar District

84°29'0"E

23°44'0"N

23°44'0"N



ABBREVIATION FORM			
District	LA	Lathar	
Zone	Z1	Zone 1	
River	AU	Auranga	

**Legend**

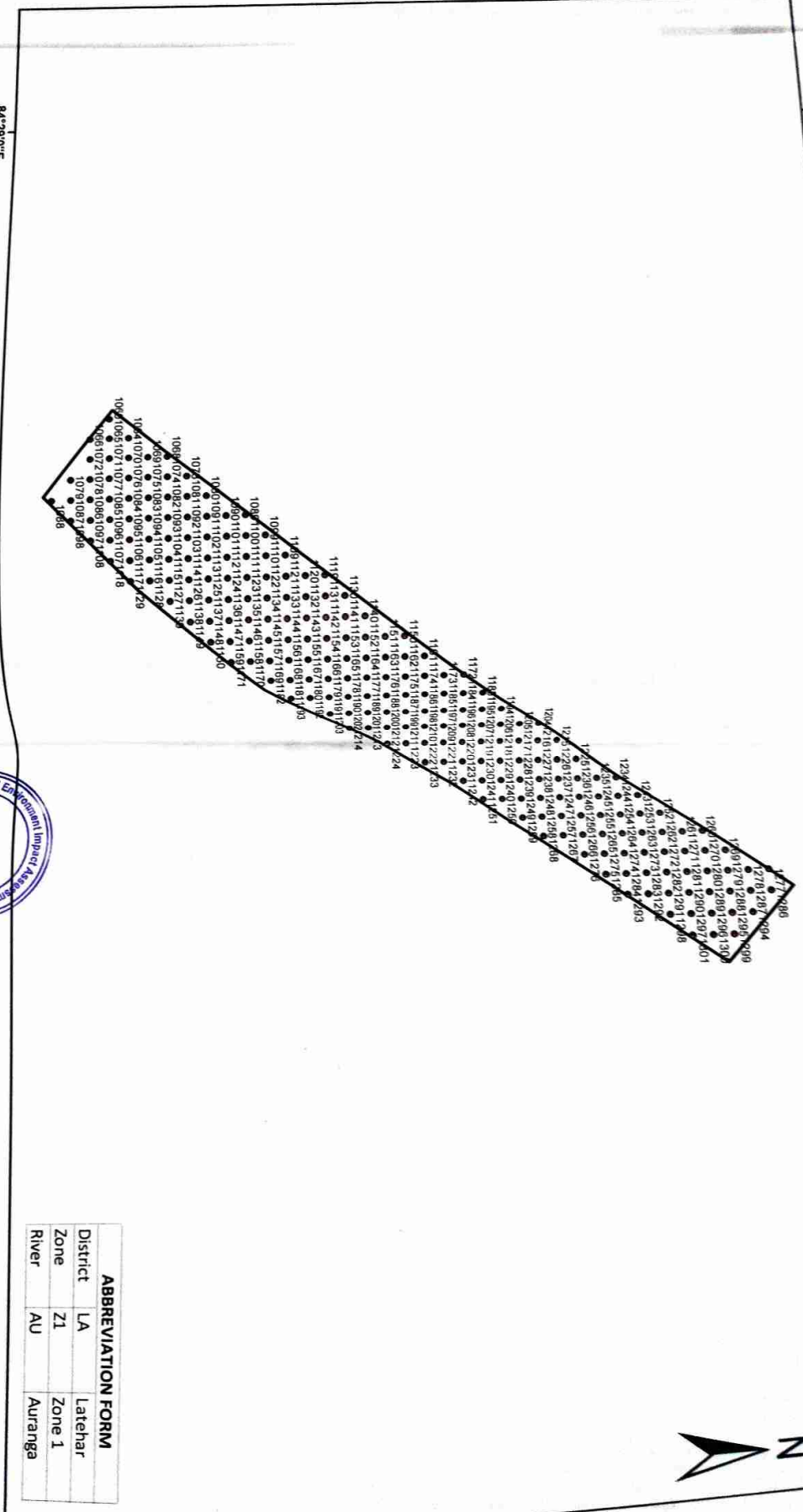
- Sand Ghat Grid Points
- Sand Ghat Boundary

Sand Ghat Code	Area (in Ha)
LA_Z1_AU_3	2.39



Map showing 10m x 10m Grid Points Inside Sand Ghat In Auranga River In Lathar District

84°29'0"E

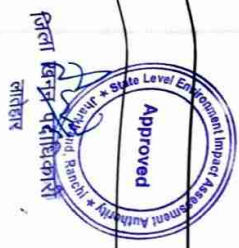


84°29'0"E

**Legend**

- Sand Ghat Grid Points
- Sand Ghat Boundary

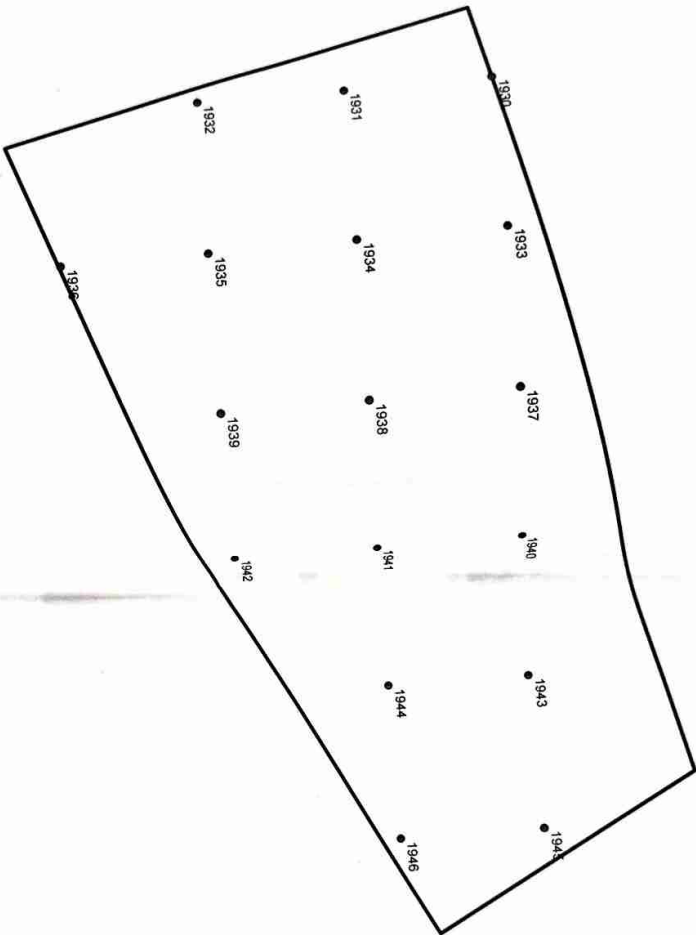
Sand Ghat Code	Area (in Ha)
LA_Z1_AU_4	2.4



ABBREVIATION FORM	
District	LA
Zone	Z1
River	AU
	Auranga



Map showing 10m x 10m Grid Points Inside Sand Ghat In Damodar River In Latehar District



ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z3	Zone 3	
River	DAM	Damodar	

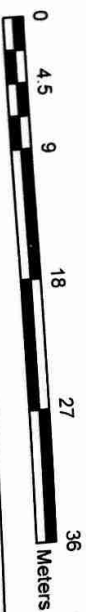


निर्वाहक अधिकारी  
राँची

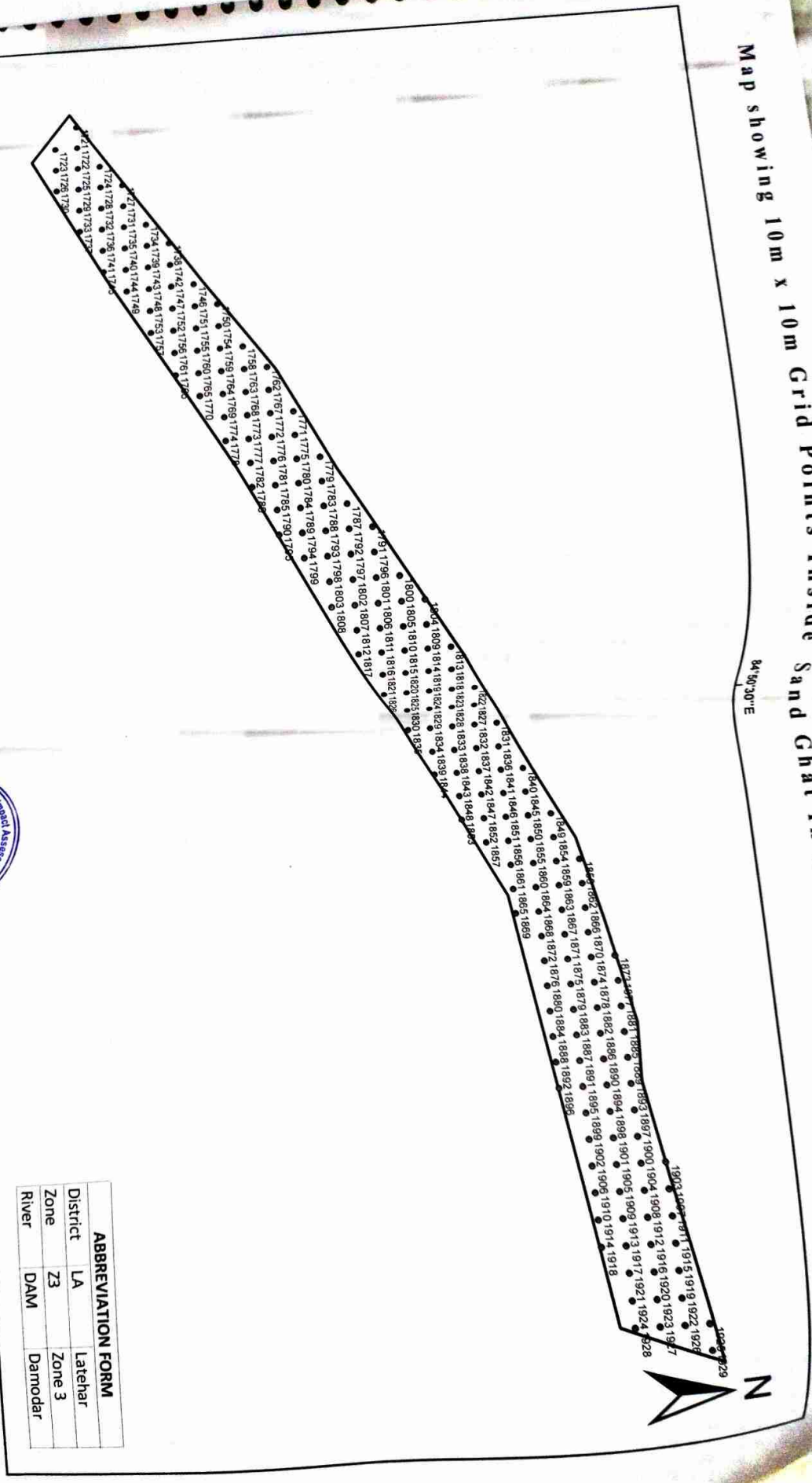
**Legend**

- Sand Ghat Grid Points
- Sand Ghat Boundary

Sand Ghat Code	Area (in Ha)
LA_Z3_DAM_6	0.15



Map showing 10m x 10m Grid Points Inside Sand Ghat In Damodar River In Latchar District

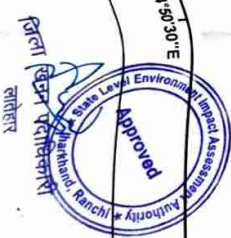


ABBREVIATION FORM			
District	LA	Latchar	
Zone	Z3	Zone 3	
River	DAM	Damodar	

**Legend**

- Sand Ghat Grid Points
- Sand Ghat Boundary

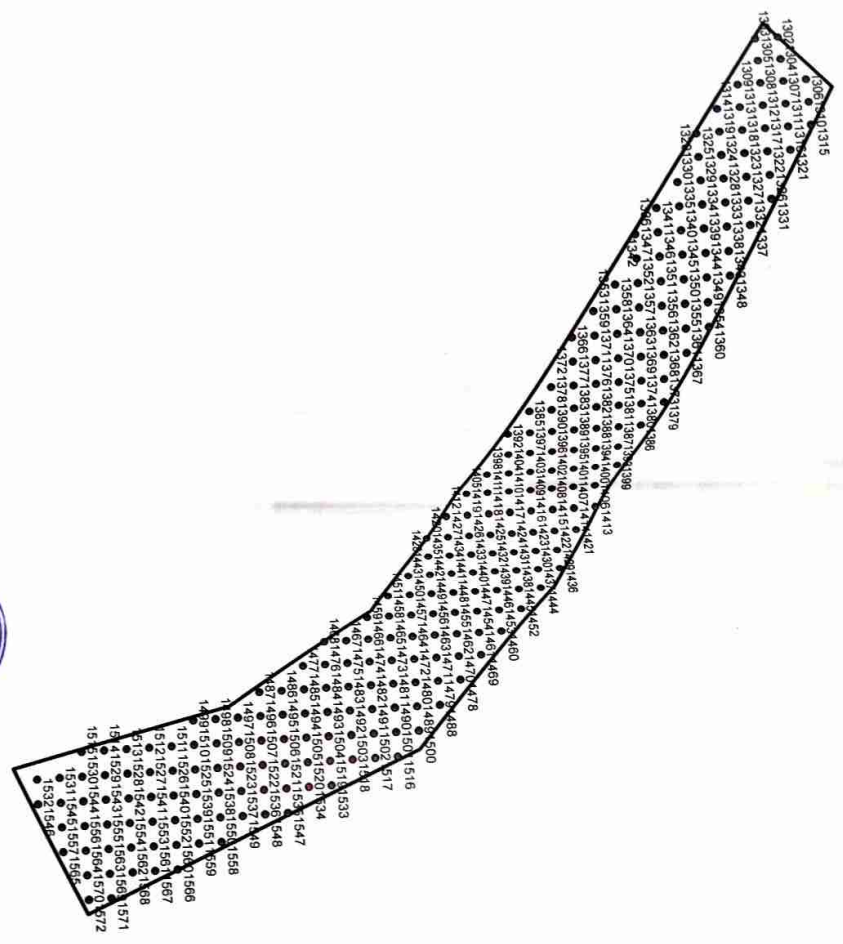
<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z3_DAM_5	2.1



Map showing 10m x 10m Grid Points Inside Sand Ghat In Auranga River In Latehar District

