

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN OF SAND MINING PROJECT (NALANDA CLUSTER- 03 SAND GHAT) DISTRICT- NALANDA, (BIHAR)

SAND BLOCK	NALANDA CLUSTER- 03 SAND GHAT (Mohane -1 & Mohane -2)		
PROPOSAL NO	SIA/BR/MIN/429882/2023		
TOR NO	SIA/1(a)/2424/2023		
AREA		Mohane -1	3.5 Ha
		Mohane -2	2.9 Ha
		Total	6.4 Ha
PRODUCTION	38400 cum/year or 80256 TPA		
LOCATION	Village- Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda, Bihar		

APPLICANT

Shri Ramdev Construction Company

Prop.- Maniram Sharma

S/o- Bhagirath

Address- Ward No.- 11, Rampura Matoriya,

Dist.- Hanumangadh, Rajasthan, Pin- 335524



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Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

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ABBREVIATIONS

AAQ	Ambient Air Quality
bgl	Below Ground Level
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
CSR	Corporate Social Responsibility
dB	Decibel
DO	Dissolved Oxygen
EAC	Expert Appraisal Committee
EIA	Environmental Impact Assessment
EMC	Environmental Management Cell
EMP	Environment Management Plan
EPA	The Environment Protection Act
GLC	Ground Level Concentration
Ha	Hectare
Ham	Hectare Meter
HFL	High Flood Level
KLD	Kilo litre Per Day
Km	Kilo Meter
Leq	Equivalent Noise Level
LFL	Low Flood Level
LOS	Level of Service
MoEF	Ministry of Environment and Forest & Climate Change
NABET	National Accreditation Board for Education and Training
NGO	Non Governmental Organisation
NH	National Highway
NOC	No Objection Certificate
OSHA	Occupational Safety and Health Administration
PCU	Passenger Car Unit
PM	Particulate Matter
PUC	Pollution Under Control
QCI	Quality Council of India
R & R	Rehabilitation & Resettlement
RBM	River Bed Material
RL	Reduced Level
SEAC	State Expert Appraisal Committee
SH	State Highway
SPCB	State Pollution Control Board
T/cum	Tons Per Cubic Meter
TKN	Total Kjeldahl Nitrogen
TOR	Term of Reference
TPA	Tonnes Per Annum
UNFC	United Nations Framework Classification
VWG	Village Working Group

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1.0 PURPOSE OF THE REPORT

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It aims to predict environmental impacts at an early stage of project planning & design, find ways & means to reduce adverse impacts. By using EIA, we can decide the suitable mitigation measures for implementation to maintain healthy working environment and contain pollution within permissible limits.

River plays an important role in the lives of the people. The river systems provide irrigation, potable water, transportation, electricity, and the livelihoods for a large number of people all over the country and to rural areas. Apart from this, river is also a good source of construction grade material as sand & gravel.

As transportation and construction infrastructure expanded since last few decades, the demand for construction grade sand also increased exponentially. The market demand of river sand is high throughout the nation. Sand is extracted directly from the river channel and it doesn't require processing other than size grading. But it is now well understood that continued and indiscriminate sand mining can cause serious environmental impacts, particularly if the river being mined is eroded.

Environmental Impact Assessment is one of the proven management tools for integrating environmental concerns in development process and for improved decision making as there is a need to harmonize the developmental activities with the environmental concerns into the larger interest of the society. The growing awareness, over the years, on environmental protection and sustainable development, has given further emphasis to the implementation of sound environmental management practices for mitigating adverse impacts from developmental activities. EIA study plays a vital role in sustainable development of a country. Recognizing its importance, the Ministry of Environment and Forest, Government of India had formulated policies and procedures governing the industrial and other developmental activities to prevent indiscriminate exploitation of natural resources and to promote integration of environmental concern in project development.

Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR)

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received from SEIAA, Bihar under EIA notification of the MoEF & CC dated 14th September, 2006 and its subsequent amendment there-off and also the EIA Guidance Manual for Mining of Minerals of MoEF & CC, Govt. of India, for seeking environmental clearance for mining of Sand in the applied mining lease area.

1.1 IDENTIFICATION OF PROJECT, PROJECT PROPONENT

The Proposed Sand Mining Project is located on Nalanda Cluster- 03 Sand Ghat at Mohane -1 at Vill. & P.O.– Manichak, P.S. & Anchal– Islampur, Nalanda (Bihar). and Mohane -2 Vill. & P.O.– Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

The Proposed Production is 38400 Cum/Year or 80256 Tonnes per annum and Area of the project site is 6.40 ha.

As per the Director of Geology, Bihar, the modification of mining plan has been approved .As per EIA notification 2016 and subsequent amendments, the project is coming under category ‘**B**’ (**B1**) and the lease area is more than 5.0 Ha, approved Mining Plan, Pre-feasibility Report and EMP are required for Environment Clearance in respect of the said quarry lease. Copy of letter is enclosed as **Annexure No. II.**

The proposed project is of River bed sand mining and falls under Category- “B1” as per EIA Notification 2006 and its subsequent amendments by Ministry of Environment Forests & Climate Change, GOI.

The details of the project are given below:

Name & Address of the Mine	Nalanda Cluster- 03 Sand Ghat	Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Village Manichak, Dhamauli, Anchal– Islampur District- Nalanda, (Bihar).
River	Mohane	
Mineral	Sand	

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Area (ha)	Nalanda Cluster- 03 Sand Ghat	Total 6.4 ha (Mohane -1– Area – 3.5 Hect. & Mohane -2– Area – 2.9 Hect.)
Production	Nalanda Cluster- 03 Sand Ghat	38400 Cum/Year or 80256 TPA
Postal Address	Nalanda Cluster- 03 Sand Ghat	Shri Ramdev Construction Company Prop.- Maniram Sharma S/o- Bhagirath Address- Ward No.- 11, Rampura Matoriya, Dist.- Hanumangadh, Rajasthan, Pin- 335524
Status of Mine	Fresh application for Environmental Clearance.	
Project Cost	RS- 76,52,000 /-	
CER Cost	CER cost will be 2% of the total project cost. This amount will be used for social welfare. CER COST is Rs.76,52,000 /-x 2% = Rs. 1,53,040 /-	

1.2 BRIEF DESCRIPTION OF PROJECT

The proposed project is open cast semi-mechanized mining of sand with a proposed production of 80256 TPA for applied lease. Detail has been given below:

The proposed project is over an area 6.4 ha. Details are summarized in Table no 1.1

As per MoEF, New Delhi Gazette dated 14th September 2006 and amended thereof, the proposed mining project is categorized as **Category ‘B-1’**. The estimated project cost for the proposed project is **given below:** (including auction cost)

Table: 1.1 Project cost & Production

Sand Ghat Block	Area (Ha.)	Khata No /Khasra No	Production	Auction Cost
Mohane -1	3.5	Khata no. – 80, 622;	80256 TPA	69,12,000/-
Mohane -2	2.9	Khesra No.- 784,11		
Total	6.40		80256 TPA	69,12,000/-

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The proposed mining lease area falls in Survey of India Toposheet 72G/4 & 72G/8. The mine lease co-ordinates and connectivity details are listed below:

**Table: 1.2 Mine lease Pillar Co-ordinates
Nalanda Cluster- 03 Sand Ghat**

S. No	Sand Ghat	Area (in Ha)	Co-ordinates		Ghat/Village	River
1	Nalanda Cluster- 03 Sand Ghat Mohane -1	3.5	A	25° 7'40.47"N 85°10'28.10"E	Vill. & P.O.– Manichak, P.S. & Anchal– Islampur, Nalanda (Bihar).	Mohane
			B	25° 7'39.56"N 85°10'29.09"E		
			C	25° 8'2.05"N 85°10'51.81"E		
			D	25° 8'2.95"N 85°10'50.93"E		
	Mohane -2	2.9	A	25° 8'23.59"N 85°11'11.87"E	Vill. & P.O.– Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	
			B	25° 8'22.94"N 85°11'12.82"E		
			C	25° 8'32.51"N 85°11'44.12"E		
			D	25° 8'33.49"N 85°11'44.37"E		

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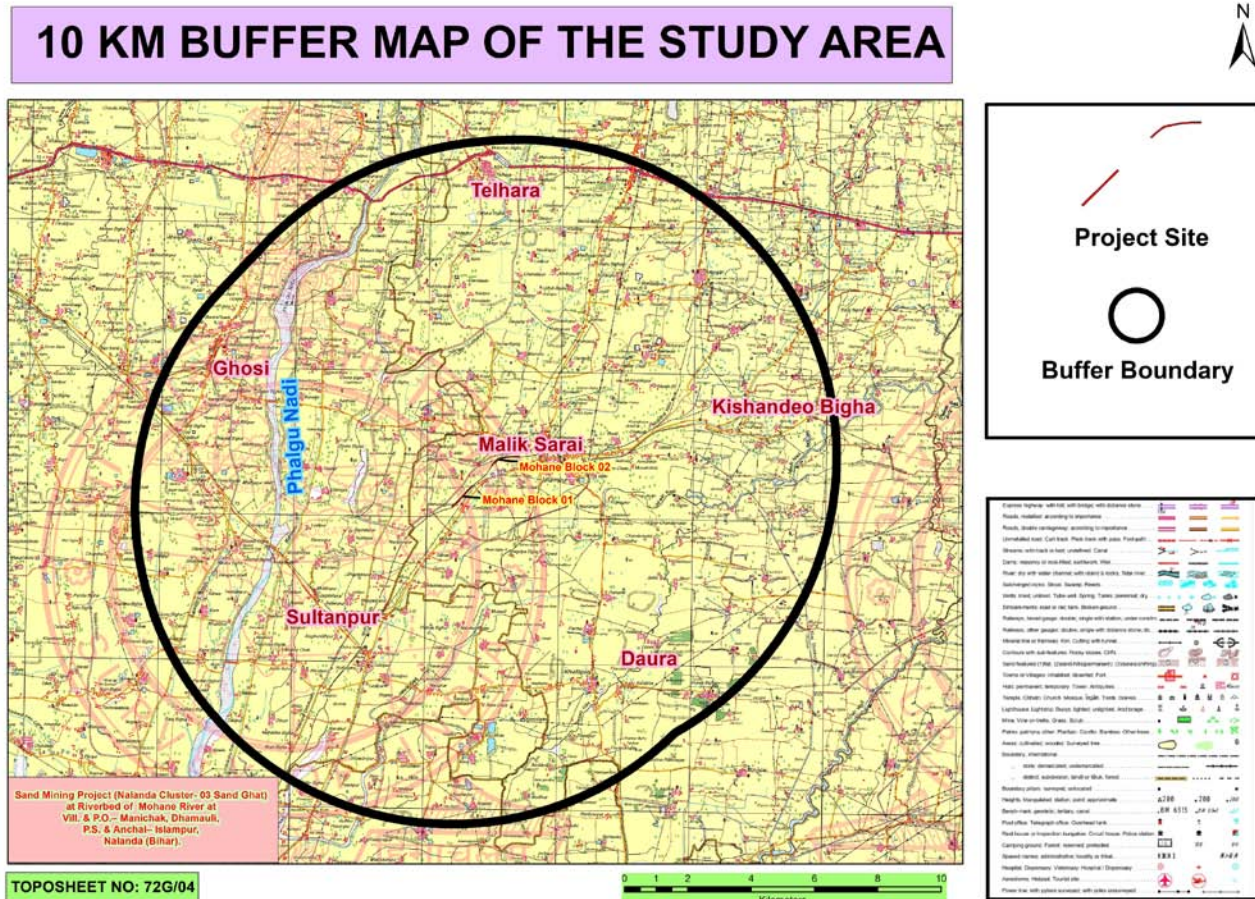