84°29'30"E

84°29'30"E



ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z1	Zone 1	
River	AU	Auranga	

**Legend**

- Sand Ghat Grid Points
- Sand Ghat Boundary

Sand Ghat Code	Area (in Ha)
LA_Z1_AU_7	2.73

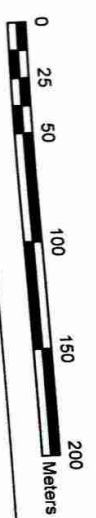
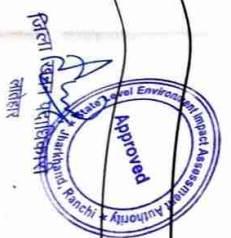
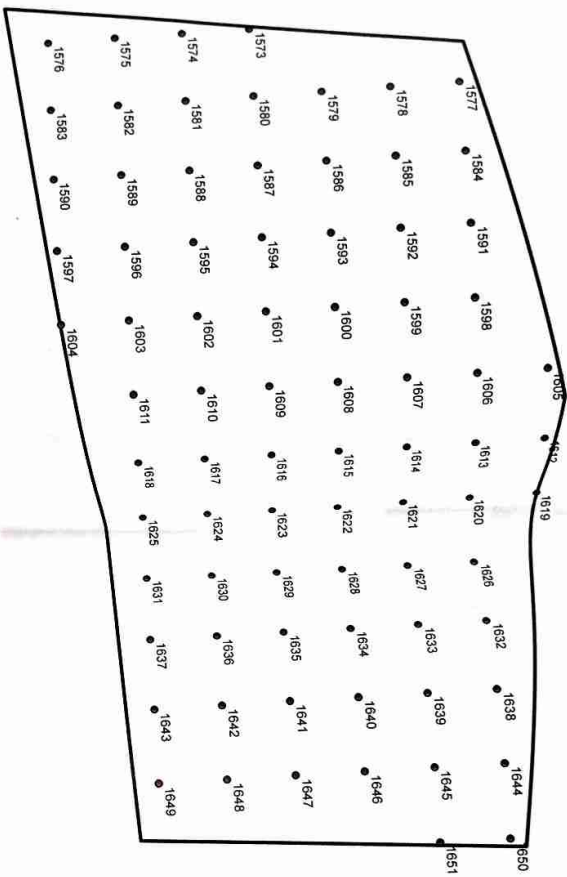


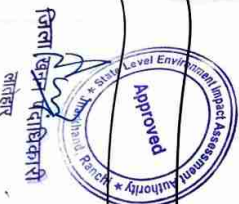
TABLE REPRESENTING ELEVATION (in m) WITH RESPECT TO 10m X 10m GRID WITHIN POTENTIAL SAND GHATS IN  
 LATEHR DISTRICT OF JHARKHAND STATE

PID	Sand ghat code	Elevation (in m)	PID	LA.ZI.AU.2	361.8	PID	LA.ZI.AU.2	362.7	PID	LA.ZI.AU.2	363.6	PID	LA.ZI.AU.2	364.5	PID	LA.ZI.AU.2	365.4
1	LA.ZI.AU.2	361.8	281	LA.ZI.AU.2	361.8	561	LA.ZI.AU.2	362.7	841	LA.ZI.AU.2	363.6	1121	LA.ZI.AU.2	364.5	1401	LA.ZI.AU.2	365.4
2	LA.ZI.AU.2	361.9	282	LA.ZI.AU.2	361.9	562	LA.ZI.AU.2	362.8	842	LA.ZI.AU.2	363.7	1122	LA.ZI.AU.2	364.6	1402	LA.ZI.AU.2	365.5
3	LA.ZI.AU.2	362.0	283	LA.ZI.AU.2	362.0	563	LA.ZI.AU.2	362.9	843	LA.ZI.AU.2	363.8	1123	LA.ZI.AU.2	364.7	1403	LA.ZI.AU.2	365.6
4	LA.ZI.AU.2	362.1	284	LA.ZI.AU.2	362.1	564	LA.ZI.AU.2	363.0	844	LA.ZI.AU.2	363.9	1124	LA.ZI.AU.2	364.8	1404	LA.ZI.AU.2	365.7
5	LA.ZI.AU.2	362.2	285	LA.ZI.AU.2	362.2	565	LA.ZI.AU.2	363.1	845	LA.ZI.AU.2	364.0	1125	LA.ZI.AU.2	364.9	1405	LA.ZI.AU.2	365.8
6	LA.ZI.AU.2	362.3	286	LA.ZI.AU.2	362.3	566	LA.ZI.AU.2	363.2	846	LA.ZI.AU.2	364.1	1126	LA.ZI.AU.2	365.0	1406	LA.ZI.AU.2	365.9
7	LA.ZI.AU.2	362.4	287	LA.ZI.AU.2	362.4	567	LA.ZI.AU.2	363.3	847	LA.ZI.AU.2	364.2	1127	LA.ZI.AU.2	365.1	1407	LA.ZI.AU.2	366.0
8	LA.ZI.AU.2	362.5	288	LA.ZI.AU.2	362.5	568	LA.ZI.AU.2	363.4	848	LA.ZI.AU.2	364.3	1128	LA.ZI.AU.2	365.2	1408	LA.ZI.AU.2	366.1
9	LA.ZI.AU.2	362.6	289	LA.ZI.AU.2	362.6	569	LA.ZI.AU.2	363.5	849	LA.ZI.AU.2	364.4	1129	LA.ZI.AU.2	365.3	1409	LA.ZI.AU.2	366.2
10	LA.ZI.AU.2	362.7	290	LA.ZI.AU.2	362.7	570	LA.ZI.AU.2	363.6	850	LA.ZI.AU.2	364.5	1130	LA.ZI.AU.2	365.4	1410	LA.ZI.AU.2	366.3
11	LA.ZI.AU.2	362.8	291	LA.ZI.AU.2	362.8	571	LA.ZI.AU.2	363.7	851	LA.ZI.AU.2	364.6	1131	LA.ZI.AU.2	365.5	1411	LA.ZI.AU.2	366.4
12	LA.ZI.AU.2	362.9	292	LA.ZI.AU.2	362.9	572	LA.ZI.AU.2	363.8	852	LA.ZI.AU.2	364.7	1132	LA.ZI.AU.2	365.6	1412	LA.ZI.AU.2	366.5
13	LA.ZI.AU.2	363.0	293	LA.ZI.AU.2	363.0	573	LA.ZI.AU.2	363.9	853	LA.ZI.AU.2	364.8	1133	LA.ZI.AU.2	365.7	1413	LA.ZI.AU.2	366.6
14	LA.ZI.AU.2	363.1	294	LA.ZI.AU.2	363.1	574	LA.ZI.AU.2	364.0	854	LA.ZI.AU.2	364.9	1134	LA.ZI.AU.2	365.8	1414	LA.ZI.AU.2	366.7
15	LA.ZI.AU.2	363.2	295	LA.ZI.AU.2	363.2	575	LA.ZI.AU.2	364.1	855	LA.ZI.AU.2	365.0	1135	LA.ZI.AU.2	365.9	1415	LA.ZI.AU.2	366.8
16	LA.ZI.AU.2	363.3	296	LA.ZI.AU.2	363.3	576	LA.ZI.AU.2	364.2	856	LA.ZI.AU.2	365.1	1136	LA.ZI.AU.2	366.0	1416	LA.ZI.AU.2	366.9
17	LA.ZI.AU.2	363.4	297	LA.ZI.AU.2	363.4	577	LA.ZI.AU.2	364.3	857	LA.ZI.AU.2	365.2	1137	LA.ZI.AU.2	366.1	1417	LA.ZI.AU.2	367.0
18	LA.ZI.AU.2	363.5	298	LA.ZI.AU.2	363.5	578	LA.ZI.AU.2	364.4	858	LA.ZI.AU.2	365.3	1138	LA.ZI.AU.2	366.2	1418	LA.ZI.AU.2	367.1
19	LA.ZI.AU.2	363.6	299	LA.ZI.AU.2	363.6	579	LA.ZI.AU.2	364.5	859	LA.ZI.AU.2	365.4	1139	LA.ZI.AU.2	366.3	1419	LA.ZI.AU.2	367.2
20	LA.ZI.AU.2	363.7	300	LA.ZI.AU.2	363.7	580	LA.ZI.AU.2	364.6	860	LA.ZI.AU.2	365.5	1140	LA.ZI.AU.2	366.4	1420	LA.ZI.AU.2	367.3
21	LA.ZI.AU.2	363.8	301	LA.ZI.AU.2	363.8	581	LA.ZI.AU.2	364.7	861	LA.ZI.AU.2	365.6	1141	LA.ZI.AU.2	366.5	1421	LA.ZI.AU.2	367.4
22	LA.ZI.AU.2	363.9	302	LA.ZI.AU.2	363.9	582	LA.ZI.AU.2	364.8	862	LA.ZI.AU.2	365.7	1142	LA.ZI.AU.2	366.6	1422	LA.ZI.AU.2	367.5
23	LA.ZI.AU.2	364.0	303	LA.ZI.AU.2	364.0	583	LA.ZI.AU.2	364.9	863	LA.ZI.AU.2	365.8	1143	LA.ZI.AU.2	366.7	1423	LA.ZI.AU.2	367.6
24	LA.ZI.AU.2	364.1	304	LA.ZI.AU.2	364.1	584	LA.ZI.AU.2	365.0	864	LA.ZI.AU.2	365.9	1144	LA.ZI.AU.2	366.8	1424	LA.ZI.AU.2	367.7
25	LA.ZI.AU.2	364.2	305	LA.ZI.AU.2	364.2	585	LA.ZI.AU.2	365.1	865	LA.ZI.AU.2	366.0	1145	LA.ZI.AU.2	366.9	1425	LA.ZI.AU.2	367.8
26	LA.ZI.AU.2	364.3	306	LA.ZI.AU.2	364.3	586	LA.ZI.AU.2	365.2	866	LA.ZI.AU.2	366.1	1146	LA.ZI.AU.2	367.0	1426	LA.ZI.AU.2	367.9
27	LA.ZI.AU.2	364.4	307	LA.ZI.AU.2	364.4	587	LA.ZI.AU.2	365.3	867	LA.ZI.AU.2	366.2	1147	LA.ZI.AU.2	367.1	1427	LA.ZI.AU.2	368.0
28	LA.ZI.AU.2	364.5	308	LA.ZI.AU.2	364.5	588	LA.ZI.AU.2	365.4	868	LA.ZI.AU.2	366.3	1148	LA.ZI.AU.2	367.2	1428	LA.ZI.AU.2	368.1
29	LA.ZI.AU.2	364.6	309	LA.ZI.AU.2	364.6	589	LA.ZI.AU.2	365.5	869	LA.ZI.AU.2	366.4	1149	LA.ZI.AU.2	367.3	1429	LA.ZI.AU.2	368.2
30	LA.ZI.AU.2	364.7	310	LA.ZI.AU.2	364.7	590	LA.ZI.AU.2	365.6	870	LA.ZI.AU.2	366.5	1150	LA.ZI.AU.2	367.4	1430	LA.ZI.AU.2	368.3
31	LA.ZI.AU.2	364.8	311	LA.ZI.AU.2	364.8	591	LA.ZI.AU.2	365.7	871	LA.ZI.AU.2	366.6	1151	LA.ZI.AU.2	367.5	1431	LA.ZI.AU.2	368.4
32	LA.ZI.AU.2	364.9	312	LA.ZI.AU.2	364.9	592	LA.ZI.AU.2	365.8	872	LA.ZI.AU.2	366.7	1152	LA.ZI.AU.2	367.6	1432	LA.ZI.AU.2	368.5
33	LA.ZI.AU.2	365.0	313	LA.ZI.AU.2	365.0	593	LA.ZI.AU.2	365.9	873	LA.ZI.AU.2	366.8	1153	LA.ZI.AU.2	367.7	1433	LA.ZI.AU.2	368.6
34	LA.ZI.AU.2	365.1	314	LA.ZI.AU.2	365.1	594	LA.ZI.AU.2	366.0	874	LA.ZI.AU.2	366.9	1154	LA.ZI.AU.2	367.8	1434	LA.ZI.AU.2	368.7
35	LA.ZI.AU.2	365.2	315	LA.ZI.AU.2	365.2	595	LA.ZI.AU.2	366.1	875	LA.ZI.AU.2	367.0	1155	LA.ZI.AU.2	367.9	1435	LA.ZI.AU.2	368.8
36	LA.ZI.AU.2	365.3	316	LA.ZI.AU.2	365.3	596	LA.ZI.AU.2	366.2	876	LA.ZI.AU.2	367.1	1156	LA.ZI.AU.2	368.0	1436	LA.ZI.AU.2	368.9
37	LA.ZI.AU.2	365.4	317	LA.ZI.AU.2	365.4	597	LA.ZI.AU.2	366.3	877	LA.ZI.AU.2	367.2	1157	LA.ZI.AU.2	368.1	1437	LA.ZI.AU.2	369.0
38	LA.ZI.AU.2	365.5	318	LA.ZI.AU.2	365.5	598	LA.ZI.AU.2	366.4	878	LA.ZI.AU.2	367.3	1158	LA.ZI.AU.2	368.2	1438	LA.ZI.AU.2	369.1
39	LA.ZI.AU.2	365.6	319	LA.ZI.AU.2	365.6	599	LA.ZI.AU.2	366.5	879	LA.ZI.AU.2	367.4	1159	LA.ZI.AU.2	368.3	1439	LA.ZI.AU.2	369.2
40	LA.ZI.AU.2	365.7	320	LA.ZI.AU.2	365.7	600	LA.ZI.AU.2	366.6	880	LA.ZI.AU.2	367.5	1160	LA.ZI.AU.2	368.4	1440	LA.ZI.AU.2	369.3
41	LA.ZI.AU.2	365.8	321	LA.ZI.AU.2	365.8	601	LA.ZI.AU.2	366.7	881	LA.ZI.AU.2	367.6	1161	LA.ZI.AU.2	368.5	1441	LA.ZI.AU.2	369.4
42	LA.ZI.AU.2	365.9	322	LA.ZI.AU.2	365.9	602	LA.ZI.AU.2	366.8	882	LA.ZI.AU.2	367.7	1162	LA.ZI.AU.2	368.6	1442	LA.ZI.AU.2	369.5
43	LA.ZI.AU.2	366.0	323	LA.ZI.AU.2	366.0	603	LA.ZI.AU.2	366.9	883	LA.ZI.AU.2	367.8	1163	LA.ZI.AU.2	368.7	1443	LA.ZI.AU.2	369.6
44	LA.ZI.AU.2	366.1	324	LA.ZI.AU.2	366.1	604	LA.ZI.AU.2	367.0	884	LA.ZI.AU.2	367.9	1164	LA.ZI.AU.2	368.8	1444	LA.ZI.AU.2	369.7
45	LA.ZI.AU.2	366.2	325	LA.ZI.AU.2	366.2	605	LA.ZI.AU.2	367.1	885	LA.ZI.AU.2	368.0	1165	LA.ZI.AU.2	368.9	1445	LA.ZI.AU.2	369.8
46	LA.ZI.AU.2	366.3	326	LA.ZI.AU.2	366.3	606	LA.ZI.AU.2	367.2	886	LA.ZI.AU.2	368.1	1166	LA.ZI.AU.2	369.0	1446	LA.ZI.AU.2	369.9
47	LA.ZI.AU.2	366.4	327	LA.ZI.AU.2	366.4	607	LA.ZI.AU.2	367.3	887	LA.ZI.AU.2	368.2	1167	LA.ZI.AU.2	369.1	1447	LA.ZI.AU.2	370.0
48	LA.ZI.AU.2	366.5	328	LA.ZI.AU.2	366.5	608	LA.ZI.AU.2	367.4	888	LA.ZI.AU.2	368.3	1168	LA.ZI.AU.2	369.2	1448	LA.ZI.AU.2	370.1
49	LA.ZI.AU.2	366.6	329	LA.ZI.AU.2	366.6	609	LA.ZI.AU.2	367.5	889	LA.ZI.AU.2	368.4	1169	LA.ZI.AU.2	369.3	1449	LA.ZI.AU.2	370.2
50	LA.ZI.AU.2	366.7	330	LA.ZI.AU.2	366.7	610	LA.ZI.AU.2	367.6	890	LA.ZI.AU.2	368.5	1170	LA.ZI.AU.2	369.4	1450	LA.ZI.AU.2	370.3
51	LA.ZI.AU.2	366.8	331	LA.ZI.AU.2	366.8	611	LA.ZI.AU.2	367.7	891	LA.ZI.AU.2	368.6	1171	LA.ZI.AU.2	369.5	1451	LA.ZI.AU.2	370.4
52	LA.ZI.AU.2	366.9	332	LA.ZI.AU.2	366.9	612	LA.ZI.AU.2	367.8	892	LA.ZI.AU.2	368.7	1172	LA.ZI.AU.2	369.6	1452	LA.ZI.AU.2	370.5
53	LA.ZI.AU.2	367.0	333	LA.ZI.AU.2	367.0	613	LA.ZI.AU.2	367.9	893	LA.ZI.AU.2	368.8	1173	LA.ZI.AU.2	369.7	1453	LA.ZI.AU.2	370.6
54	LA.ZI.AU.2	367.1	334	LA.ZI.AU.2	367.1	614	LA.ZI.AU.2	368.0	894	LA.ZI.AU.2	368.9	1174	LA.ZI.AU.2	369.8	1454	LA.ZI.AU.2	370.7
55	LA.ZI.AU.2	367.2	335	LA.ZI.AU.2	367.2	615	LA.ZI.AU.2	368.1	895	LA.ZI.AU.2	369.0	1175	LA.ZI.AU.2	369.9	1455	LA.ZI.AU.2	370.8
56	LA.ZI.AU.2	367.3	336	LA.ZI.AU.2	367.3	616	LA.ZI.AU.2	368.2	896	LA.ZI.AU.2	369.1	1176	LA.ZI.AU.2	370.0	1456	LA.ZI.AU.2	370.9
57	LA.ZI.AU.2	367.4	337	LA.ZI.AU.2	367.4	617	LA.ZI.AU.2	368.3	897	LA.ZI.AU.2	369.2	1177	LA.ZI.AU.2	370.1	1457	LA.ZI.AU.2	371.0
58	LA.ZI.AU.2	367.5	338	LA.ZI.AU.2	367.5	618	LA.ZI.AU.2	368.4	898	LA.ZI.AU.2	369.3	1178	LA.ZI.AU.2	370.2	1458	LA.ZI.AU.2	371.1
59	LA.ZI.AU.2	367.6	339	LA.ZI.AU.2	367.6	619	LA.ZI.AU.2	368.5	899	LA.ZI.AU.2	369.4	1179	LA.ZI.AU.2	370.3	1459	LA.ZI.AU.2	371.2
60	LA.ZI.AU.2	367.7	340	LA.ZI.AU.2	367.7	620	LA.ZI.AU.2	368.6	900	LA.ZI.AU.2	369.5	1180	LA.ZI.AU.2	370.4	1460	LA.ZI.AU.2	371.3
61	LA.ZI.AU.2	367.8	341	LA.ZI.AU.2	367.8	621	LA.ZI.AU.2	368.7	901	LA.ZI.AU.2	369.6	1181	LA.ZI.AU.2	370.5	1461	LA.ZI.AU.2	371.4
62	LA.ZI.AU.2	367.9	342	LA.ZI.AU.2	367.9	622	LA.ZI.AU.2	368.8	902	LA.ZI.AU.2	369.7	1182	LA.ZI.AU.2	370.6	1462	LA.ZI.AU.2	371.5
63	LA.ZI.AU.2	368.0	343	LA.ZI.AU.2	368.0	623	LA.ZI.AU.2	368.9	903	LA.ZI.AU.2	369.8	1183	LA.ZI.AU.2	370.7	1463	LA.ZI.AU.2	371.6
64	LA.ZI.AU.2	368.1	344	LA.ZI.AU.2	368.1	624	LA.ZI.AU.2	369.0	904	LA.ZI.AU.2	369.9	1184	LA.ZI.AU.2	370.8	1464	LA.ZI.AU.2	371.7
65	LA.ZI.AU.2	368.2	345	LA.ZI.AU.2	368.2	625	LA.ZI.AU.2	369.1	905	LA.ZI.AU.2	370.0	1185	LA.ZI.AU.2	370.9	1465	LA.ZI.AU.	

Map showing 10m x 10m Grid Points Inside Sand Ghat In Auranga River In Latehar District



ABBREVIATION FORM			
District	LA	Zone	Latehar
Zone	Z1	Zone 1	
River	AU	Auranga	



**Legend**

- Sand Ghat Grid Points
- Sand Ghat Boundary

<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z1_AU_8	0.78

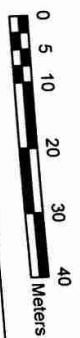
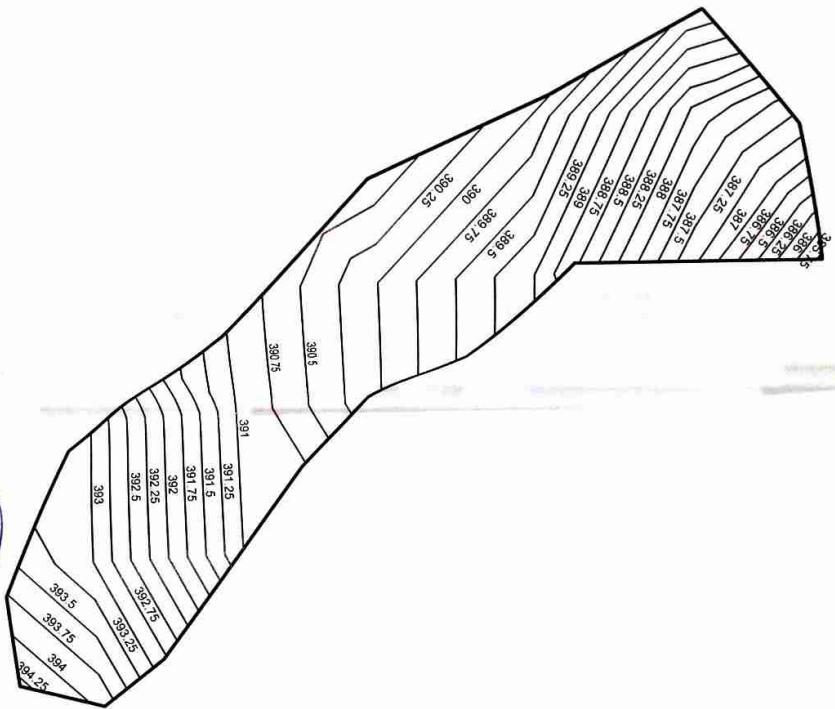


TABLE REPRESENTING ELEVATION (in m) WITH RESPECT TO 10m X 10m GRID WITHIN POTENTIAL SAND GHATS IN LATEHAR DISTRICT OF JHARKHAND STATE

751	LA.ZI.AU.2	366.0	876	LA.ZI.AU.3	368.2	1001	LA.ZI.AU.3	370.0	1176	LA.ZI.AU.4	363.0	1351	LA.ZI.AU.4	363.2	1526	LA.ZI.AU.7	369.4
752	LA.ZI.AU.2	366.4	877	LA.ZI.AU.3	367.0	1002	LA.ZI.AU.3	370.0	1177	LA.ZI.AU.4	363.8	1352	LA.ZI.AU.4	363.5	1527	LA.ZI.AU.7	369.5
753	LA.ZI.AU.2	366.7	878	LA.ZI.AU.3	367.9	1003	LA.ZI.AU.3	370.0	1178	LA.ZI.AU.4	364.0	1353	LA.ZI.AU.4	363.8	1528	LA.ZI.AU.7	369.6
754	LA.ZI.AU.2	366.9	879	LA.ZI.AU.3	368.8	1004	LA.ZI.AU.3	370.0	1179	LA.ZI.AU.4	364.7	1354	LA.ZI.AU.4	364.0	1529	LA.ZI.AU.7	369.7
755	LA.ZI.AU.2	367.0	880	LA.ZI.AU.3	369.7	1005	LA.ZI.AU.3	370.0	1180	LA.ZI.AU.4	365.7	1355	LA.ZI.AU.4	364.3	1530	LA.ZI.AU.7	369.8
756	LA.ZI.AU.2	367.1	881	LA.ZI.AU.3	369.8	1006	LA.ZI.AU.3	370.0	1181	LA.ZI.AU.4	366.7	1356	LA.ZI.AU.4	364.6	1531	LA.ZI.AU.7	369.9
757	LA.ZI.AU.2	367.2	882	LA.ZI.AU.3	369.9	1007	LA.ZI.AU.3	370.0	1182	LA.ZI.AU.4	367.7	1357	LA.ZI.AU.4	364.9	1532	LA.ZI.AU.7	370.0
758	LA.ZI.AU.2	367.3	883	LA.ZI.AU.3	370.0	1008	LA.ZI.AU.3	370.0	1183	LA.ZI.AU.4	368.7	1358	LA.ZI.AU.4	365.2	1533	LA.ZI.AU.7	370.1
759	LA.ZI.AU.2	367.4	884	LA.ZI.AU.3	370.1	1009	LA.ZI.AU.3	370.0	1184	LA.ZI.AU.4	369.7	1359	LA.ZI.AU.4	365.5	1534	LA.ZI.AU.7	370.2
760	LA.ZI.AU.2	367.5	885	LA.ZI.AU.3	370.2	1010	LA.ZI.AU.3	370.0	1185	LA.ZI.AU.4	370.7	1360	LA.ZI.AU.4	365.8	1535	LA.ZI.AU.7	370.3
761	LA.ZI.AU.2	367.6	886	LA.ZI.AU.3	370.3	1011	LA.ZI.AU.3	370.0	1186	LA.ZI.AU.4	371.7	1361	LA.ZI.AU.4	366.1	1536	LA.ZI.AU.7	370.4
762	LA.ZI.AU.2	367.7	887	LA.ZI.AU.3	370.4	1012	LA.ZI.AU.3	370.0	1187	LA.ZI.AU.4	372.7	1362	LA.ZI.AU.4	366.4	1537	LA.ZI.AU.7	370.5
763	LA.ZI.AU.2	367.8	888	LA.ZI.AU.3	370.5	1013	LA.ZI.AU.3	370.0	1188	LA.ZI.AU.4	373.7	1363	LA.ZI.AU.4	366.7	1538	LA.ZI.AU.7	370.6
764	LA.ZI.AU.2	367.9	889	LA.ZI.AU.3	370.6	1014	LA.ZI.AU.3	370.0	1189	LA.ZI.AU.4	374.7	1364	LA.ZI.AU.4	367.0	1539	LA.ZI.AU.7	370.7
765	LA.ZI.AU.2	368.0	890	LA.ZI.AU.3	370.7	1015	LA.ZI.AU.3	370.0	1190	LA.ZI.AU.4	375.7	1365	LA.ZI.AU.4	367.3	1540	LA.ZI.AU.7	370.8
766	LA.ZI.AU.2	368.1	891	LA.ZI.AU.3	370.8	1016	LA.ZI.AU.3	370.0	1191	LA.ZI.AU.4	376.7	1366	LA.ZI.AU.4	367.6	1541	LA.ZI.AU.7	370.9
767	LA.ZI.AU.2	368.2	892	LA.ZI.AU.3	370.9	1017	LA.ZI.AU.3	370.0	1192	LA.ZI.AU.4	377.7	1367	LA.ZI.AU.4	367.9	1542	LA.ZI.AU.7	371.0
768	LA.ZI.AU.2	368.3	893	LA.ZI.AU.3	371.0	1018	LA.ZI.AU.3	370.0	1193	LA.ZI.AU.4	378.7	1368	LA.ZI.AU.4	368.2	1543	LA.ZI.AU.7	371.1
769	LA.ZI.AU.2	368.4	894	LA.ZI.AU.3	371.1	1019	LA.ZI.AU.3	370.0	1194	LA.ZI.AU.4	379.7	1369	LA.ZI.AU.4	368.5	1544	LA.ZI.AU.7	371.2
770	LA.ZI.AU.2	368.5	895	LA.ZI.AU.3	371.2	1020	LA.ZI.AU.3	370.0	1195	LA.ZI.AU.4	380.7	1370	LA.ZI.AU.4	368.8	1545	LA.ZI.AU.7	371.3
771	LA.ZI.AU.2	368.6	896	LA.ZI.AU.3	371.3	1021	LA.ZI.AU.3	370.0	1196	LA.ZI.AU.4	381.7	1371	LA.ZI.AU.4	369.1	1546	LA.ZI.AU.7	371.4
772	LA.ZI.AU.2	368.7	897	LA.ZI.AU.3	371.4	1022	LA.ZI.AU.3	370.0	1197	LA.ZI.AU.4	382.7	1372	LA.ZI.AU.4	369.4	1547	LA.ZI.AU.7	371.5
773	LA.ZI.AU.2	368.8	898	LA.ZI.AU.3	371.5	1023	LA.ZI.AU.3	370.0	1198	LA.ZI.AU.4	383.7	1373	LA.ZI.AU.4	369.7	1548	LA.ZI.AU.7	371.6
774	LA.ZI.AU.2	368.9	899	LA.ZI.AU.3	371.6	1024	LA.ZI.AU.3	370.0	1199	LA.ZI.AU.4	384.7	1374	LA.ZI.AU.4	369.9	1549	LA.ZI.AU.7	371.7
775	LA.ZI.AU.2	369.0	900	LA.ZI.AU.3	371.7	1025	LA.ZI.AU.3	370.0	1200	LA.ZI.AU.4	385.7	1375	LA.ZI.AU.4	370.2	1550	LA.ZI.AU.7	371.8
776	LA.ZI.AU.2	369.1	901	LA.ZI.AU.3	371.8	1026	LA.ZI.AU.3	370.0	1201	LA.ZI.AU.4	386.7	1376	LA.ZI.AU.4	370.5			
777	LA.ZI.AU.2	369.2	902	LA.ZI.AU.3	371.9	1027	LA.ZI.AU.3	370.0	1202	LA.ZI.AU.4	387.7	1377	LA.ZI.AU.4	370.8			
778	LA.ZI.AU.2	369.3	903	LA.ZI.AU.3	372.0	1028	LA.ZI.AU.3	370.0	1203	LA.ZI.AU.4	388.7	1378	LA.ZI.AU.4	371.1			
779	LA.ZI.AU.2	369.4	904	LA.ZI.AU.3	372.1	1029	LA.ZI.AU.3	370.0	1204	LA.ZI.AU.4	389.7	1379	LA.ZI.AU.4	371.4			
780	LA.ZI.AU.2	369.5	905	LA.ZI.AU.3	372.2	1030	LA.ZI.AU.3	370.0	1205	LA.ZI.AU.4	390.7	1380	LA.ZI.AU.4	371.7			
781	LA.ZI.AU.2	369.6	906	LA.ZI.AU.3	372.3	1031	LA.ZI.AU.3	370.0	1206	LA.ZI.AU.4	391.7	1381	LA.ZI.AU.4	372.0			
782	LA.ZI.AU.2	369.7	907	LA.ZI.AU.3	372.4	1032	LA.ZI.AU.3	370.0	1207	LA.ZI.AU.4	392.7	1382	LA.ZI.AU.4	372.3			
783	LA.ZI.AU.2	369.8	908	LA.ZI.AU.3	372.5	1033	LA.ZI.AU.3	370.0	1208	LA.ZI.AU.4	393.7	1383	LA.ZI.AU.4	372.6			
784	LA.ZI.AU.2	369.9	909	LA.ZI.AU.3	372.6	1034	LA.ZI.AU.3	370.0	1209	LA.ZI.AU.4	394.7	1384	LA.ZI.AU.4	372.9			
785	LA.ZI.AU.2	370.0	910	LA.ZI.AU.3	372.7	1035	LA.ZI.AU.3	370.0	1210	LA.ZI.AU.4	395.7	1385	LA.ZI.AU.4	373.2			
786	LA.ZI.AU.2	370.1	911	LA.ZI.AU.3	372.8	1036	LA.ZI.AU.3	370.0	1211	LA.ZI.AU.4	396.7	1386	LA.ZI.AU.4	373.5			
787	LA.ZI.AU.2	370.2	912	LA.ZI.AU.3	372.9	1037	LA.ZI.AU.3	370.0	1212	LA.ZI.AU.4	397.7	1387	LA.ZI.AU.4	373.8			
788	LA.ZI.AU.2	370.3	913	LA.ZI.AU.3	373.0	1038	LA.ZI.AU.3	370.0	1213	LA.ZI.AU.4	398.7	1388	LA.ZI.AU.4	374.1			
789	LA.ZI.AU.2	370.4	914	LA.ZI.AU.3	373.1	1039	LA.ZI.AU.3	370.0	1214	LA.ZI.AU.4	399.7	1389	LA.ZI.AU.4	374.4			
790	LA.ZI.AU.2	370.5	915	LA.ZI.AU.3	373.2	1040	LA.ZI.AU.3	370.0	1215	LA.ZI.AU.4	400.7	1390	LA.ZI.AU.4	374.7			
791	LA.ZI.AU.2	370.6	916	LA.ZI.AU.3	373.3	1041	LA.ZI.AU.3	370.0	1216	LA.ZI.AU.4	401.7	1391	LA.ZI.AU.4	375.0			
792	LA.ZI.AU.2	370.7	917	LA.ZI.AU.3	373.4	1042	LA.ZI.AU.3	370.0	1217	LA.ZI.AU.4	402.7	1392	LA.ZI.AU.4	375.3			
793	LA.ZI.AU.2	370.8	918	LA.ZI.AU.3	373.5	1043	LA.ZI.AU.3	370.0	1218	LA.ZI.AU.4	403.7	1393	LA.ZI.AU.4	375.6			
794	LA.ZI.AU.2	370.9	919	LA.ZI.AU.3	373.6	1044	LA.ZI.AU.3	370.0	1219	LA.ZI.AU.4	404.7	1394	LA.ZI.AU.4	375.9			
795	LA.ZI.AU.2	371.0	920	LA.ZI.AU.3	373.7	1045	LA.ZI.AU.3	370.0	1220	LA.ZI.AU.4	405.7	1395	LA.ZI.AU.4	376.2			
796	LA.ZI.AU.2	371.1	921	LA.ZI.AU.3	373.8	1046	LA.ZI.AU.3	370.0	1221	LA.ZI.AU.4	406.7	1396	LA.ZI.AU.4	376.5			
797	LA.ZI.AU.2	371.2	922	LA.ZI.AU.3	373.9	1047	LA.ZI.AU.3	370.0	1222	LA.ZI.AU.4	407.7	1397	LA.ZI.AU.4	376.8			
798	LA.ZI.AU.2	371.3	923	LA.ZI.AU.3	374.0	1048	LA.ZI.AU.3	370.0	1223	LA.ZI.AU.4	408.7	1398	LA.ZI.AU.4	377.1			
799	LA.ZI.AU.2	371.4	924	LA.ZI.AU.3	374.1	1049	LA.ZI.AU.3	370.0	1224	LA.ZI.AU.4	409.7	1399	LA.ZI.AU.4	377.4			
800	LA.ZI.AU.2	371.5	925	LA.ZI.AU.3	374.2	1050	LA.ZI.AU.3	370.0	1225	LA.ZI.AU.4	410.7	1400	LA.ZI.AU.4	377.7			
801	LA.ZI.AU.2	371.6	926	LA.ZI.AU.3	374.3	1051	LA.ZI.AU.3	370.0	1226	LA.ZI.AU.4	411.7						
802	LA.ZI.AU.2	371.7	927	LA.ZI.AU.3	374.4	1052	LA.ZI.AU.3	370.0	1227	LA.ZI.AU.4	412.7						
803	LA.ZI.AU.2	371.8	928	LA.ZI.AU.3	374.5	1053	LA.ZI.AU.3	370.0	1228	LA.ZI.AU.4	413.7						
804	LA.ZI.AU.2	371.9	929	LA.ZI.AU.3	374.6	1054	LA.ZI.AU.3	370.0	1229	LA.ZI.AU.4	414.7						
805	LA.ZI.AU.2	372.0	930	LA.ZI.AU.3	374.7	1055	LA.ZI.AU.3	370.0	1230	LA.ZI.AU.4	415.7						
806	LA.ZI.AU.2	372.1	931	LA.ZI.AU.3	374.8	1056	LA.ZI.AU.3	370.0	1231	LA.ZI.AU.4	416.7						
807	LA.ZI.AU.2	372.2	932	LA.ZI.AU.3	374.9	1057	LA.ZI.AU.3	370.0	1232	LA.ZI.AU.4	417.7						
808	LA.ZI.AU.2	372.3	933	LA.ZI.AU.3	375.0	1058	LA.ZI.AU.3	370.0	1233	LA.ZI.AU.4	418.7						
809	LA.ZI.AU.2	372.4	934	LA.ZI.AU.3	375.1	1059	LA.ZI.AU.3	370.0	1234	LA.ZI.AU.4	419.7						
810	LA.ZI.AU.2	372.5	935	LA.ZI.AU.3	375.2	1060	LA.ZI.AU.3	370.0	1235	LA.ZI.AU.4	420.7						
811	LA.ZI.AU.2	372.6	936	LA.ZI.AU.3	375.3	1061	LA.ZI.AU.3	370.0	1236	LA.ZI.AU.4	421.7						
812	LA.ZI.AU.2	372.7	937	LA.ZI.AU.3	375.4	1062	LA.ZI.AU.3	370.0	1237	LA.ZI.AU.4	422.7						
813	LA.ZI.AU.2	372.8	938	LA.ZI.AU.3	375.5	1063	LA.ZI.AU.3	370.0	1238	LA.ZI.AU.4	423.7						
814	LA.ZI.AU.2	372.9	939	LA.ZI.AU.3	375.6	1064	LA.ZI.AU.3	370.0	1239	LA.ZI.AU.4	424.7						
815	LA.ZI.AU.2	373.0	940	LA.ZI.AU.3	375.7	1065	LA.ZI.AU.3	370.0	1240	LA.ZI.AU.4	425.7						
816	LA.ZI.AU.2	373.1	941	LA.ZI.AU.3	375.8	1066	LA.ZI.AU.3	370.0	1241	LA.ZI.AU.4	426.7						
817	LA.ZI.AU.2	373.2	942	LA.ZI.AU.3	375.9	1067	LA.ZI.AU.3	370.0	1242	LA.ZI.AU.4	427.7						
818	LA.ZI.AU.2	373.3	943	LA.ZI.AU.3	376.0	1068	LA.ZI.AU.3	370.0	1243	LA.ZI.AU.4	428.7						
819	LA.ZI.AU.2	373.4	944	LA.ZI.AU.3	376.1	1069	LA.ZI.AU.3	370.0	1244	LA.ZI.AU.4	429.7						
820	LA.ZI.AU.2	373.5	945	LA.ZI.AU.3	376.2	1070	LA.ZI.AU.3	370.0	1245	LA.ZI.AU.4							