Figure 1.1, 10 km buffer map

Table: 1.3, Connectivity Details given below

Nearest Habitation/ town	Blocks	Village	Distance (Km) Direction
	Mohane -1	Manichak	Approx. 0.47 km, towards NW direction.
	Mohane -2	Gauravgadh	Approx. 0.50 km, towards E direction.
Nearest Railway Station	Blocks	Railway Station	Distance (Km) Direction
	Mohane -1	Islampur Railway Station	Approx. 3.50 km, towards E direction.
	Mohane -2	Islampur Railway Station	Approx. 2.23 km, towards E

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			direction.
Nearest Airport	Blocks	Airport	Distance (Km) Direction
	Mohane -1 & Mohane -2	JPN International Airport Patna	Approx 51.50 km towards NW direction.
Nearest Highway	SH-4 at a distance of approx. 150 m in E direction from Mohane 1. SH-71 at a distance of approx. 0.6 Km in N direction from Mohane 2.		

1.3 Details of environmental settings

Sl. No.	Particulars	Details
1	Ecological Sensitive Areas (National Park, Wildlife Sanctuaries)	There is no any Ecological Sensitive Areas Like National Park, Wildlife Sanctuaries, etc are found within 10 km of the study area.
2	Nearest water body	Project site is located on Mohane River.
3	Seismic Zone	Zone- IV <i>Source: BMTC</i>

The EIA-EMP report is prepared as per the TOR granted under the EIA Notification. In order to assess the impact on environment due to proposed mine, it is necessary to ascertain present status of environment prevailing at the project site and identification and assessment of impacts on the environment of the proposed operation.

Project's importance to the country and the region

Sands are ubiquitous material; available everywhere and is being used from the time immemorial for wide applications in our daily life; infrastructures, building construction, highways, roads, townships, multiplexes, foundations of buildings and industrial units etc. and is an integral part of development. Life without sand is unthinkable. Over the millennia, the weathering effect, the flow of water at high

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velocities in rivers and the pressure of water from the high mountainous reservoirs converted and pushed the hard ground underneath into sands, etc. which travelled as sediments with the flow. This sand got deposited along the river course wherever conditions were favorable. In the deep past this settled sand was not extracted in a quantity in which it deposited; since due to less population the requirements was not enough. As a result of continuous deposit of sand, the rivers went on changing their course, widening by itself, eroding the fields and expanding, resulting in flooding, inundation and breaking their banks, causing devastation of property and loss of life. There has been a severe impact on every aspect of the environment. The rivers thus, needed channelization and therefore, extraction of these minor minerals through mining was expedient. The haphazard mining of sands being practiced now for long, through unregulated, uncontrolled and illegal way added almost an irreversible damage to the environment, which became a cause of serious concern to everyone. Though sands are very important mineral source for development, its mining through scientific methods has also become equally imperative.

It is for this purpose that ‘mining plan’ is being drawn so that all its aspects are taken care of justifiably, according to law, protecting the environment, removing all adverse impacts and creating a direct and indirect employment opportunities, improving socio-economic conditions of the local inhabitants and all-around status of life, achieving thereby a sustainable development.

Besides the above, the process of mining of minor minerals (Sand) is a constant source of revenue generation to the State Government through Royalty.

1.4 SCOPE OF THE STUDY

The project proposal was submitted to State Level Environment Impact Assessment Authority-Bihar for its appraisal. Based on which, presentation was held for Terms of Reference (TOR). Based on the data provided and presentation made, the SEIAA-Bihar has issued the Terms of Reference attached as **Annexure-1**.

Followings are the point wise compliance of the ToR provided by the SEIAA Bihar.

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Table: 1.5 Point wise compliance for TOR

(ToR File No- SIA/1(a)/2424/2023)

S. No	TOR	Compliance	Reference in the Report
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	This is fresh LOI, Mine is yet to be opened. It will open only after getting environmental clearance.	--
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	State Govt. has given consent for mining vide letter no. 270/khanan, Nalanda, dated. 24.01.2023	Annexure II, LOI
3	All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining technology and should be in the name of the lessee.	The documents including mine plan and EIA report submitted are compatible with one another w.r.t. to following information: Mining Lease Area- 6.4 Hectare Lessee: Shri Ramdev Construction Company Prop.- Maniram Sharma S/o- Bhagirath Address- Ward No.- 11, Rampura Matoriya, Dist.- Hanumangadh, Rajasthan, Pin- 335524	Annexure- III Mine plan All details has been complied in chapter-2

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		Waste generation- No waste will be generated. Mining Method-Opencast semi-mechanized method	
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery /toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All Corner Coordinates of mining lease area superimposed on Toposheet Map has been incorporated in EIA/EMP Report.	Refer Chapter 2 Fig: 2.1, Corner Coordinates map
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	The land use map showing salient features of the area is given in the report. The geological map of the mine lease area is also given in the report showing geomorphology	Land-use of the study area Figure 3.1.
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned	The Lease area is dry part of River bed. This is a barren land. The mining process will be done by land use policy of the State & no land diversion has been proposed.	Chapter II & III

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	authority.		
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating processes /procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? The hierarchical system or administrative order of the company to deal with the environmental issues and for insuring compliances with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	Yes, the proponent Company has a well laid down Environment Policy. The hierarchical system or administrative order of the company has been given in the EIA report.	Chapter VIII Section 8.1 Corporate Environment Policy
8	Issues relating to Mine safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each	Issue related to mine safety has been given in of chapter 7.	

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	case should also be provided.		
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine/lease period.	The 10 km zone from periphery of the lease has been considered as the study area. The Buffer map of the study area is attached with report. All the details in the EIA report are for the life of the mine period. The details of mining & production have been given in the report.	Chapter I Figure 1.1
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use pattern of 10 km from the periphery of the lease area has been prepared and incorporated with the report. The study area lies in Mohane River. There is no any Wild Life sanctuary & National Park, protected forest within the study area.	Land-use of the study area Figure 3.1 , Table 3.1 10 km buffer map enclosed in Chapter I of EIA Report.
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area,	There is no overburden outside the mine lease area.	

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	distance from mine lease, its land use ,R&R Issues, if any, should be given.		
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	There is no forest land within the lease area.	---
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and Compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	No forest land is involved in the lease area, therefore, deposition of net present value (NPV) and compensated Afforestation is not indicated.	

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14	Implementation status of recognition of forest rights under the schedule tribes and other traditional forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated"	There is no forest land involved in the leased out area. Hence, this act is not applicable for this project.	
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given	There is no any Ecological Sensitive Areas Like National Park, Wildlife Sanctuaries, etc are found within 10 km of the study area. However, the vegetation details of the study area are incorporated with the report.	Chapter III Section 3.1.6 Biological Environment
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	The details Impacts & there mitigation measures are given in chapter IV of EIA/EMP Report.	Chapter IV
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger / Elephant Reserves / (existing as well as proposed), if any, within 10 km of the mine lease should be	No National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger / Elephant Reserves / (existing as well as proposed) are found within 10 km of the study area.	Chapter III Section 3.1.6 Biological Environment

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	clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	MAP showing eco sensitive zone is attached in Chapter III (Fig 3.4)	
18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for	Detailed biological study of core zone and buffer zone within 10 km radius of the periphery of the mine lease has been carried out for the project. The same has been incorporated in the report	Chapter III Section 3.1.6 Biological Environment

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	implementing the same should be made as part of the project cost.		
19	Proximity to Areas declared as ‘Critically Polluted’ or the Project areas attracting court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	Proposed project does not come under critically polluted area.	
20	Similarly, for coastal projects ,A CRZ map duly authenticated by one of the authorized agencies demarcating LTL.HTL, CRZ area ,location of the mine lease w.r.t CRZ, Coastal features such as mangroves ,if any should be furnished.(Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)	There is no R & R involved in this project.	
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant	There is no R & R involved in this project.	

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	State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.		
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP	Base line study was carried out for Pre Monsoon season March 2023 -May 2023 Details are provided in EIA/EMP Report. The locations of the monitoring stations were decided on the basis of prevailing meteorological conditions (Wind direction & wind speed) of the study area. The wind rose has been given in chapter III of EIA/EMP Report.	Chapter III Section 3.1.2 Air Environment

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	Report" Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	One location has been selected in downwind direction within 500 m from the lease boundary. The location of the monitoring sites has been shown in map.	
23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on	A detailed study on Air quality modeling will be incorporated at the time of FEIA.	