Map showing Contours of 0.25 Meters Interval Inside Sand Ghat In Sukri River In Latehar District





ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z8	Zone 8	
River	SU	Sukri	



जिला खान पदाधिकारी  
लतेहार

**Legend**

-  Sand Ghat Contour Lines
-  Sand Ghat Boundary

Sand Ghat Code	Area (in Ha)
LA_Z8_SU_1	0.8

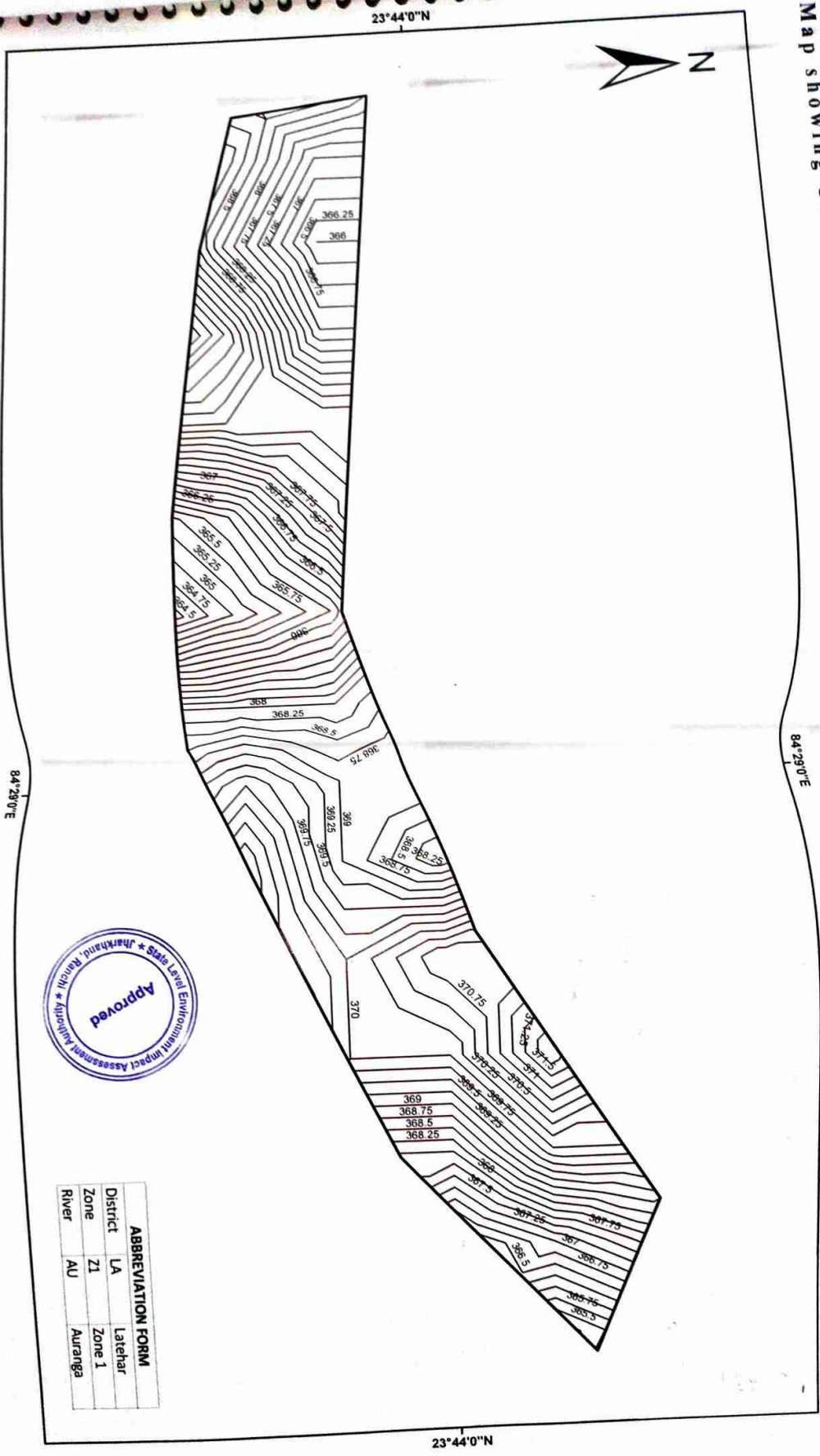


TABLE REPRESENTING ELEVATION (in m) WITH RESPECT TO 10m X 10m GRID WITHIN POTENTIAL SAND GHATS IN LA TEHAR DISTRICT OF JHARKHAND STATE