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	the map.		
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	The water requirement for Nalanda Cluster- 03 is 4.60 KLD for drinking, dust suppression and green belt development. A detailed water balance is being provided in the report.	Chapter –II Section 2.7.4 Water Requirement
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water requirement will be fulfilled by private water tanker. So, no clearance is required.	Chapter II
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the project, if any required should be provided.	The project do not consume any process water except for drinking, dust suppression & plantation. Plantation is proposed, which will increase the water holding capacity & help in recharging of ground water. No artificial rainwater harvesting is proposed for the present project in lease area, however if any such project proposed by State Government PP will help out for the above.	
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any	Mining activity will be done on Dry Bed of River so there is no impact on surface water. Mining will be up to 1.0 m below	Chapter II

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	required, should be provided".	ground level or above the ground water table whichever comes first. This will not intersect the ground water table.	
28	Based on actual monitored data , it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter – alia,shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The mining will be done only upto 1.0 m depth. The detailed impact and control measure w.r.t the quality of water in the surrounding area is discussed under Chapter 4.	
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	The project site lies on Mohane River. No diversion is proposed.	
30	Information on site elevation, working depth, groundwater table	The mining will be done as per the approved mining plan and 1.0	

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

	etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	meter bgl whichever is comes first.	
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and Quantities coverage, plant species and time frame) and Submitted keeping in mind the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Plantation/afforestation will be done as per program i.e along the road sides and near civic amenities, as per mine plan. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. List of Plant species selected for green belt is detailed in the EIA report. The plant species selected for green belt have a greater ecological value and are of good utility value to the local population. The plant species are selected by giving emphasis on local and native species and the species which are tolerant to pollution	Chapter VIII Section 8.2
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road	The projection has been done based on the mineral transportation. The details of traffic analysis are	Chapter IV Section 4.6 Traffic Analysis Fig 4.2, Table

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

	network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	discussed in the report.	4.3(i), 4.3(ii)
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report	A temporary rest shelter will be provided for the workers near to the site with provisions of water, first aid facility, protective equipments, etc. Details are given in the EIA/EMP Report.	Chapter II Section 2.12.2
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Conceptual plans and Sections are given in Chapter 2.	
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination	Occupational health impact mainly is expected due air pollution due to fugitive dust emission because of movement of vehicles. However appropriate mitigation measures for air	Chapter VII Section 7.2 Chapter VIII

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	schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	pollution control have been given in the report, discussed in Chapter-4. Each labour will undergo pre-placement medical examination. Thereafter periodical health check up will be arranged as stated in the report.	Section 8.3
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	The proposed project being a small scale semi-mechanized mining project, there will be hardly any process related health implication on the population of the nearby villages except fugitive dust emissions due to transportation. Budgetary allocation is given in Chapter-VIII.	Chapter VII Section 7.2 Chapter VIII Section 8.3
37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time to time for implementation.	Socio-economic significance provided to the local community i.e. to the nearby villagers is given in the EIA/EMP Report.	Chapter VI Section 6.4 Chapter VII Section 7.2
38	Detailed environmental management plan (EMP) to mitigate the	The detailed environmental management plan to mitigate the	Chapter VIII

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	environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project	environmental impacts has been mentioned in of the EIA/EMP Report.							
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	This is a draft EIA report. Public hearing is yet to be conducted.	--						
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending against the project.							
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	The capital cost & recurring cost for has been earmarked for EMP. Chapter IX <table><tr><th>Block</th><th>Capital Cost</th><th>Recurring Cost</th></tr><tr><td>Nalanda Cluster-03</td><td>2.315 Lakh</td><td>5.5 lakh</td></tr></table>	Block	Capital Cost	Recurring Cost	Nalanda Cluster-03	2.315 Lakh	5.5 lakh	Chapter IX
Block	Capital Cost	Recurring Cost							
Nalanda Cluster-03	2.315 Lakh	5.5 lakh							
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report".	A Disaster management Plan has been given in EIA report.	Chapter VI						

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43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	2% of the total cost of the project has been earmarked towards the Enterprise Social Commitment which will be used for the development of village.	
44	Besides the above, the below mentioned general points are also to be followed:-		
a	All documents to be properly referenced with index and continuous page numberings.	All the documents to be properly referenced with index and continuous page numbering.	
b	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	Compiled With EIA report.	
c	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.	Compiled With EIA report.	
d	Where the documents provided are in a language other than English, an English translation should be provided.	Compiled With EIA report.	

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

e	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Compiled With EIA report.	
f	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Compiled With EIA report.	
g	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	Agreed	

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

h	As per the circular no. J-11011/618/2010-IA. II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	This is new case for Mining. No certified compliance is required.	
i	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Compiled With EIA report.	

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

2.0 TYPE OF PROJECT

The project is proposed is for Nalanda Cluster- 03 Sand Ghat for the excavation of sand from the bed of river Mohane. The proposed project is opencast semi-mechanized/OTFM mining project.

2.1 NEED FOR THE PROJECT

The project site lies on Mohane River. The river get recharged by the rain water and carries sediment consisting of sand etc during monsoon season, generally.

Sand is used widely in the construction industry. It is usually mixed with cement and other ingredients to create mortar for building. It is also used in agriculture, as sandy soils are ideal for crops such as watermelons, peaches and peanuts. Sand is also used in Aquaria as it makes a low cost aquarium base material. This project will also provide employment to local people helping them earn livelihood.

2.2 LOCATION DETAILS

The Proposed Sand Mining Project is located on Nalanda Cluster- 03 Sand Ghat at Mohane -1 at Vill. & P.O.– Manichak, P.S. & Anchal– Islampur, Nalanda (Bihar). and Mohane -2 Vill. & P.O.– Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

The Proposed Production is 38400 Cum/Year or 80256 TPA and Area of the project site is 6.40 ha.

As per the Director of Geology, Bihar, the modification of mining plan has been approved .As per EIA notification 2016 and subsequent amendments, the project is coming under category ‘B’ (B1) and the lease area is more than 5.0 Ha, approved Mining Plan, Pre-feasibility Report and EMP are required for Environment Clearance in respect of the said quarry lease. Copy of letter is enclosed as Annexure No. II.

The proposed project is of River bed sand mining and falls under Category- “B1” as per EIA Notification 2006 and its subsequent amendments by Ministry of Environment Forests & Climate Change, GOI.

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Geo Coordinate of Lease Area:

**Table 2.1, Mine lease Pillar Co-ordinates
Nalanda Cluster- 03 Sand Ghat**

S. No	Sand Ghat	Area (in Ha)	Co-ordinates		Ghat/Village	River
1	Nalanda Cluster- 03 Sand Ghat Mohane -1	3.5	A	25° 7'40.47"N 85°10'28.10"E	Vill. & P.O.– Manichak, P.S. & Anchal– Islampur, Nalanda (Bihar).	Mohane
			B	25° 7'39.56"N 85°10'29.09"E		
			C	25° 8'2.05"N 85°10'51.81"E		
			D	25° 8'2.95"N 85°10'50.93"E		
	Mohane -2	2.9	A	25° 8'23.59"N 85°11'11.87"E	Vill. & P.O.– Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	
			B	25° 8'22.94"N 85°11'12.82"E		
			C	25° 8'32.51"N 85°11'44.12"E		
			D	25° 8'33.49"N 85°11'44.37"E		

Nalanda Cluster- 03 Sand Ghat is well connected by SH-4 at a distance of approx. 150 m in E direction from Mohane 1. SH-71 at a distance of approx. 0.6 Km in N direction from Mohane 2.

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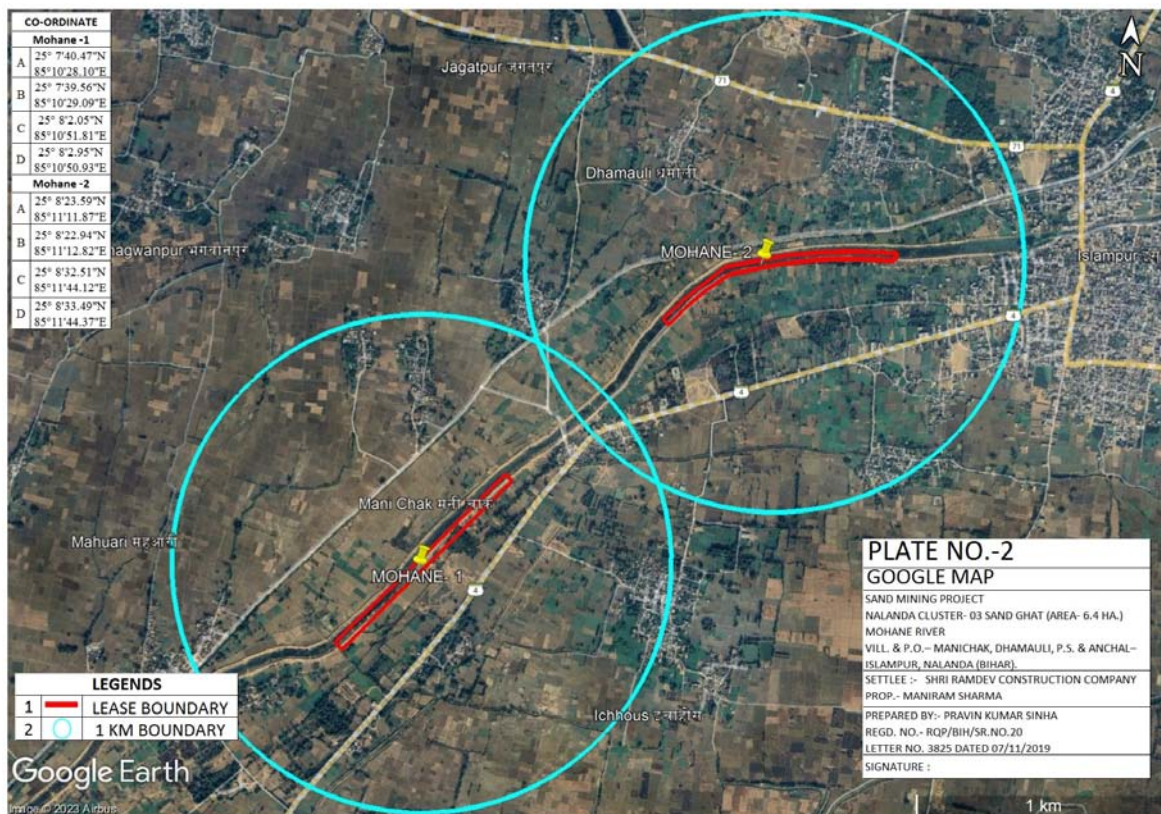


Figure 2.1:- Pillar Coordinate Map

2.2.1 Lease / Block Area

The proposed project is Open Cast Semi-Mechanized Mining of Sand with a proposed production is given below in tabular form.

Sand Ghat Block	Area (Ha.)	Khata No /Khasra No	Production	Auction Cost
Mohane -1	3.5	Khata no. – 80, 622; Khesra No.- 784,11	80256 TPA	69,12,000/-
Mohane -2	2.9			
Total	6.40		80256 TPA	69,12,000/-

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As per MoEF, New Delhi Gazette dated 14th September 2006 and amended thereof, the proposed mining project is categorized as Category ‘B-1’. The estimated project cost for the proposed project is given in above table.

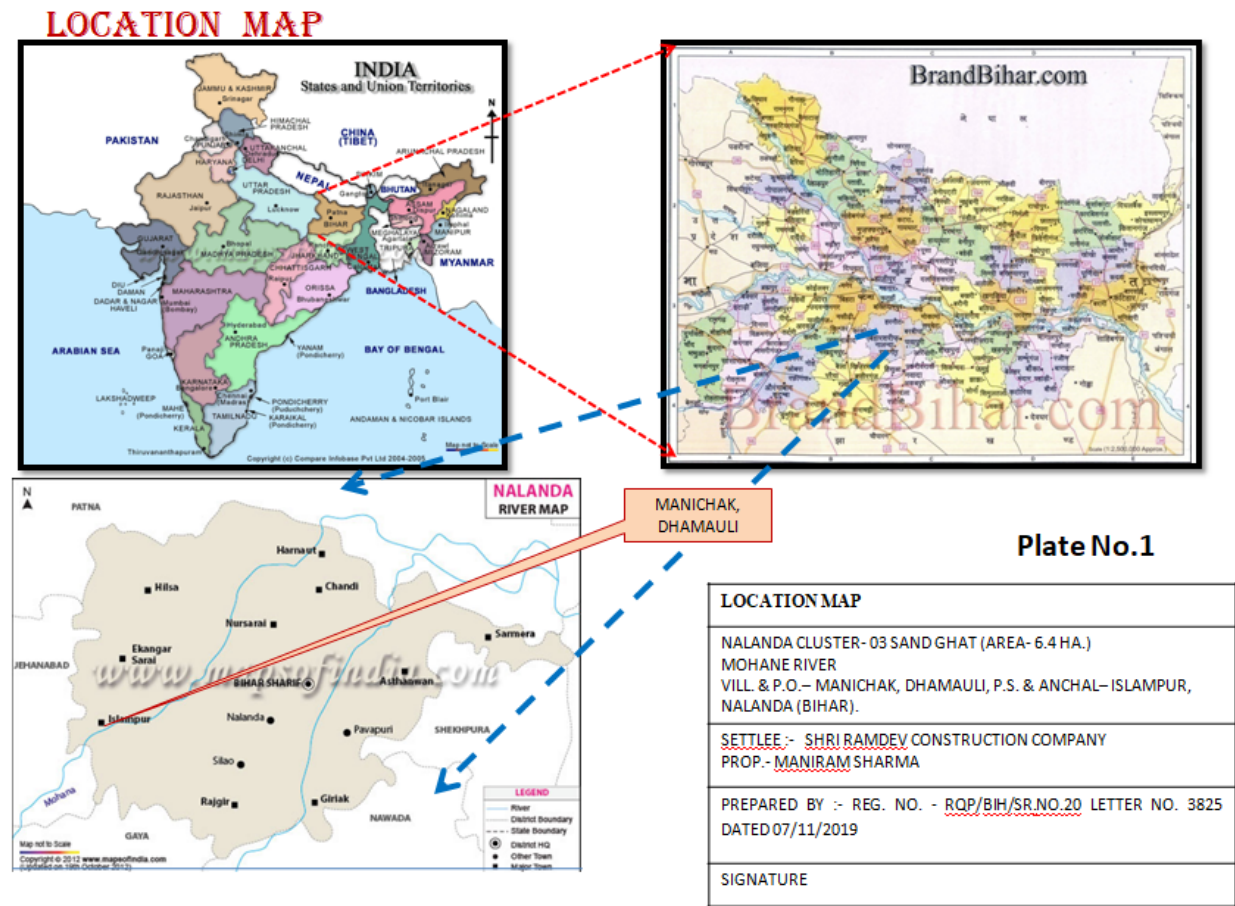


Figure 2.2:- Location map of the project site

2.3 TOPOGRAPHY & GEOLOGY

2.3.1 Topography

The Nalanda district lies between 24° 57' to 25° 27' north latitudes and 85° 09' to 85° 55' east longitudes. The district covers a total area of 2362 sq. km. The climate of this district is on the whole dry, hot in summer and mild cold in winter. The temperature in the district starts increasing from the beginning of March till May, which is generally the hottest month. After October, both day and night temperature decreases rapidly. January is usually

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the coldest month. Nalanda district has a featureless plain land. Panchana and Mohane rivers are the main river of the district which is almost dried in summer. It is divided into 3 Revenue Sub-Divisions and 20 Anchals consisting of 1084 Revenue villages. Out of three Revenue Sub-Divisions, Bihar sharif is sadar Sub-Division and most urbanized. Hilsa sub-division is predominantly rural and agricultural. Rajgir, smallest sub-division of the three is most important from tourism perspective. Rajgir, Nalanda remains, Pawapuri are in Rajgir sub-division.

Source: Mining plan

2.3.2 GEOMORPHOLOGY

Nalanda district is a part of the Indo-Gangetic alluvium, one of the three main physiographic divisions of India, which separates Extra-Peninsular regions on the north from the peninsular region on the south. The level plain is known to be the outcome of a granular filling of a great depression with alluvial sediments since Middle Pleistocene times. The district forming a part of the flood plains of the Ganga has a monotonously flat relief. The area under study is underlain by alluvial sediments of quaternary age. The quaternary sediments are deposited unconformable on the Archaean basement. The generalized stratigraphic sequence of the geological formations for the area is as follows.

The northern and southern parts of the district constitute two distinct natural regions. The northern part is plain area underlain by alluvial soils covering Nawada, Warsaliganj, Pakhribarwan and parts of Hisua, Narhat, Govindpur, Akbarpur and Kauakol blocks. Consequently, it is densely populated and has a rich historical background. The southern part is hilly and undulating with a gentle ascend towards the south merging into hills and is part of southern fringes of the Chottanagpur Plateau. The entire southern boundary of the district is a conglomeration of ridges and spurs.

Source: Mining plan

2.3.3 REGIONAL GEOLOGY

Regional Geology

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The north-eastern part is predominantly characterized by sedimentary lithology in the Sub-Himalayan zone comprising Subathus, Dagshais, Kasaulis and Siwaliks. A general Regional stratigraphic sequence in the area is given below-

Table 2.2. Showing the Geological Succession and their geographic distribution

Age	Geology	Occurrences
Quaternary	Alluvial Deposits (Sand, Clay, Silt, Fragments)	North Bihar Plain & Central Bihar Plain
Tertiary	Sand Stones & Clay Stones	North Champaran Hills
Gondwana	Coal Measures, Forming a series of Small outlier basins	Banka District
Vindhya	Sandstones, Shales, Limestones, etc.	Parts of Bahbhua and Rohtas dist
Satpura	Schist, Phyllite, Quartzite	Part of Aurangabad, Gaya, Nawada, Nalanda, Sheikhpura and Munger District
Proterozoic	Mica Schist, amphibolites, quartzite, granite, dolerite and pegmatite	Nawada, Jamui and Banka
Archaean	Gneisses, Granites, Schists, Phyllites, quartzite, amphibolites & intrusive all metamorphosed sedimentary and igneous rocks	Part of Aurangabad, Gaya, Nawada, Jamui, Banka and Bhagalpur

2.3.4 LOCAL GEOLOGY OF THE AREA

The sand exposed in the River bed of Sakari, Jirain, Paimar, Lokain, Panchane, Goithwa, Muhana/Jalwar, Paimar and surrounding areas is the product of the deposition of the sediments brought and deposited in the flood plains of River Ganga. These sediments are of recent geological formation. The litho-units exposed within the river and surrounding areas have formed as water borne sediments brought by flood water during rainy season every year and deposited in riverbed. Nalanda (Bihar) is in Indo-Gangetic plain so naturally fertile soil is one asset of the state. Thus Indo-Gangetic plain's soil is the backbone of agricultural and industrial development. The Indo-Gangetic plain in Nalanda (Bihar)

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consists of a thick alluvial mantle of drift origin overlying in most part. The siwalik and older tertiary rocks. The soil is mainly young loam rejuvenated every year by constant deposition of silt, clay and sand brought by streams but mainly by floods in Bihar. This soil is deficient in phosphoric acid, nitrogen and humus, but potash and lime are usually present in sufficient quantity. The most common soil in Bihar is Gangetic alluvium of Indo-Gangetic plain region, Piedmont Swamp Soil which is found in northwestern part of West Nalanda district and Terai Soil which is found in northern part of Bihar along the border of Nepal clay soil, sand soil and loamy soil are common in Bihar. The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The size of the sediments towards the source i.e. host rock is coarse and at the tail end of the river the grain size is reduced to smaller sizes resulted in the formation of clay beds.

Source: Mining Plan

2.3.5 CLIMATE

The average annual rainfall of district is 1002.2 mm. About 92.55 % of the rainfall is received during June to October by south-west monsoon (Fig- 2). The climate of the district is sub-tropical to sub-humid in nature. The district experiences severe cold during winter whereas on the other hand in summer it is very hot.

Source https://cgwb.gov.in/District_Profile/Bihar/Nalanda.pdf

2.4 GEOLOGICAL RESERVE

The geological reserves have been each stretches & for individual blocks. Geological reserves have been completed through cross sectional area method. The area of each section line is multiplied by strike influence to get the volume.

Proved Mineral Reserves (111): All quantities of sand occurring up to depth of 1m from surface has been considered as proved reserves.

Table-2.3:- Proved Mineral Reserves

Classification	Code	Quantity of Sand
A)Mineral Reserves		Cum
1)Proved Mineral Reserve	111	64000

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Total	64000
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Total Geological Reserve = 64000 cum. or 133760 tonnes.

*Specific gravity is 2.09 g/cm³

Source: Mining Plan

2.4.1 Mineable Reserves:

Mineable reserves have been computed up to 1m depth from surface. Benches having height 1.0 m & width 6.0 m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by Specific gravity (2.09 g/cm³) to get the tonnage.