1501	LA_Z1_AU_7	370.2	1624	LA_Z1_AU_8	373.0	1791	LA_Z3_DAM_5	457.4	1876	LA_Z3_DAM_5	457.6
1502	LA_Z1_AU_7	371.2	1625	LA_Z1_AU_8	373.3	1792	LA_Z3_DAM_5	457.5	1877	LA_Z3_DAM_5	457.7
1503	LA_Z1_AU_7	371.6	1626	LA_Z1_AU_8	373.6	1793	LA_Z3_DAM_5	457.6	1878	LA_Z3_DAM_5	457.8
1504	LA_Z1_AU_7	371.9	1627	LA_Z1_AU_8	373.9	1794	LA_Z3_DAM_5	457.7	1879	LA_Z3_DAM_5	457.9
1505	LA_Z1_AU_7	371.9	1628	LA_Z1_AU_8	374.2	1795	LA_Z3_DAM_5	457.8	1880	LA_Z3_DAM_5	458.0
1506	LA_Z1_AU_7	371.9	1629	LA_Z1_AU_8	374.4	1796	LA_Z3_DAM_5	457.9	1881	LA_Z3_DAM_5	458.1
1507	LA_Z1_AU_7	371.4	1630	LA_Z1_AU_8	374.6	1797	LA_Z3_DAM_5	458.0	1882	LA_Z3_DAM_5	458.2
1508	LA_Z1_AU_7	370.9	1631	LA_Z1_AU_8	374.8	1798	LA_Z3_DAM_5	458.1	1883	LA_Z3_DAM_5	458.3
1509	LA_Z1_AU_7	370.4	1632	LA_Z1_AU_8	375.0	1799	LA_Z3_DAM_5	458.2	1884	LA_Z3_DAM_5	458.4
1510	LA_Z1_AU_7	369.9	1633	LA_Z1_AU_8	375.2	1800	LA_Z3_DAM_5	458.3	1885	LA_Z3_DAM_5	458.5
1511	LA_Z1_AU_7	369.3	1634	LA_Z1_AU_8	375.4	1801	LA_Z3_DAM_5	458.4	1886	LA_Z3_DAM_5	458.6
1512	LA_Z1_AU_7	368.8	1635	LA_Z1_AU_8	375.6	1802	LA_Z3_DAM_5	458.5	1887	LA_Z3_DAM_5	458.7
1513	LA_Z1_AU_7	368.0	1636	LA_Z1_AU_8	375.8	1803	LA_Z3_DAM_5	458.6	1888	LA_Z3_DAM_5	458.8
1514	LA_Z1_AU_7	367.2	1637	LA_Z1_AU_8	376.0	1804	LA_Z3_DAM_5	458.7	1889	LA_Z3_DAM_5	458.9
1515	LA_Z1_AU_7	370.1	1638	LA_Z1_AU_8	376.2	1805	LA_Z3_DAM_5	458.8	1890	LA_Z3_DAM_5	459.0
1516	LA_Z1_AU_7	370.5	1639	LA_Z1_AU_8	376.4	1806	LA_Z3_DAM_5	458.9	1891	LA_Z3_DAM_5	459.1
1517	LA_Z1_AU_7	370.9	1640	LA_Z1_AU_8	376.6	1807	LA_Z3_DAM_5	459.0	1892	LA_Z3_DAM_5	459.2
1518	LA_Z1_AU_7	371.2	1641	LA_Z1_AU_8	376.8	1808	LA_Z3_DAM_5	459.1	1893	LA_Z3_DAM_5	459.3
1519	LA_Z1_AU_7	371.5	1642	LA_Z1_AU_8	377.0	1809	LA_Z3_DAM_5	459.2	1894	LA_Z3_DAM_5	459.4
1520	LA_Z1_AU_7	371.8	1643	LA_Z1_AU_8	377.2	1810	LA_Z3_DAM_5	459.3	1895	LA_Z3_DAM_5	459.5
1521	LA_Z1_AU_7	371.9	1644	LA_Z1_AU_8	377.4	1811	LA_Z3_DAM_5	459.4	1896	LA_Z3_DAM_5	459.6
1522	LA_Z1_AU_7	371.9	1645	LA_Z1_AU_8	377.6	1812	LA_Z3_DAM_5	459.5	1897	LA_Z3_DAM_5	459.7
1523	LA_Z1_AU_7	370.7	1646	LA_Z1_AU_8	377.8	1813	LA_Z3_DAM_5	459.6	1898	LA_Z3_DAM_5	459.8
1524	LA_Z1_AU_7	370.0	1647	LA_Z1_AU_8	378.0	1814	LA_Z3_DAM_5	459.7	1899	LA_Z3_DAM_5	459.9
1525	LA_Z1_AU_7	369.2	1648	LA_Z1_AU_8	378.2	1815	LA_Z3_DAM_5	459.8	1900	LA_Z3_DAM_5	460.0
1526	LA_Z1_AU_7	368.3	1649	LA_Z1_AU_8	378.4	1816	LA_Z3_DAM_5	459.9	1901	LA_Z3_DAM_5	460.1
1527	LA_Z1_AU_7	367.7	1650	LA_Z1_AU_8	378.6	1817	LA_Z3_DAM_5	460.0	1902	LA_Z3_DAM_5	460.2
1528	LA_Z1_AU_7	367.6	1651	LA_Z1_AU_8	378.7	1818	LA_Z3_DAM_5	460.1	1903	LA_Z3_DAM_5	460.3
1529	LA_Z1_AU_7	368.0	1652	LA_Z1_AU_8	378.8	1819	LA_Z3_DAM_5	460.2	1904	LA_Z3_DAM_5	460.4
1530	LA_Z1_AU_7	367.7	1653	LA_Z1_AU_8	378.9	1820	LA_Z3_DAM_5	460.3	1905	LA_Z3_DAM_5	460.5
1531	LA_Z1_AU_7	368.2	1654	LA_Z1_AU_8	379.0	1821	LA_Z3_DAM_5	460.4	1906	LA_Z3_DAM_5	460.6
1532	LA_Z1_AU_7	368.2	1655	LA_Z1_AU_8	379.1	1822	LA_Z3_DAM_5	460.5	1907	LA_Z3_DAM_5	460.7
1533	LA_Z1_AU_7	370.9	1656	LA_Z1_AU_8	379.2	1823	LA_Z3_DAM_5	460.6	1908	LA_Z3_DAM_5	460.8
1534	LA_Z1_AU_7	371.2	1657	LA_Z1_AU_8	379.3	1824	LA_Z3_DAM_5	460.7	1909	LA_Z3_DAM_5	460.9
1535	LA_Z1_AU_7	371.5	1658	LA_Z1_AU_8	379.4	1825	LA_Z3_DAM_5	460.8	1910	LA_Z3_DAM_5	461.0
1536	LA_Z1_AU_7	371.7	1659	LA_Z1_AU_8	379.5	1826	LA_Z3_DAM_5	460.9	1911	LA_Z3_DAM_5	461.1
1537	LA_Z1_AU_7	371.3	1660	LA_Z1_AU_8	379.6	1827	LA_Z3_DAM_5	461.0	1912	LA_Z3_DAM_5	461.2
1538	LA_Z1_AU_7	370.8	1661	LA_Z1_AU_8	379.7	1828	LA_Z3_DAM_5	461.1	1913	LA_Z3_DAM_5	461.3
1539	LA_Z1_AU_7	369.5	1662	LA_Z1_AU_8	379.8	1829	LA_Z3_DAM_5	461.2	1914	LA_Z3_DAM_5	461.4
1540	LA_Z1_AU_7	368.6	1663	LA_Z1_AU_8	379.9	1830	LA_Z3_DAM_5	461.3	1915	LA_Z3_DAM_5	461.5
1541	LA_Z1_AU_7	367.7	1664	LA_Z1_AU_8	380.0	1831	LA_Z3_DAM_5	461.4	1916	LA_Z3_DAM_5	461.6
1542	LA_Z1_AU_7	367.7	1665	LA_Z1_AU_8	380.1	1832	LA_Z3_DAM_5	461.5	1917	LA_Z3_DAM_5	461.7
1543	LA_Z1_AU_7	367.9	1666	LA_Z1_AU_8	380.2	1833	LA_Z3_DAM_5	461.6	1918	LA_Z3_DAM_5	461.8
1544	LA_Z1_AU_7	368.1	1667	LA_Z1_AU_8	380.3	1834	LA_Z3_DAM_5	461.7	1919	LA_Z3_DAM_5	461.9
1545	LA_Z1_AU_7	368.3	1668	LA_Z1_AU_8	380.4	1835	LA_Z3_DAM_5	461.8	1920	LA_Z3_DAM_5	462.0
1546	LA_Z1_AU_7	368.4	1669	LA_Z1_AU_8	380.5	1836	LA_Z3_DAM_5	461.9	1921	LA_Z3_DAM_5	462.1
1547	LA_Z1_AU_7	371.2	1670	LA_Z1_AU_8	380.6	1837	LA_Z3_DAM_5	462.0	1922	LA_Z3_DAM_5	462.2
1548	LA_Z1_AU_7	371.4	1671	LA_Z1_AU_8	380.7	1838	LA_Z3_DAM_5	462.1	1923	LA_Z3_DAM_5	462.3
1549	LA_Z1_AU_7	371.3	1672	LA_Z1_AU_8	380.8	1839	LA_Z3_DAM_5	462.2	1924	LA_Z3_DAM_5	462.4
1550	LA_Z1_AU_7	371.2	1673	LA_Z1_AU_8	380.9	1840	LA_Z3_DAM_5	462.3	1925	LA_Z3_DAM_5	462.5
1551	LA_Z1_AU_7	371.1	1674	LA_Z1_AU_8	381.0	1841	LA_Z3_DAM_5	462.4	1926	LA_Z3_DAM_5	462.6
1552	LA_Z1_AU_7	370.3	1675	LA_Z1_AU_8	381.1	1842	LA_Z3_DAM_5	462.5	1927	LA_Z3_DAM_5	462.7
1553	LA_Z1_AU_7	369.6	1676	LA_Z1_AU_8	381.2	1843	LA_Z3_DAM_5	462.6	1928	LA_Z3_DAM_5	462.8
1554	LA_Z1_AU_7	368.8	1677	LA_Z1_AU_8	381.3	1844	LA_Z3_DAM_5	462.7	1929	LA_Z3_DAM_5	462.9
1555	LA_Z1_AU_7	368.7	1678	LA_Z1_AU_8	381.4	1845	LA_Z3_DAM_5	462.8	1930	LA_Z3_DAM_5	463.0
1556	LA_Z1_AU_7	368.6	1679	LA_Z1_AU_8	381.5	1846	LA_Z3_DAM_5	462.9	1931	LA_Z3_DAM_5	463.1
1557	LA_Z1_AU_7	368.6	1680	LA_Z1_AU_8	381.6	1847	LA_Z3_DAM_5	463.0	1932	LA_Z3_DAM_5	463.2
1558	LA_Z1_AU_7	371.6	1681	LA_Z1_AU_8	381.7	1848	LA_Z3_DAM_5	463.1	1933	LA_Z3_DAM_5	463.3
1559	LA_Z1_AU_7	371.8	1682	LA_Z1_AU_8	381.8	1849	LA_Z3_DAM_5	463.2	1934	LA_Z3_DAM_5	463.4
1560	LA_Z1_AU_7	371.2	1683	LA_Z1_AU_8	381.9	1850	LA_Z3_DAM_5	463.3	1935	LA_Z3_DAM_5	463.5
1561	LA_Z1_AU_7	370.5	1684	LA_Z1_AU_8	382.0	1851	LA_Z3_DAM_5	463.4	1936	LA_Z3_DAM_5	463.6
1562	LA_Z1_AU_7	369.8	1685	LA_Z1_AU_8	382.1	1852	LA_Z3_DAM_5	463.5	1937	LA_Z3_DAM_5	463.7
1563	LA_Z1_AU_7	369.3	1686	LA_Z1_AU_8	382.2	1853	LA_Z3_DAM_5	463.6	1938	LA_Z3_DAM_5	463.8
1564	LA_Z1_AU_7	368.9	1687	LA_Z1_AU_8	382.3	1854	LA_Z3_DAM_5	463.7	1939	LA_Z3_DAM_5	463.9
1565	LA_Z1_AU_7	369.3	1688	LA_Z1_AU_8	382.4	1855	LA_Z3_DAM_5	463.8	1940	LA_Z3_DAM_5	464.0
1566	LA_Z1_AU_7	369.0	1689	LA_Z1_AU_8	382.5	1856	LA_Z3_DAM_5	463.9	1941	LA_Z3_DAM_5	464.1
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1568	LA_Z1_AU_7	371.2	1691	LA_Z1_AU_8	382.7	1858	LA_Z3_DAM_5	464.1	1943	LA_Z3_DAM_5	464.3
1569	LA_Z1_AU_7	370.9	1692	LA_Z1_AU_8	382.8	1859	LA_Z3_DAM_5	464.2	1944	LA_Z3_DAM_5	464.4
1570	LA_Z1_AU_7	370.6	1693	LA_Z1_AU_8	382.9	1860	LA_Z3_DAM_5	464.3	1945	LA_Z3_DAM_5	464.5
1571	LA_Z1_AU_7	372.3	1694	LA_Z1_AU_8	383.0	1861	LA_Z3_DAM_5	464.4	1946	LA_Z3_DAM_5	464.6
1572	LA_Z1_AU_7	372.0	1695	LA_Z1_AU_8	383.1	1862	LA_Z3_DAM_5	464.5			
1573	LA_Z1_AU_7	371.8	1696	LA_Z1_AU_8	383.2	1863	LA_Z3_DAM_5	464.6			
1574	LA_Z1_AU_7	371.7	1697	LA_Z1_AU_8	383.3	1864	LA_Z3_DAM_5	464.7			
1575	LA_Z1_AU_7	371.6	1698	LA_Z1_AU_8	383.4	1865	LA_Z3_DAM_5	464.8			
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1577	LA_Z1_AU_7	371.4	1700	LA_Z1_AU_8	383.6	1867	LA_Z3_DAM_5	465.0			
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1579	LA_Z1_AU_7	371.2	1702	LA_Z1_AU_8	383.8	1869	LA_Z3_DAM_5	465.2			
1580	LA_Z1_AU_7	371.1	1703	LA_Z1_AU_8	383.9	1870	LA_Z3_DAM_5	465.3			
1581	LA_Z1_AU_7	371.0	1704	LA_Z1_AU_8	384.0	1871	LA_Z3_DAM_5	465.4			
1582	LA_Z1_AU_7	370.9	1705	LA_Z1_AU_8	384.1	1872	LA_Z3_DAM_5	465.5			
1583	LA_Z1_AU_7	370.8	1706	LA_Z1_AU_8	384.2	1873	LA_Z3_DAM_5	465.6			
1584	LA_Z1_AU_7	370.7	1707	LA_Z1_AU_8	384.3	1874	LA_Z3_DAM_5	465.7			
1585	LA_Z1_AU_7	370.6	1708	LA_Z1_AU_8	384.4	1875	LA_Z3_DAM_5	465.8			
1586	LA_Z1_AU_7	370.5	1709	LA_Z1_AU_8	384.5						
1587	LA_Z1_AU_7	370.4	1710	LA_Z1_AU_8	384.6						
1588	LA_Z1_AU_7	370.3	1711	LA_Z1_AU_8	384.7						
1589	LA_Z1_AU_7	370.2	1712	LA_Z1_AU_8	384.8						
1590	LA_Z1_AU_7	370.1	1713	LA_Z1_AU_8	384.9						
1591	LA_Z1_AU_7	370.0	1714	LA_Z1_AU_8	385.0						
1592	LA_Z1_AU_7	369.9	1715	LA_Z1_AU_8	385.1						
1593	LA_Z1_AU_7	369.8	1716	LA_Z1_AU_8	385.2						
1594	LA_Z1_AU_7	369.7	1717	LA_Z1_AU_8	385.3						
1595	LA_Z1_AU_7	369.6	1718	LA_Z1_AU_8	385.4						
1596	LA_Z1_AU_7	369.5	1719	LA_Z1_AU_8	385.5						
1597	LA_Z1_AU_7	369.4	1720	LA_Z1_AU_8	385.6						
1598	LA_Z1_AU_7	369.3	1721	LA_Z1_AU_8	385.7						
1599	LA_Z1_AU_7	369.2	1722	LA_Z1_AU_8	385.8						
1600	LA_Z1_AU_7	369.1	1723	LA_Z1_AU_8	385.9						
1601	LA_Z1_AU_7	369.0	1724	LA_Z1_AU_8	386.0						
1602	LA_Z1_AU_7	368.9	1725	LA_Z1_AU_8	386.1						
1603	LA_Z1_AU										



Map showing Contours of 0.25 Meters Interval Inside Sand Ghat In Sukri River In Latehar District



**Legend**

- Sand Ghat Contour Lines
- Sand Ghat Boundary

Sand Ghat Code	Area (In Ha)
LA_Z1_AU_3	2.39

पर्यावरण  
प्रदूषण  
नियंत्रण  
विभाग

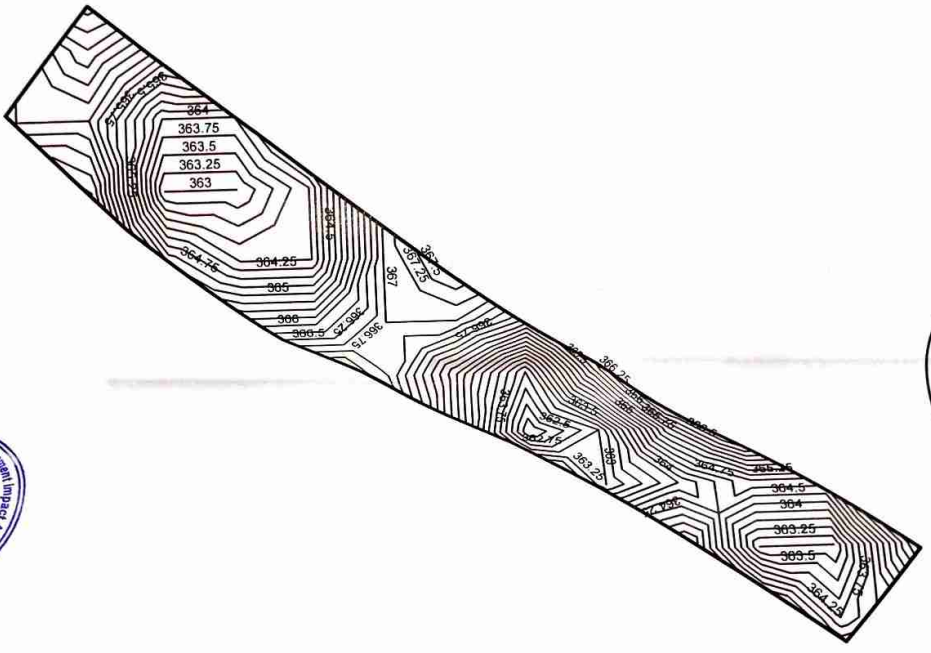


ABBREVIATION FORM	
District	Latehar
Zone	Zone 1
River	Auranga



Map showing Contours of 0.25 Meters Interval Inside Sand Ghat In Sukri River In Latehar District