Table-2.4:- Summary of minable reserves of Nalanda Cluster- 03 Sand Ghat

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
69-68	930	32	1	29760	62199
Total				29760	62199

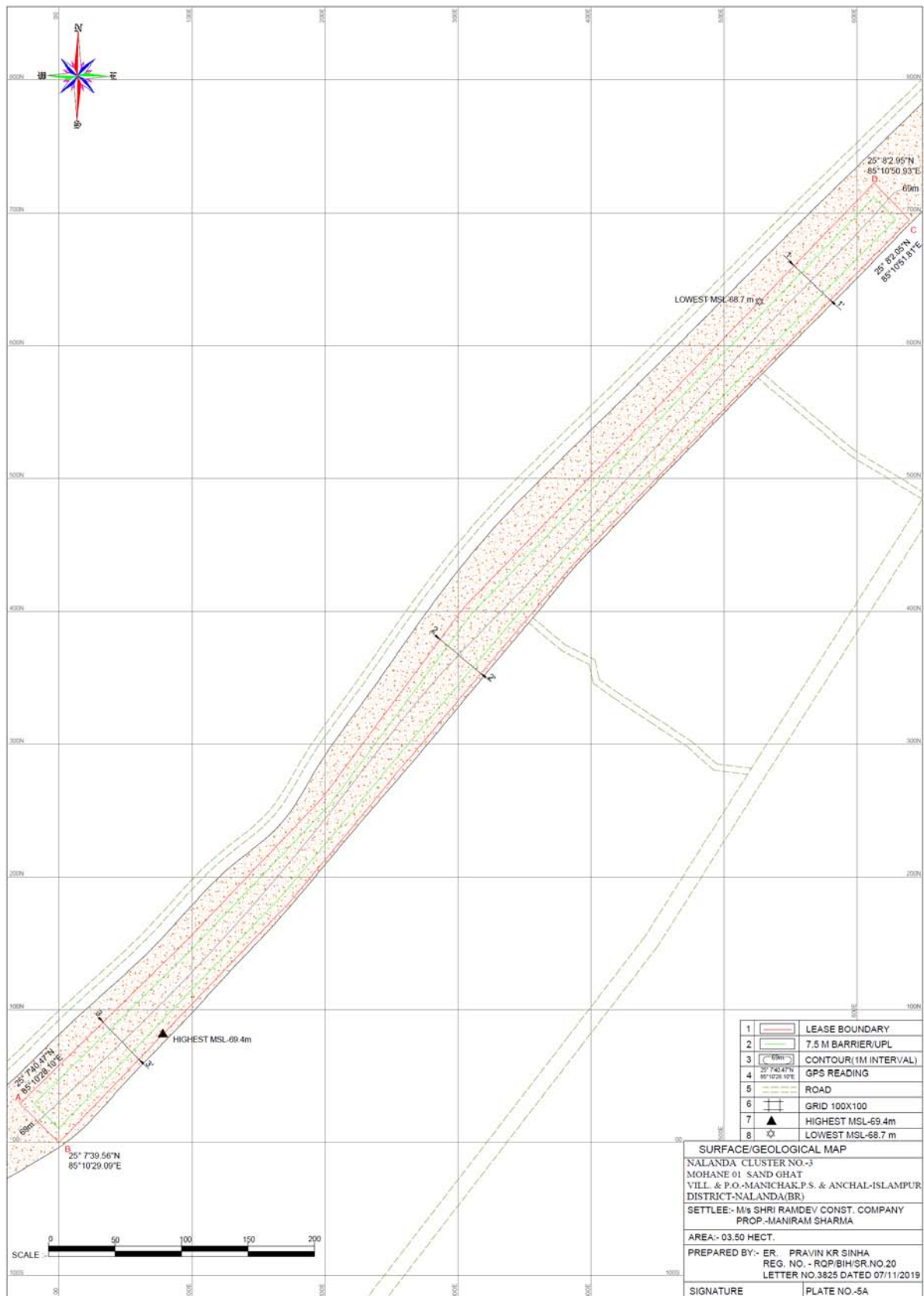
Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
68-67	957	21	1	20097	42003
Total				20097	42003

Total Mineable Reserve = 49857 CUM or 104202 Tonnes

Table-2.5:- Classification Mineral Reserves

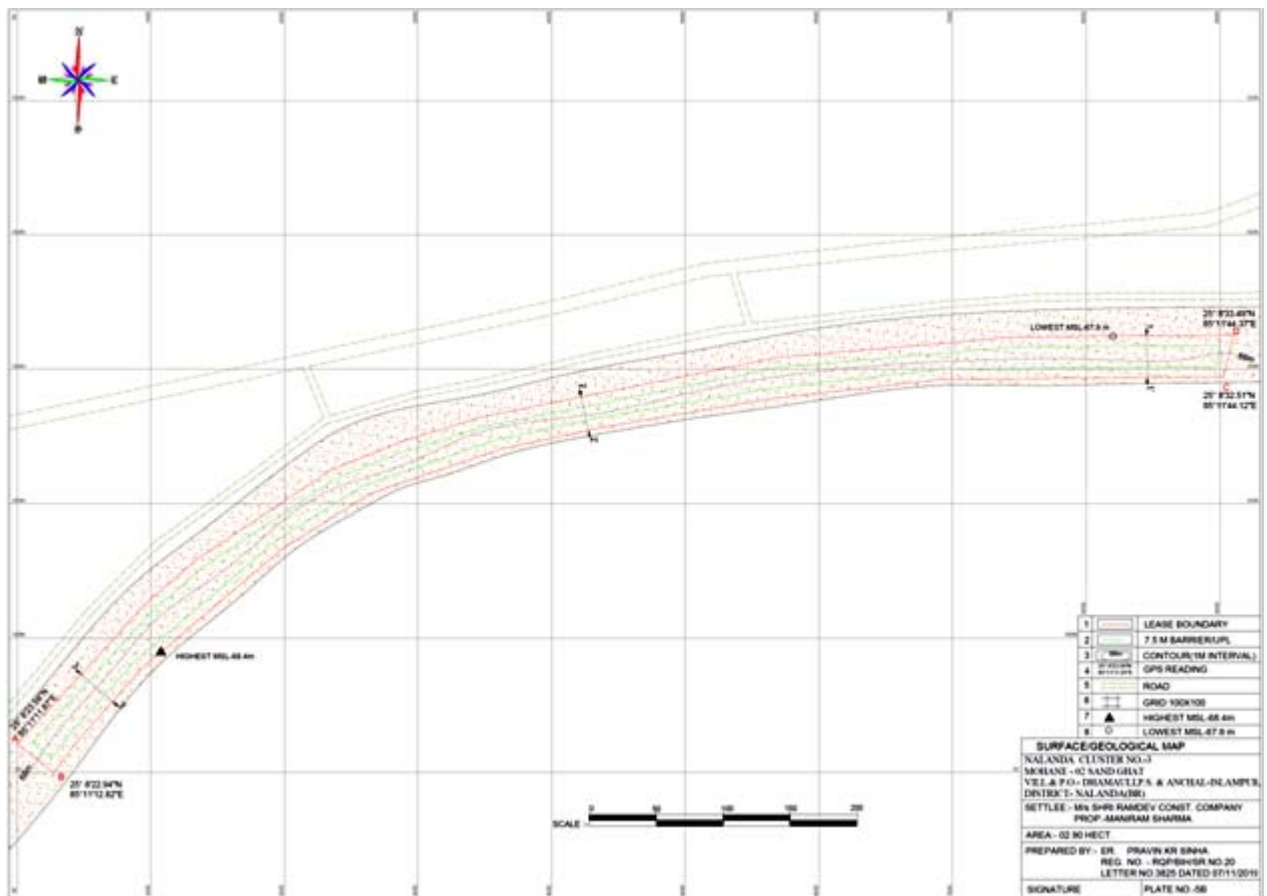
Sand Ghat	Area (Hect)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Nalanda Cluster- 03 Sand Ghat	6.4	64000	49857	38400

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).



Mohane-1

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).



Mohane-02

Figure 2.3:- Surface cum Geological Section of Nalanda Cluster- 03

2.4.2 Type of Mining

- Mining will be done as per the guidelines of Bihar Mineral (Concession Prevention of illegal Mining Transportation & Storage) Rules, 2019, SSMG -2016, and EMGSM – 2020.
- This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.
- Sand Mining will be carried out only upto a depth of 1 m bgl or above ground water level (whichever is less), for river bed block.
- No drilling /blasting are required as the material is loose in nature.
- Mining will be done only during the day time and completely stopped during the monsoon season.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

2.4.3 Year Wise Production Schedule:

The bench wise annual exploitation of sand from Nalanda Cluster- 03 Sand Ghat are given below :-

Table 2.6: Year wise Production Details

YEAR	ROM sand (cum)
1 st Year	38400
2 nd Year	38400
3 rd Year	38400
4 th Year	38400
5 th Year	38400

The annual extractable RBM comes to **38400 CUM or 80256 Tonnes**. It will be replenished after rainy season every year.

Source: Mining Plan

2.5 Conceptual Mining Plan

Mine Applied Area will be worked for Nalanda Cluster- 03 Sand Ghat. However, as the digging depth will be restricted to 1.0 m only. This will be further replenished during rainy season. Balu Ghat will be worked systematically as the width is limited while length is much more. As the lease period is only 5 (Five) years, some of the area will be left un-worked at the end of lease period.

(i) Final Slope Angle to Be Adopted: Height of the bench is limited to 1 m while width of individual bench shall be kept 6.0 m. River bank side will be protected by working in dry part of the river and by leaving safety distance of the width of the river of 5 meter. Bank side natural slope will not be disturbed. This will prevent collapse of bank and erosion. However, the height of the bank with respect to river bed is varying from 3-4 meters.

(ii) During plan period workings will be carried out in the Balu ghat at a time of the Applied Area simultaneously. Scattered workings will ensure safety, remove congestion of vehicles and will have better control and management.

(iii) Ultimate Capacity of Dumps: There will be no OB removal / during the plan period. Therefore no proposal has been envisaged for its separate dumping. No outside material will be filled up in the extracted zone..