84°29'0"E



84°29'0"E

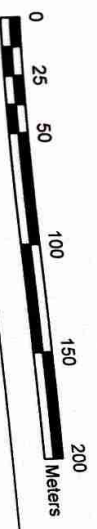
ABBREVIATION FORM			
District	LA	Latehar	
Zone	ZI	Zone I	
River	AU	Aurangā	

**Legend**

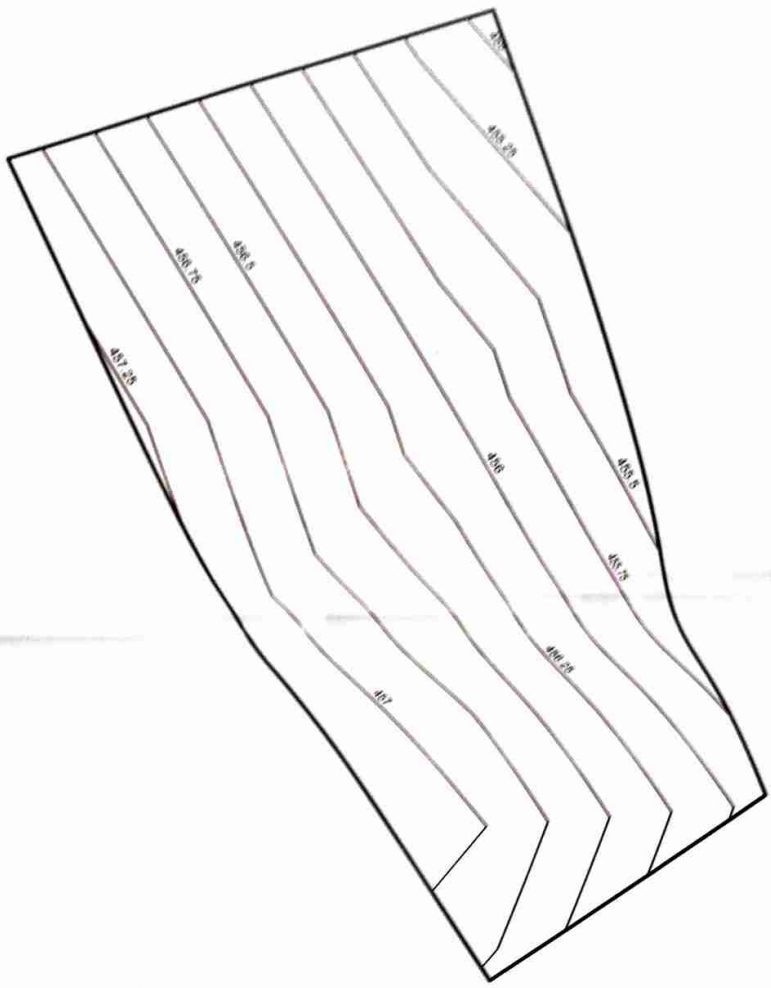
-  Sand Ghat Contour Lines
-  Sand Ghat Boundary

Sand Ghat Code	Area (in Ha)
LA_ZI_AU_4	2.4

पटना जिला प्रशासिकी  
कार्यालय



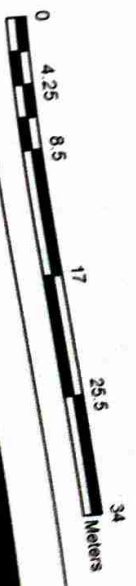
Map showing Contours of 0.25 Meters Interval Inside Sand Ghat In Sukri River In Latehar District



ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z3	Zone 3	
River	DAM	Damodar	



पंचायत समिति  
शुक्रिया



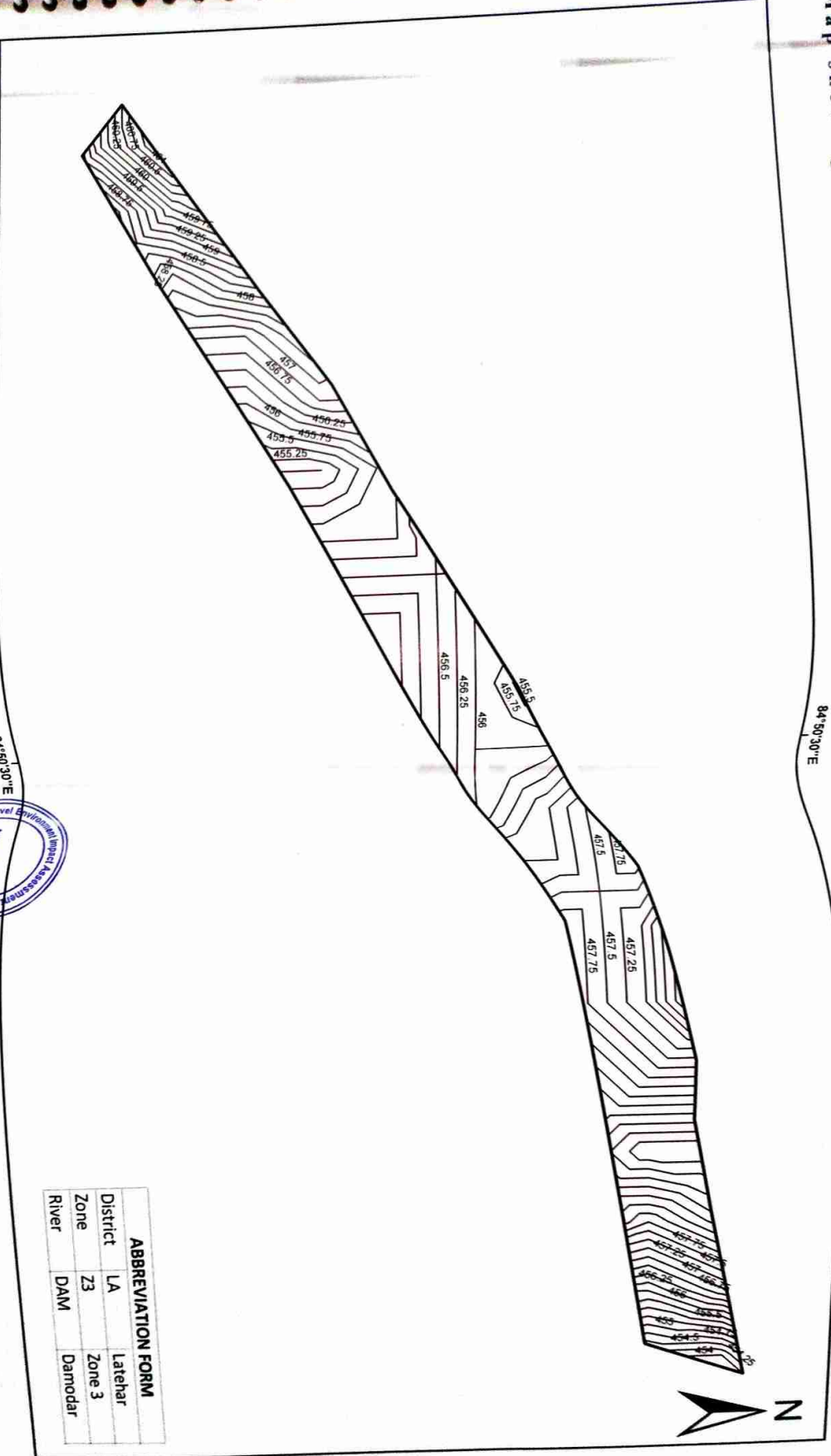
**Legend**

— Sand Ghat Contour Lines

□ Sand Ghat Boundary

Sand Ghat Code	Area (in Ha)
LA_Z3_DAM_6	0.15

Map showing Contours of 0.25 Meters Interval Inside Sand Ghat In Sukri River In Latehar District



**ABBREVIATION FORM**

District	LA	Latehar
Zone	Z3	Zone 3
River	DAM	Darnodar



फिरोज खान  
राजिब  
सहकारि

84°50'30"E

84°50'30"E

**Legend**

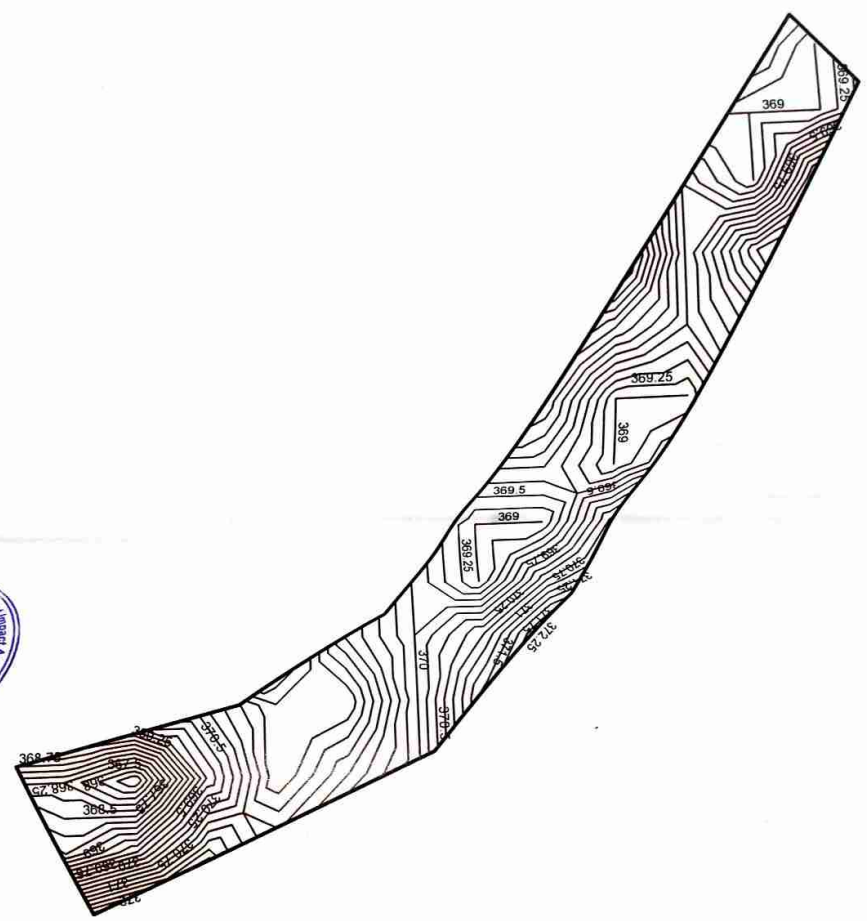
- Sand Ghat Contour Lines
- Sand Ghat Boundary

<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z3_DAM_5	2.1





Map showing Contours of 0.25 Meters Interval Inside Sand Ghat In Sukri River In Latehar District

84°29'30"E




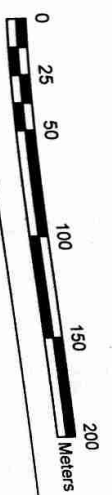
ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z1	Zone 1	
River	AU	Auranga	

**Legend**

-  Sand Ghat Contour Lines
-  Sand Ghat Boundary

Sand Ghat Code	Area (in Ha)
LA_Z1_AU_7	2.73

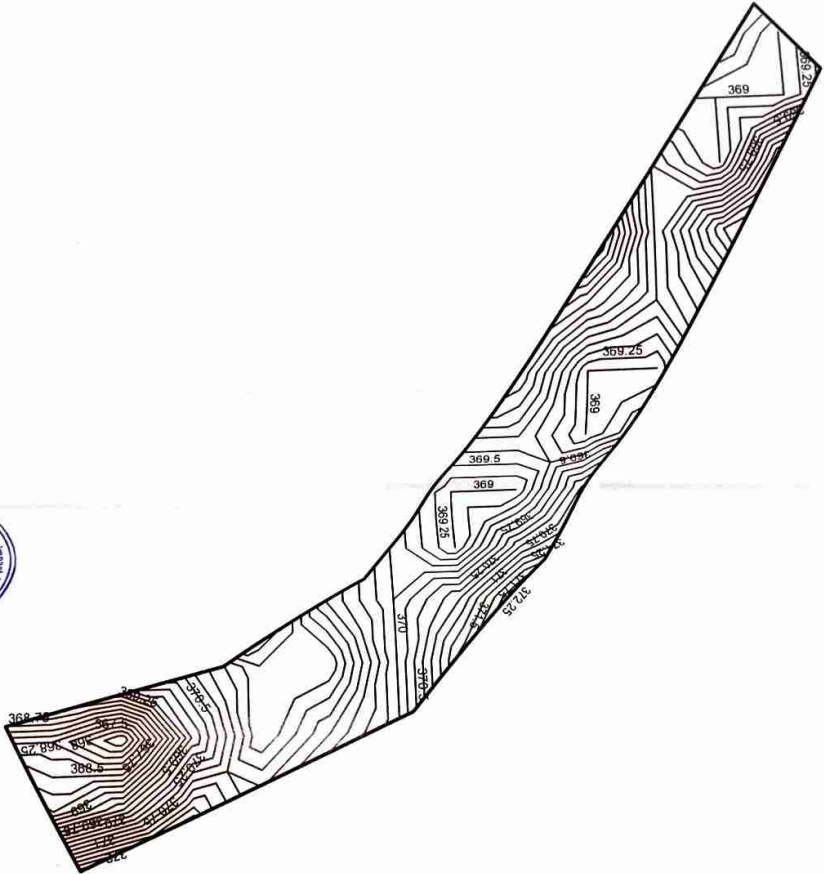

  
 Approved
   
 जिला स्तर पर प्राधिकारी
   
 राँची



Map showing Contours of 0.25 Meters Interval Inside Sand Chat In Sukri River In Latehar District

84°29'30"E

84°29'30"E

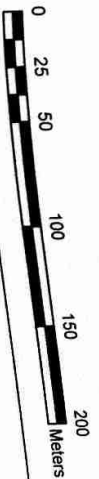
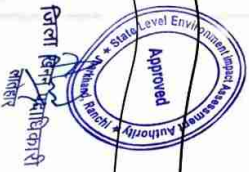


ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z1	Zone 1	
River	AU	Aurangga	

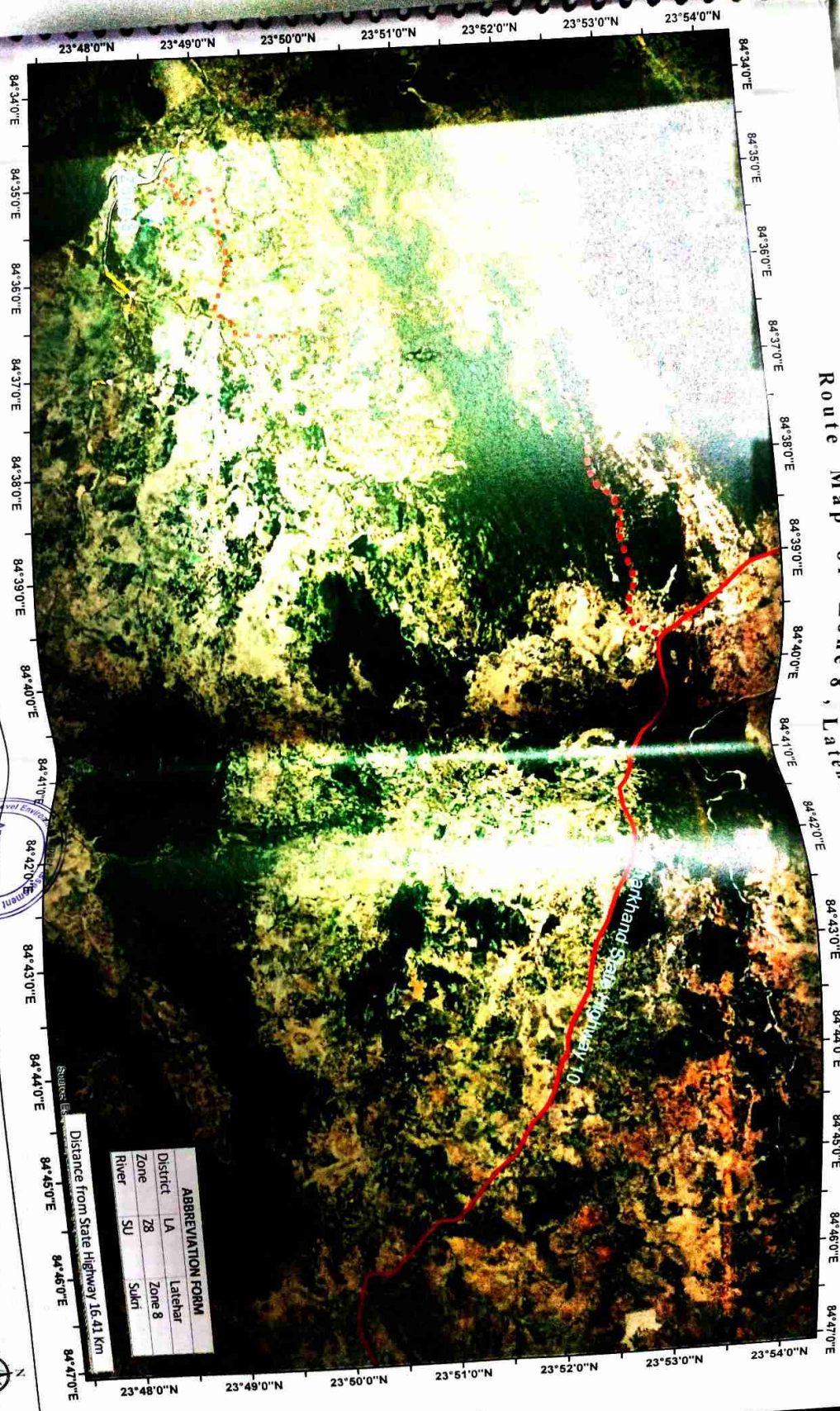
**Legend**

-  Sand Chat Contour Lines
-  Sand Chat Boundary

<b>Sand Chat Code</b>	<b>Area (in Ha)</b>
LA_Z1_AU_8	0.78



# Route Map of Zone 8, Latehar District, Jharkhand



**Legend**

- Latehar District Boundary
- Railway
- Bridge
- River Flow Direction
- Mettled Roads
- Approach Roads
- No Mining Zone
- Safety Barrier
- Sand Deposit Zone
- Sand Ghat

<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z8_SU_1	0.8

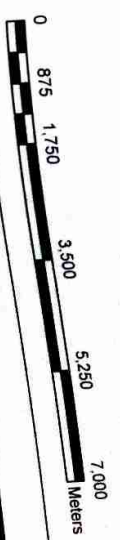
<b>Limiting Coordinates of Zone 8</b>	
Starting Point	84°34'39.205"E 23°48'48.106"N
Ending point	84°35'47.897"E 23°48'15.524"N

State Level Environment Planning Authority \* Jharkhand

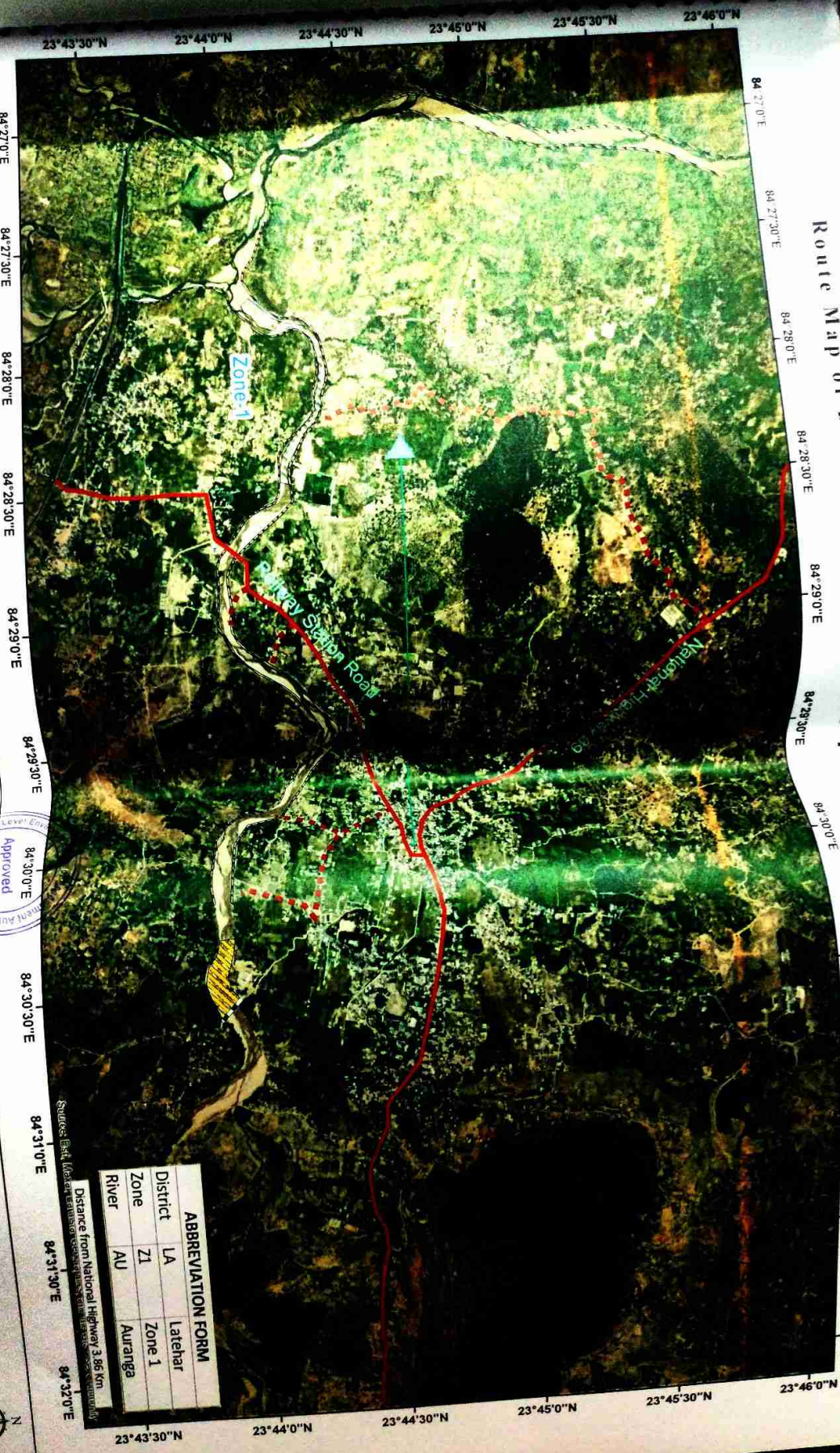
**ABBREVIATION FORM**

District	LA	Latehar
Zone	Z8	Zone 8
River	SU	Sukri

Distance from State Highway 16.41 Km



# Route Map of Dudwa Sandghat Zone 1, Latchar District, Jharkhand



**Legend**

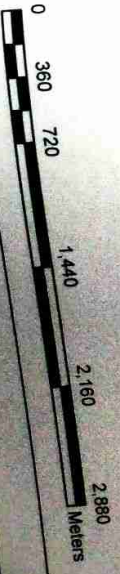
- Latchar District Boundary
- Railway
- Bridge
- River Flow Direction
- Metalled Roads
- Approach Roads
- No Mining Zone
- Safety Barrier
- Sand Deposit Zone
- Sand Ghat

Sand Ghat Code	Area (in Ha)
LA_Z1_AU_2	8.49

**Limiting Coordinates of Zone 1**

Starting Point	84°27'24.962"E 23°44'13.11"N
Ending point	84°30'23.12"E 23°44'2.152"N

Approved  
 State Level  
 District Level  
 District Authority  
 District Engineer  
 Latchar



**ABBREVIATION FORM**

District	LA	Latchar
Zone	Z1	Zone 1
River	AU	Auranga

Source: BGL (Bihar Geological Survey) 1:50,000  
 Distance from National Highway 3, 86 Km

# Route Map of Bajkum Sandghat Zone I, Latehar District, Jharkhand

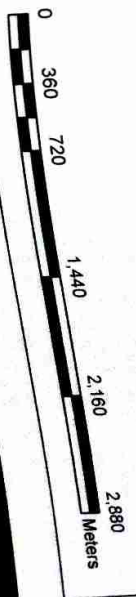
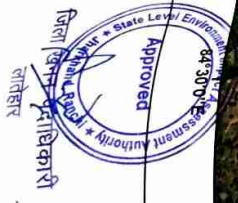


**Legend**

- Latihar District Boundary
- Railways
- Bridge
- River Flow Direction
- Metalled Roads
- Approach Roads
- No Mining Zone
- Safety Barrier
- Sand Deposit Zone
- Sand Ghat

<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z1_AU_3	2.39

<b>Limiting Coordinates of Zone I</b>	
Starting Point	84°27'24.962"E 23°44'13.1"N
Ending point	84°30'23.12"E 23°44'2.152"N



ABBREVIATION FORM	
District	latehar
Zone	Zone 1
AU	Aurangia
River	

Distance from Railway Station Road 0.28 Km

Source: Earthwatch Foundation, State Level Environmental Assessment Authority, Latehar District, Jharkhand

# Route Map of Rajhar Sandghat Zone I, Latehar District, Jharkhand



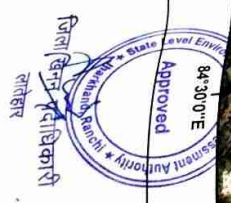
### Legend

- Laterar District Boundary
- F.A. (M.S.)
- Bridges
- River Flow Direction
- Metals and Passes
- Approached Roads

- Sand Ghat Zone I
- Sand Ghat Zone II
- Sand Ghat Zone III
- Sand Ghat Zone IV

Sand Ghat Code	Area (in Ha)
LA_Z1_AU_4	2.4

Limiting Coordinates of Zone I  
 Easting: 84°27'0"E to 84°32'0"E  
 Northing: 23°43'30"N to 23°46'0"N

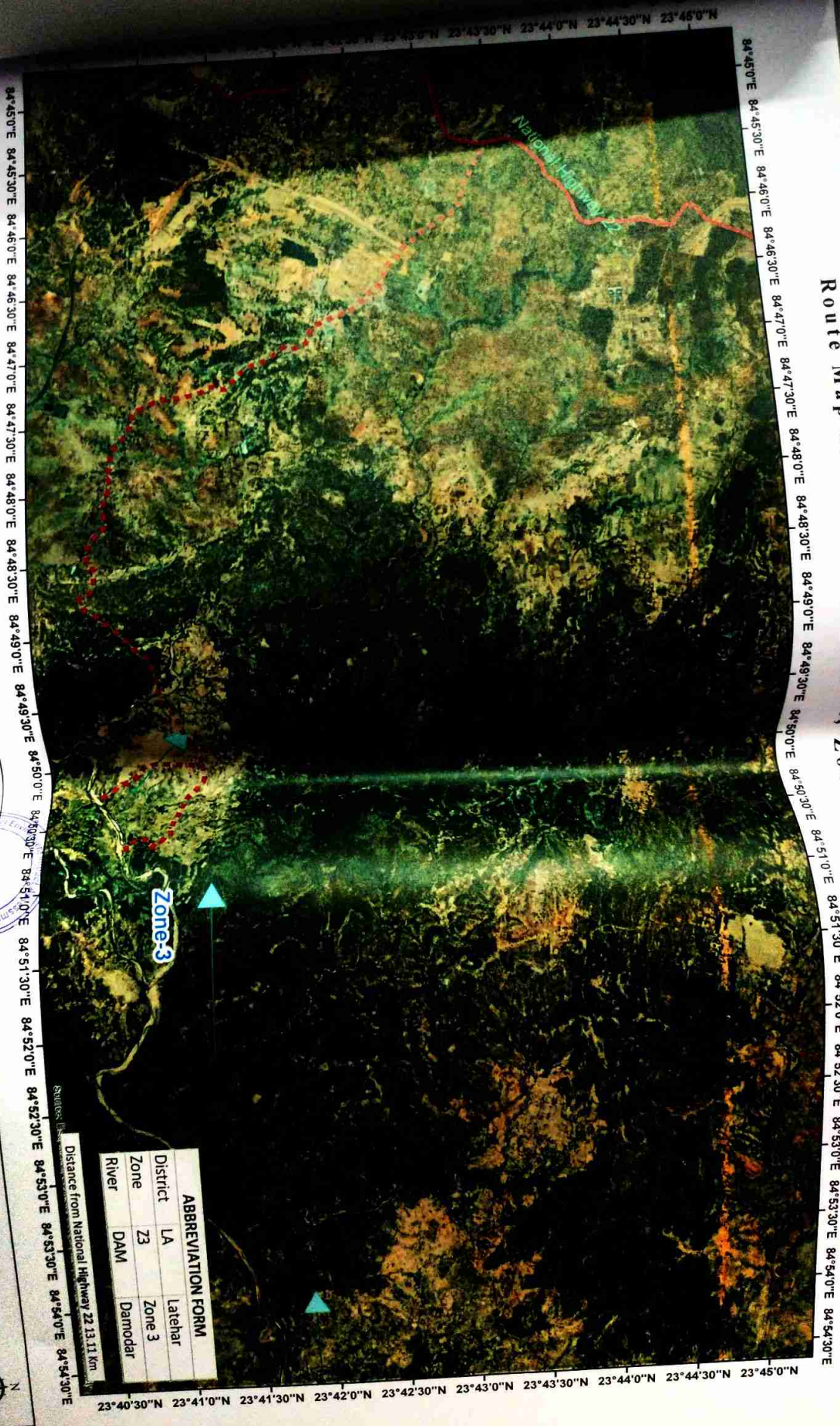


ABBREVIATION FORM			
District	LA	Latehar	
Zone	Z1	Zone I	
River	AU	Auranga	

Distance from Railway Station Road 0.32 Km  
 Sources: Field, Aerial, Topographic, and Satellite Data



# Route Map of Marmar Sandghat, Zone 3, Latehar District, Jharkhand

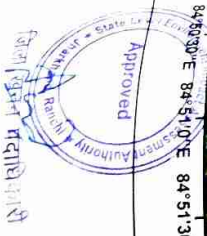


**Legend**

- Latehar District Boundary
- Railway
- Bridge
- River Flow Direction
- Metalled Roads
- Approach Roads
- No Mining Zone
- Safety Barrier
- Sand Deposit Zone
- Sand Ghat

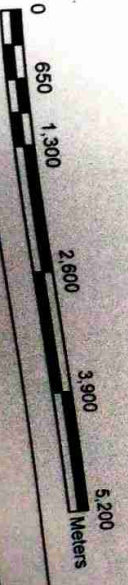
<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z3_DAM_5	2.1

<b>Limiting Coordinates of Zone 3</b>	
Starting Point	84°50'13.675"E 23°40'32.778"N
Ending point	84°52'22.1"E 23°40'31.824"N