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

2.6 Anticipated life of mine

There is as such no specific life of the mine as the area under reference is inactive part of river bed of the river and its pale channels and whatever quantity of minor minerals are extracted from the Applied Area during five year; almost equal to extracted quantity of the same are replenished every year and the river bed area will be leveled & restored back.. However, as lease has been granted for 5 years, mining will be done for the allotted time.

2.6.1 Waste –disposal arrangement

No waste as such will be generated at the site as all materials are saleable. If, at all silt clay will be generated along with the minerals will be used to dispose off in the low lying areas as spread, where plantation will be done after spreading top soil on it.

2.7 GENERAL FEATURES

2.7.1 Land-use pattern

The mine lease area is flat river bed and river banks. There is no forest land or agriculture land in the mine lease area. The entire mining lease lies within River.

2.7.2 Surface drainage pattern

The mine site lie on the dry bed of Mohane River so there will be no impact on surface water.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

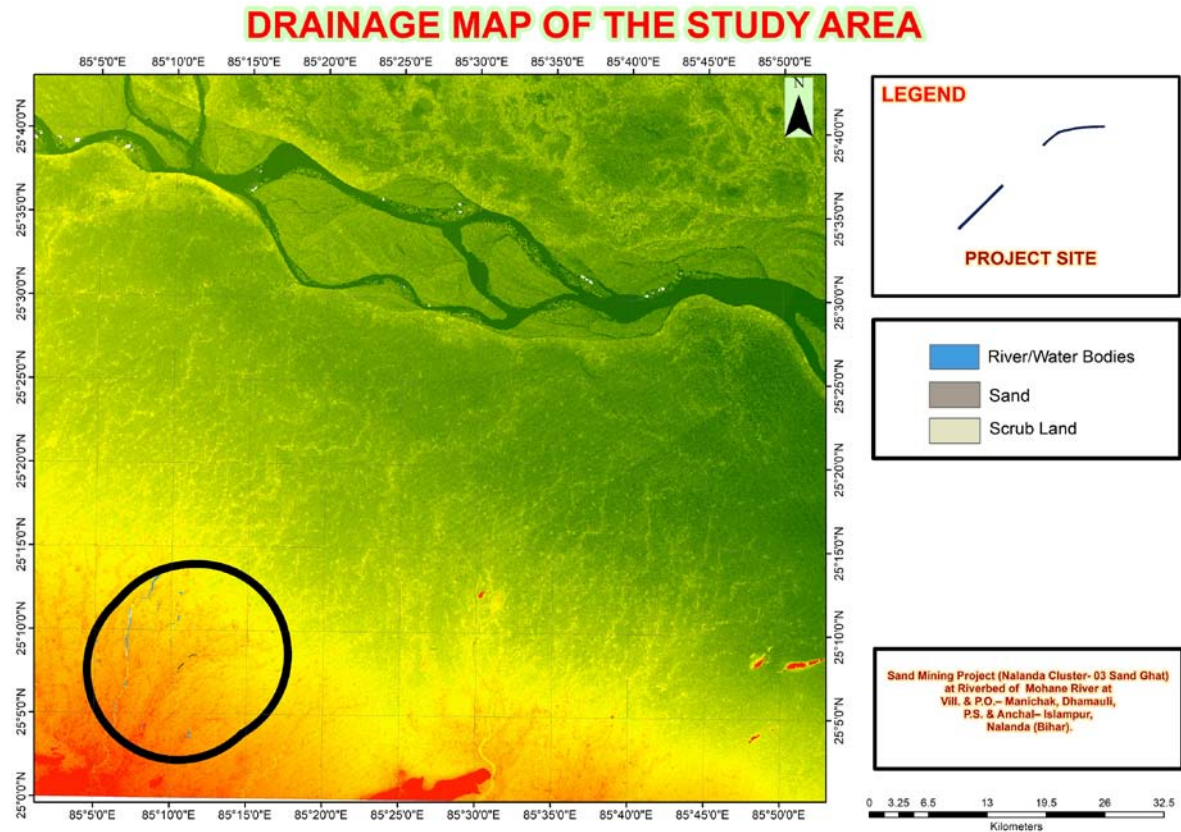


Fig-2.4, Drainage Map

2.7.3 Man power requirement

The manpower requirement for the proposed project will be around 25 who will be utilized for excavation & loading of minerals into trucks or tractor-trolleys. Break-up of Man-power requirement is given in below **Table 2.7**.

Table 2.7 Manpower Requirement

S. No.	Category	Numbers
1.	Administration	1
2.	Supervisor	1
3.	Skilled	3
4.	Un-skilled	20
TOTAL		25

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2.7.4 Water supply

Water requirement for the proposed project will be provided for the workers for drinking & domestic purpose. Water will also be provided for dust suppression. Fresh water will be only used for drinking purpose. The break up for water requirement is given below:

TABLE 2.8 - Water requirement

Activity	Calculation	Round off Figure in KLD
Drinking	@ 10 lpcd per labor $10 \times 25 / 1000 = 0.25$ KLD	0.25
Dust Suppression	Total approach road to be water sprinkled = (Mohane -1= 245m + Mohane -2= 425m) Total 670 m for Nalanda Cluster- 03 $670 \text{ m} \times 6 \text{ m} \times 0.5 \times 2 \text{ times} \times 4020 / 1000 = 4.02$ KLD	4.02
Plantation	64 plant (during plan period) @ 5 L/per plant= $64 \times 5 \text{ lts} = 320 / 1000 = 0.32$ KLD	0.32
Total		4.59 or 4.60 KLD

The water will be supplied from available sources from nearby village.

2.7.5 Site services

The following facilities/amenities will be extended by the mine management under site services:

- A temporary rest shelter will be provided for the workers near to the site for rest.
- Provisions will also be made for following in the rest shelter:
 - ❖ First aid box will be made available at the site. In emergency worker.
 - ❖ Sanitation facility i.e. septic tank or community toilet facility will be provided for the workers.
 - ❖ Mask and gloves distribution to the workers.

2.7.6 Extent of mechanization

The operation will be open cast semi- mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

2.7.7 Statutory requirements

It is accepted that effective resource management cannot be done in isolation. The proponent therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

Various acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of include inter alia, the following:

- Bihar Minor Mineral Concession Rule, 2014 amended till date.
- The Mines Act, 1952.
- The Mines and Mineral (Development and Regulation) Act, 1957.
- Mines Rules, 1955.
- Mineral Concession Rules, 1960.
- Mineral Conservation and Development Rules, 1988.
- The Water (Prevention and Control of Pollution) Act, 1974.
- The Air (Prevention and Control of Pollution) Act, 1981.
- The Environment (Protection) Act, 1986.
- The Forest (Conservation) Act, 1980.
- The Wildlife (Protection) Act, 1972.

3.0 General

The main objective of describing the environment which may be potentially affected, are i) to assess present environmental quality and the environmental impacts and ii) to identify environmentally significant factors that could preclude mine development. Mining activities affect the existing status of environment at site. In order to maintain the existing environmental status at mining site it is essential study existing environmental status and assess the impact of upcoming project on various environmental components. This chapter gives idea of description of environment status of the study area and this will be helpful for assessment of impact on the environment due to proposed mining activities. Baseline environmental status in and around proposed mining lease area describe the existing conditions of air, noise, water, soil, biological and socio-economic environment. The proposed project as a center, a radial distance of 10 km is considered as study area for baseline data collection and environmental monitoring. The data was collected for various environmental attributes so as to compute the impacts that are likely to arise due to proposed development activity.

3.0.1 Study area & study period

The proposed project as a center, a radial distance of 10 km is considered as study area for baseline data collection and environmental monitoring. The baseline environment quality was carried out over a radial distance of 10 km around the mining lease area during the months of March 2023 to May 2023.

3.0.2 Methodology

Base line attributes like ambient air, water, meteorology, noise, Soil, Ecology and Biodiversity & Socio Economy condition were collected as per approved term of reference. Secondary data was also collected from various government department as well as local people. Methodology adopted in this study is as follows.

- ✓ By setting up meteorological station near project site
- ✓ Collection of site specific meteorological data at the mine site.
- ✓ Installation of respiratory dust samplers (for PM₁₀, PM_{2.5}) at different location in the study area for the collection of primary air pollutant and analyze the existing air conditions.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

- ✓ Carrying out a detailed biological study for the Core and Buffer Zone
- ✓ Soil sample were collected from various location in the study area to analyze physical and chemical characteristics for assessment of impact on soil.
- ✓ Surface and Ground water samples were also collected from the various locations in the study area for analysing the existing water quality in the study area.
- ✓ Noise measurement has been done in core zone as well as buffer zone to analyze the existing situation in the study area.
- ✓ Literature review that includes identification of relevant data and articles from various publications, various government agencies and other sources for socio-economy, demography has been done with primary data collection in 10 km of the study area.
- ✓ Existing pollution load has been also identified in the buffer zone due to similar activities.
- ✓ Accordingly, field studies were carried out during the study period (March 2023 to May 2023) to establish the existing baseline conditions.

3.1 Land Environment of the Study area

Land use

Land use involves the management and modification of natural environment or wilderness in to built environment such as settlements and semi-natural habitats such as arable fields, pastures, and managed woods. It also has been defined as "the total of arrangements, activities and inputs that people undertake in a certain land cover type.

Land cover

Land cover is the physical material at the surface of the earth. Land covers include grass, asphalt, trees, bare ground, water, etc. Earth cover is the expression used by ecologist Frederick Edward Clements that has its closest modern equivalent being vegetation. The expression continues to be used by the Bureau of Land Management.