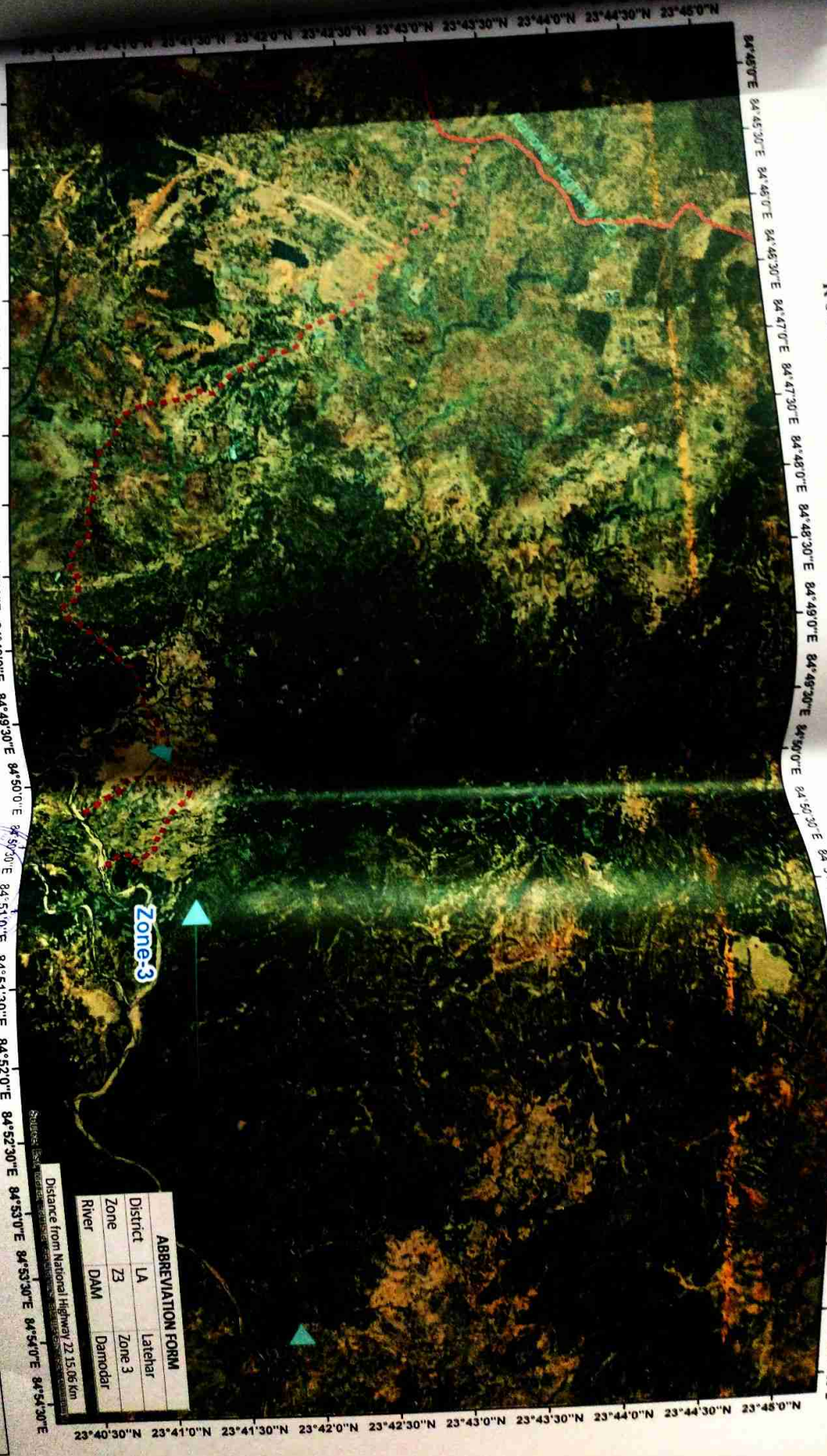


ABBREVIATION FORM	
District	LA Latehar
Zone	Z3 Zone 3
DAM	DAM Damodar
River	

Distance from National Highway 22 13.11 Km



# Route Map of Malhan Sandghat, Zone 3, Latchar District, Jharkhand

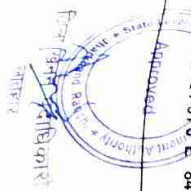


**Legend**

	Latchar District Boundary		No Mining Zone
	Railway		Safety Barrier
	Bridge		Sand Deposit Zone
	River Flow Direction		Sand Ghats
	Metalled Roads		
	Approach Roads		

<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z3_DAM_6	0.15

<b>Limiting Coordinates of Zone 3</b>	
Starting Point	84°50'13.675"E 23°40'32.778"N
Ending point	84°52'22.1"E 23°40'31.824"N



ABBREVIATION FORM	
District	LA Latchar
Zone	Z3 Zone 3
DAM	Damodar Damodar
River	

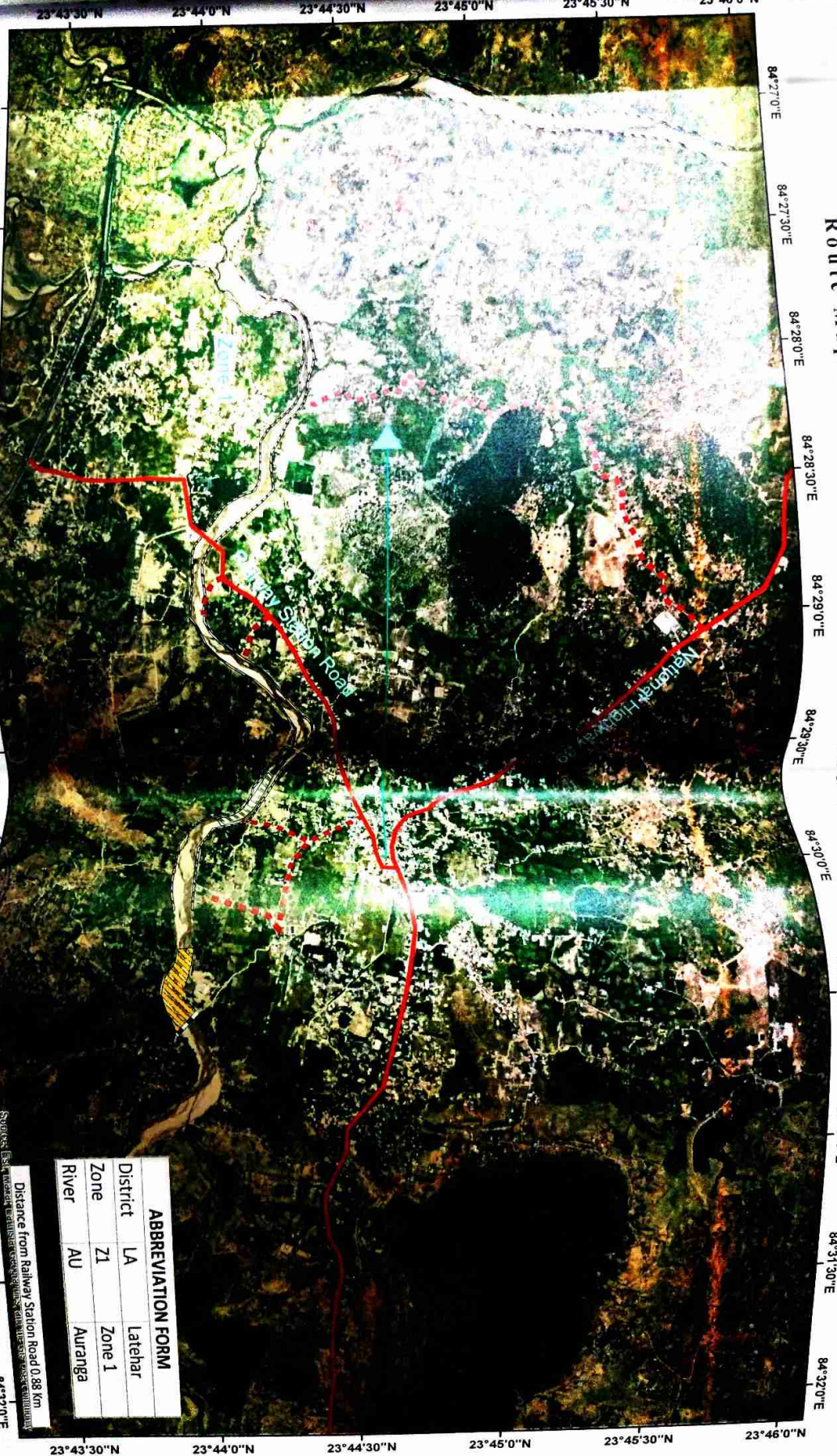
Distance from National Highway 22 15.06 km



84°45'0"E 84°45'30"E 84°46'0"E 84°46'30"E 84°47'0"E 84°47'30"E 84°48'0"E 84°48'30"E 84°49'0"E 84°49'30"E 84°50'0"E 84°50'30"E 84°51'0"E 84°51'30"E 84°52'0"E 84°52'30"E 84°53'0"E 84°53'30"E 84°54'0"E 84°54'30"E

23°40'30"N 23°41'0"N 23°41'30"N 23°42'0"N 23°42'30"N 23°43'0"N 23°43'30"N 23°44'0"N 23°44'30"N 23°45'0"N

# Route Map of Tapakhas Sandghat Zone 1, Latchar District, Jharkhand



**ABBREVIATION FORM**

District	LA	Latchar
Zone	Z1	Zone 1
River	AU	Auranga

Distance from Railway Station Road 0.88 Km  
 Sources: Esri, DeLorme, GeoEye, ...

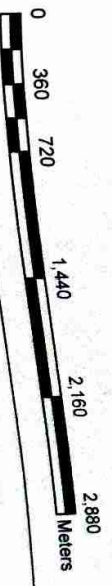
**Legend**

- Latchar District Boundary
- Railway
- Bridge
- River Flow Direction
- Metalled Roads
- Apron Roads
- No Mining Zone
- Safety Barrier
- Sand Deposit Zone
- Sand Ghat

<b>Sand Ghat Code</b>	<b>Area (in Ha)</b>
LA_Z1_AU_7	2.73

<b>Limiting Coordinates of Zone 1</b>	
Starting Point	84°27'24.962"E 23°44'13.11"N
Ending Point	84°30'23.12"E 23°44'2.152"N

Approved  
 State Level Environmental Impact Assessment Authority  
 Jharkhand  
 रातार  
 पर्यावरण विभाग



# Route Map of Latehar Zone I Latehar District, Jharkhand



**Legend**

- Yellow line: Lateral Product Road
- Black line: Kanwa
- Blue line: Bridge
- Red line: River
- Green line: High Flood Zone
- Blue line: Medium Risk
- Red line: Approach Road
- Yellow hatched area: S. M. Inhabitation
- Blue hatched area: Safety Inhabitation
- Blue rectangle: Sand Chat Deposition Zone
- Blue rectangle: Sand Chat

<b>Sand Chat Code</b>		<b>Area (in Ha)</b>	
LA / 1	AU / 8	0	78
<b>Limiting Coordinates of Zone 1</b>			
Starting Point	84° 27' 24.962" E	23° 44' 13.178" N	
Ending Point	84° 30' 23.127" E	23° 44' 2.152" N	

Approved  
 State Level Environment  
 Forest Department  
 Latehar District

0 360 720 1440 2160 2880 Meters

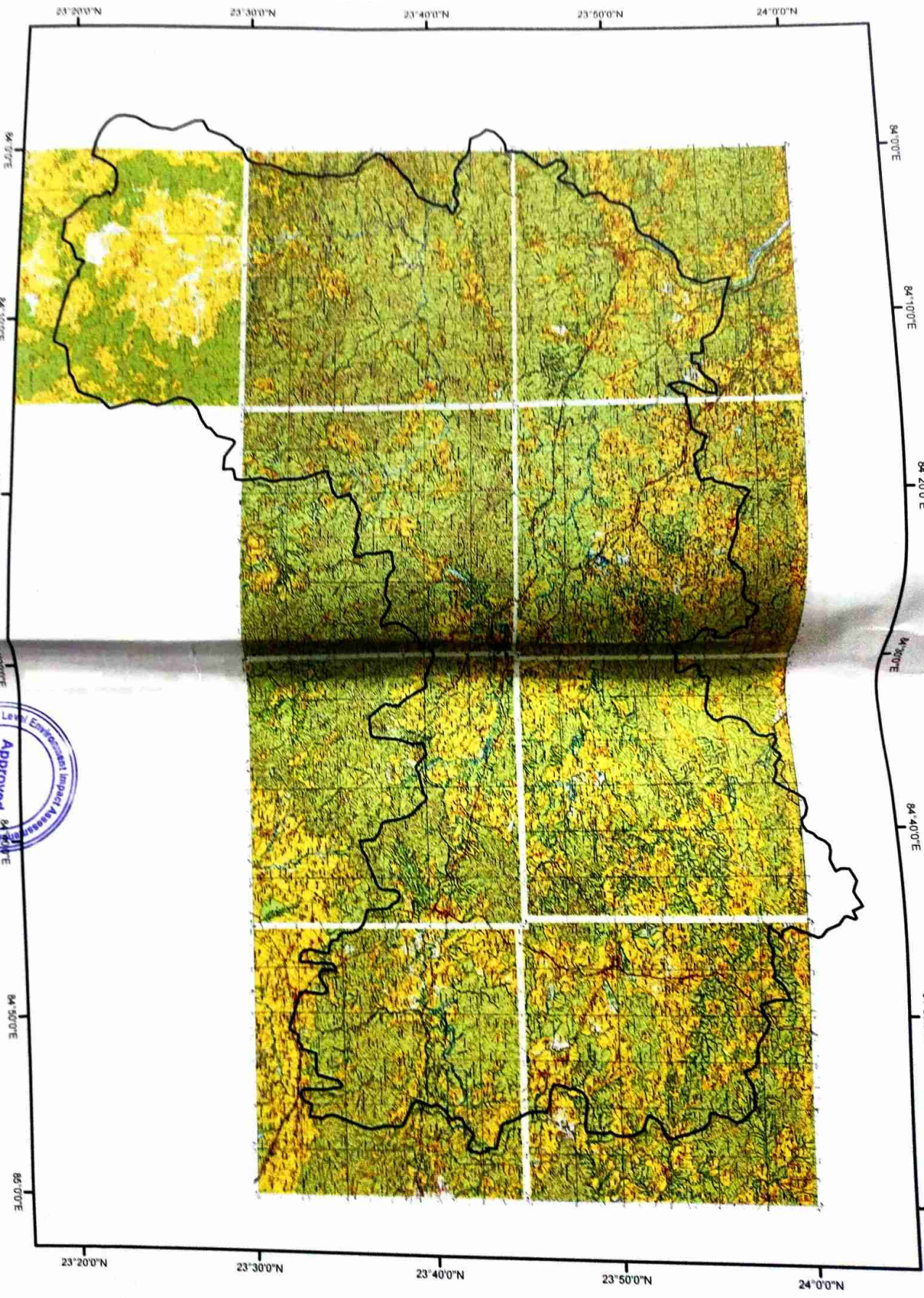
Distance from Railway Station Road 1.57 Km

Source: Data provided by community

**ABBREVIATION FORM**

District	LA	Latehar
Zone	Z1	Zone 1
River	AU	Auranga

- District Boundary
- Railway
- Bridge
- River Flow Direction
- No Mining Zone
- Sand Ghat
- Sand Deposit Zone



Approved



1 cm = 5 km



Map sheet: ...  
Jharkhand, Sup...