To assess the land use pattern surrounding the 10 km radius of the site, a detailed study was carried out. The land use pattern study reveals that the 10 km environs is predominantly agricultural land. The land use details are given in **Table- 3.1** and shown in **Figure-3.1**.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Table 3.1: Land Use Cover of the Project Study Area

Landuse Type	Area (Ha)
Scrub Land	3230.00
Forest	38.43
River/Water Bodies	229.62
Settlement	3780.47
Vegetation	80.16
Sand	520.06
Agriculture	32914.24
AREA	40792.98

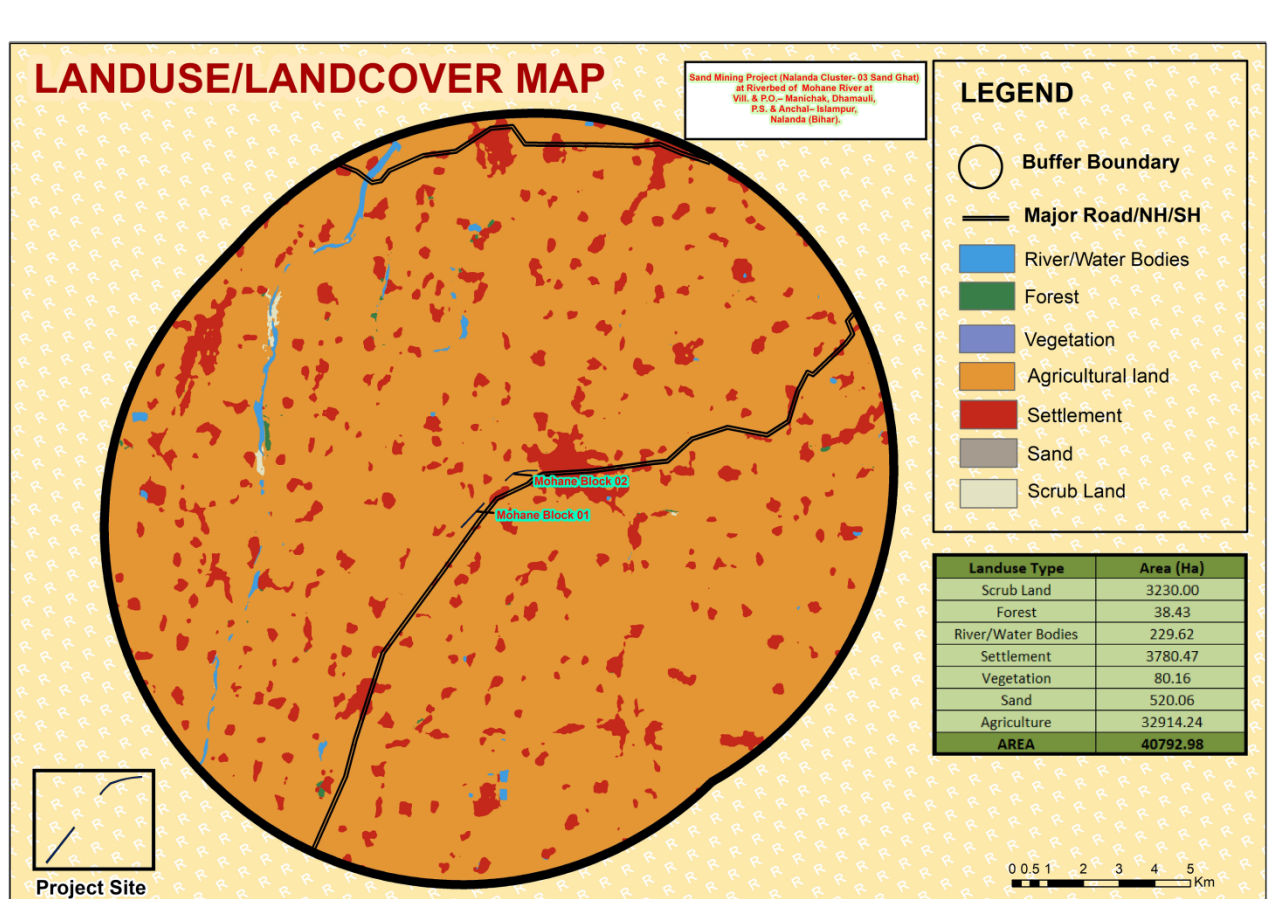


FIGURE 3.1: LAND USE COVER OF THE PROJECT STUDY AREA

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

3.2 Water Environment

Water quality assessment is one of the essential components of EIA study. Such assessment helps in evaluating the existing health of water body and suggesting appropriate mitigation measures to minimize the potential impact from development projects. Water quality of ground water has been studied in order to assess proposed water-uses in construction, drinking, cooling and horticulture purpose.

The water quality at the site and other locations within the 10 km impact zone was monitored during March 2023 to May 2023. The water sampling locations marked within the study are presented in **Table 3.2** and **Figure 3.2** and the result of the monitoring and analysis are presented in the **Table 3.3** showing Water Quality Monitoring Locations marked within the Study Area.

Table 3.2: Water Sampling Locations

SITE	Location	Distance, direction
Ground water		
GW1	Shiv Nagar Near Project Site (Mohane 1)	0.26 Km, NE
GW2	Attasaray Near Project Site (Mohane 2)	0.28 Km, N
GW3	Rustampur From Block (Mohane 1)	2.35 Km, W
GW4	Islampur From Block (Mohane 2)	1.55 Km, E
GW5	Mahmadpur From Block (Mohane 1)	3.40 Km, SE

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

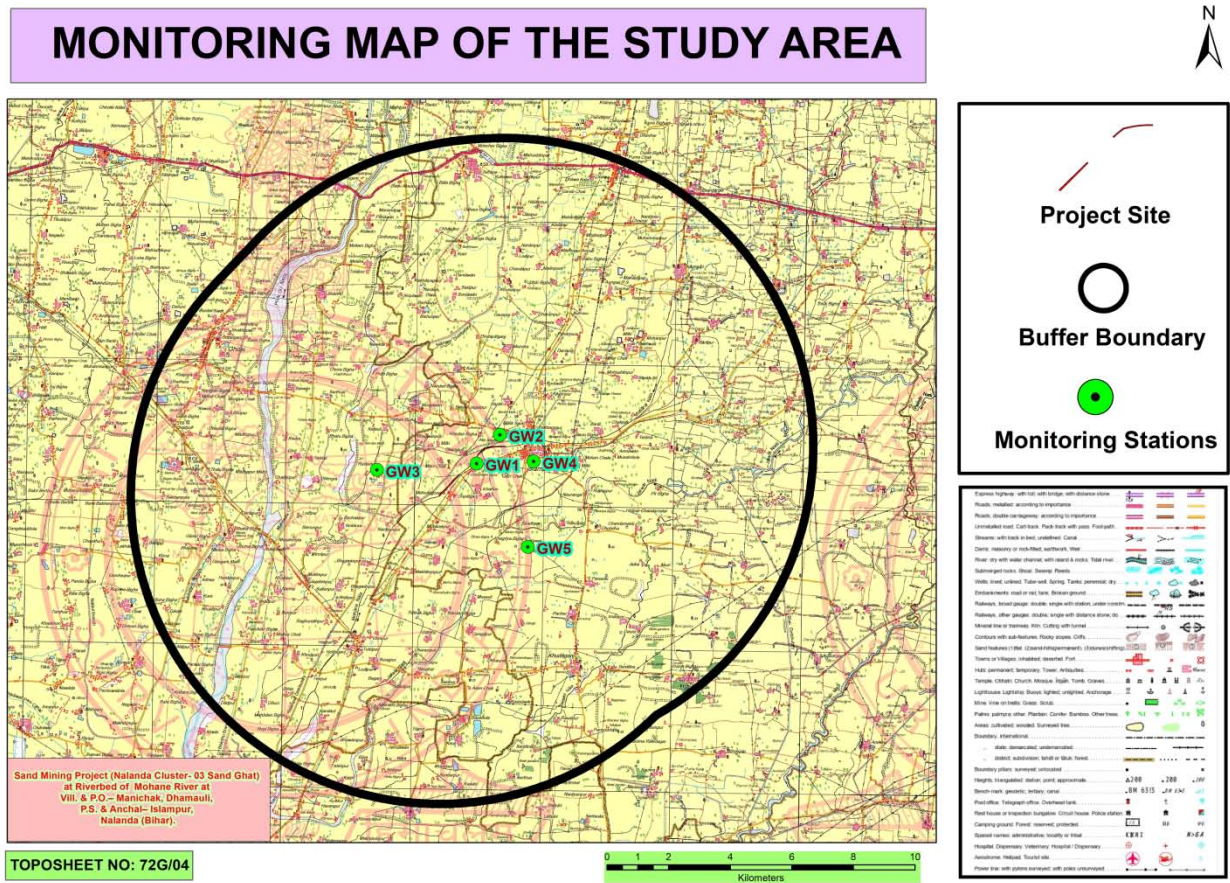


Figure 3.2 Water Sampling Location Map

Table 3.3 Ground Water Quality Monitoring Result

S. No.	Parameter	Unit	Limit (as per IS:10500)		GW1	GW2	GW3	GW4	GW5
			Desirable	Permissible					
1	Colour	Hazen	5	25	<2	<2	<2	<2	<2
2	Odour	-	Un	-	Un	Un	Un	Un	Un
3	Taste	-	Agreeable	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	5	10	<1	<1	<1	<1	<1
5	pH	-	6.5-8.5	No Relaxation	7.31	7.54	7.43	7.0	7.80
6	Total Hardness (as CaCO ₃)	mg/l	300	600	223	238	211	219	233
7	Iron (as Fe)	mg/l	0.3	1	0.08	0.09	0.07	0.07	0.07
8	Chlorides (as Cl)	mg/l	250	1000	28	35	31	36	39
9	Fluoride (as F)	mg/l	1	1.5	0.4	0.5	0.4	0.4	0.4

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

10	TDS	mg/l	500	2000	277	328	294	298	326
11	Calcium(as Ca ²⁺)	mg/l	75	200	59	57	48	41	53
12	Magnesium (as Mg ²⁺)	mg/l	30	100	26	23	22	20	25
13	Copper (as Cu)	mg/l	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01
14	Manganese(as Mn)	mg/l	0.1	0.3	0.01	0.02	0.01	0.01	0.01
15	Sulphate (as SO ₄)	mg/l	200	400	14	16	13	15	17
16	Nitrate(as NO ₃)	mg/l	45	No Relaxation	1.1	1.8	1.5	1.3	1.4
17	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
18	Mercury (as Hg)	mg/l	0.001	No Relaxation	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cadmium (as Cd)	mg/l	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
20	Selenium (as Se)	mg/l	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
22	Cyanide (as CN)	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
23	Lead (as Pb)	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
24	Zinc (as Zn)	mg/l	5	15	0.04	0.05	0.04	0.04	0.04
25	Anionic Detergent (as MBAS)	mg/l	0.2	1	<0.01	<0.01	<0.01	<0.01	<0.01
26	Chromium (as Cr ⁶⁺)	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01
27	Mineral oil	mg/l	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
28	Alkalinity as CaCO ₃	mg/l	200	600	193	218	198	200	207
29	Aluminium (as Al)	mg/l	0.03	0.2	<0.02	<0.02	<0.02	<0.02	<0.02
30	Boron (as B)	mg/l	1	5	0.1	0.1	0.1	0.1	0.1
Microbiological Parameter									
31	Total Coliform	MPN/1	10 , Max	-	<2	<2	7	<2	7

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

		00ml							
32	<i>E. coli</i>	E.coli/100ml	Absent	-	Absent	Absent	Absent	Absent	Absent

Observation:

Analysis of results of ground water reveals the following: -

- pH varies from 7.0 to 7.80
- Total hardness varies from 211 mg/l to 238 mg/l .
- Total dissolved solids vary from 277 mg/l to 328 mg/l.

The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500.

3.2 (b) SURFACE WATER

There is no surface water samples taken for the study area as the river is seasonal and not perennial so there is water in the river during the rainy season and in rest of the months it is dry channel.

3.2.1 Sampling frequency

Parameters for analysis of water quality were selected based on the utility of the particular source of water as per CPCB guidance. Surface water quality was monitored for parameters as per Methods of Monitoring & Analysis published by CPCB and it was rated according to the CPCB Water Quality Criteria against A, B, C, D & E class of water. Water samples were collected as Grab water sample from sampling location for complete physico-chemical and bacteriological tests respectively. The samples were analyzed as per standard procedure / method given in IS: 10500.

The surface water quality is compared with CPCB water quality criteria mentioned in Table :

Table 3.4, Water quality criteria as per Central Pollution Control Board

Designated-Best-Use	Class of water	Criteria
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Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Drinking Water Source without conventional treatment but after disinfection	A	Total Coliforms Organism MPN/100ml shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6mg/l or more Biochemical Oxygen Demand 5 days 20°C 2mg/l or less
Outdoor bathing (Organized)	B	Total Coliforms Organism MPN/100ml shall be 500 or less; pH between 6.5 and 8.5; Dissolved Oxygen 5mg/l or more Biochemical Oxygen Demand 5 days 20°C 3mg/l or less
Drinking water source after conventional treatment and disinfection	C	Total Coliforms Organism MPN/100ml shall be 5000 or less; pH between 6 to 9; Dissolved Oxygen 4mg/l or more Biochemical Oxygen Demand 5 days 20°C 3mg/l or less
Propagation of Wild life and Fisheries	D	pH between 6.5 to 8.5 Dissolved Oxygen 4mg/l or more Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	pH between 6.0 to 8.5 Electrical Conductivity at 25°C micro mhos/cm Max.2250 Sodium absorption Ratio Max. 26 Boron Max. 2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

As per the standard practice, one sample from each station was taken in January. Sampling was done by standard sampling technique as per the Standard Methods. Necessary precautions were taken for preservation of samples.

3.3 Air Environment

Meteorology is the key to understand the air quality. The essential relationship between meteorology and atmospheric dispersion involves the wind in the broadest sense. Wind

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

fluctuations over a very wide range of time, accomplish dispersion and strongly influence other processes associated with them.

A meteorological station was set up at the proposed mine premises. Meteorological data was generated during the pre-monsoon season and shown in **Table-3.5**.

The following parameters were recorded at hourly intervals continuously during monitoring period, except rainfall which was recorded on daily basis.

- Wind speed
- Wind Direction
- Air Temperature

Table-3.5, Summarized project site meteorological data for Pre-Monsoon Season

Month	Temperature °C		Wind Speed (Km/Hr)	
	Min	Max	Average	Max
March 2023	21	39	10.2	21.3
April 2023	26	43	13.4	25.9
May 2023	29	44	12.2	24.0

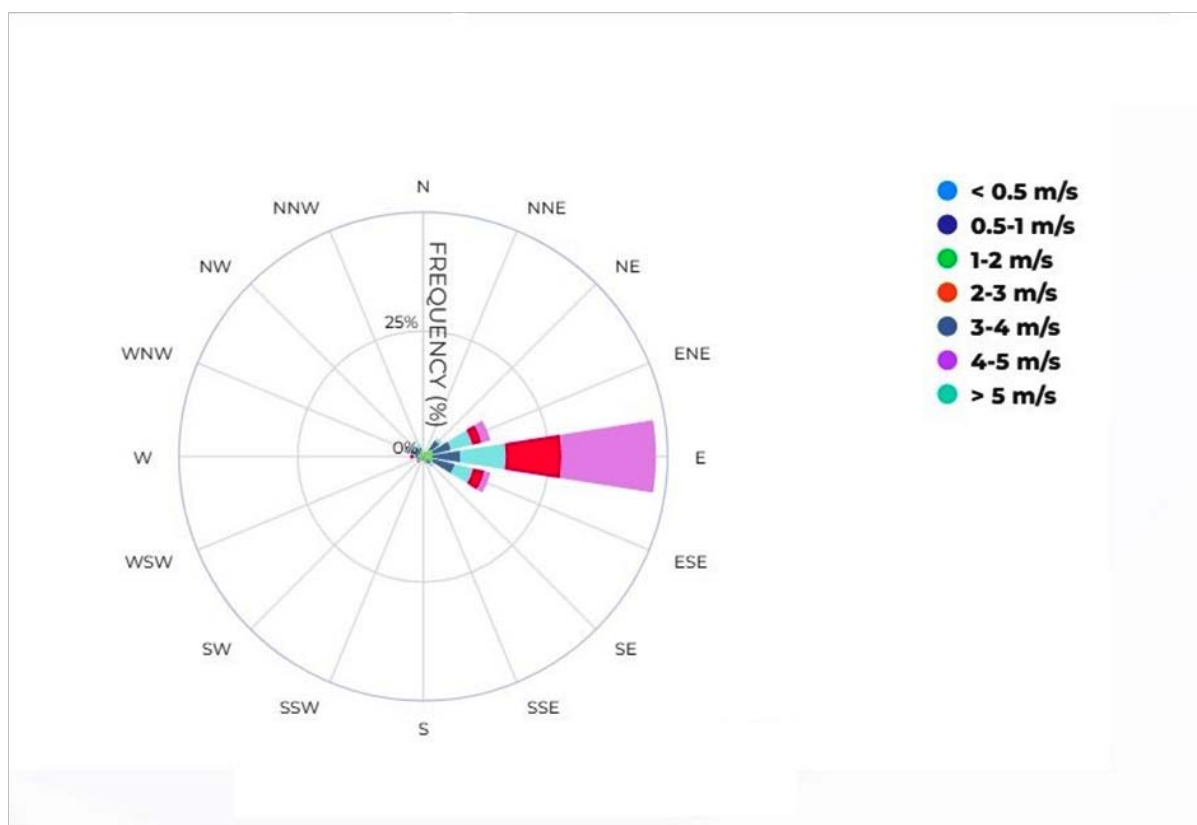


Figure 3.3: Wind Rose Diagram (at site)

3.3.1 Secondary Data Collected from IMD

Secondary data from IMD- Patna been collected for temperature, relative humidity, rainfall, wind speed and direction. The data at IMD is usually measured twice a day viz., at 0830 and 1730 hr.

The meteorological data is collected from the IMD- Patna is about 100 km from project site, which is the nearest operating IMD station to the project site. The data collected from IMD includes wind speed, wind direction, temperature, relative humidity and rainfall for the year 1981-2010. The monthly maximum, minimum and average values are collected for all the parameters except wind speed and direction.

When the data generated at project site is compared with the data recorded at IMD, it is observed that the data generated at the site is broadly in comparison with regional meteorology, except for minor variations as described above.

3.3.2 Comparison of primary and secondary data

The India Meteorological Department (IMD) records the data twice a day viz. 0830 hr and 1730 hr while the site-specific data has been recorded at an hourly interval. On comparison of site specific data generated for study period vis-à-vis the IMD data, slight variations were observed. The following observations are brought out:

When the data generated at project site is compared with the data recorded at IMD, it is observed that the data generated at the site is broadly in comparison with regional meteorology, except for minor variations as described above such as predominant wind direction is NW at IMD while at project site predominant wind direction is West.

3.3.3 Ambient Air Quality

The ambient air quality was monitored in the impact area as per MoEF& CC guidelines. The study area represents entirely rural environment. The prime objective of the baseline air quality study was to assess the ambient air quality of the mining lease area.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

3.3.4 Selection criteria for monitoring location

The baseline status of the ambient air quality has been assessed through a scientifically designed ambient air quality network. The design of monitoring network in the air quality surveillance programme has been based on the following consideration.

- Meteorological parameters including wind direction
- Topography of the study area
- Representative of regional background air quality for obtaining baseline status
- Representative of likely impact areas.

Ambient Air Quality Monitoring (AAQM) stations were set up at 08 locations with due consideration to the above mentioned points. AAQM locations were selected in downwind, upwind as well as crosswind direction of the proposed mining lease area covering core and buffer zones. The details of the monitoring stations are given in **Figure 3.4** and shown in **Table-3.6**.

Ambient air quality monitoring was carried out twice a week with a frequency of 24 hours for three months during the study period. The common air pollutant namely Particulate Matter-10 (PM₁₀) & PM_{2.5}, Sulphur-dioxide (SO₂) and Oxides of Nitrogen (NO₂) has been measured through a planned field monitoring.

The baseline values of the air pollutants of concern are presented in Tables below statistical parameters like minimum, maximum, average and 98th percentiles have been computed from the observed field data for all sampling stations and are given **Table-3.7, Table-3.8, Table-3.9 & Table 3.10**. These are compared with the standards prescribed by Central PollutionControl Board (CPCB) for industrial, residential and rural zone.

Table 3.6: Ambient Air Quality Monitoring Stations

Lolation Id	Location	Distance, direction
AAQ1	Shiv Nagar Near Project Site (Mohane 1)	0.26 Km, NE
AAQ2	Attasaray Near Project Site (Mohane 2)	0.28 Km, N
AAQ3	Rustampur From Block (Mohane 1)	2.35 Km, W

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

AAQ4	Serthua From Block (Mohane 2)	5.50 Km, WNW
AAQ5	Islampur From Block (Mohane 2)	1.55 Km,E
AAQ6	Mojaphra From Block (Mohane 2)	3.1 Km,N
AAQ7	Mahmadpur From Block (Mohane 1)	3.40 Km, SE
AAQ8	Sanda From Block (Mohane 1)	1.90 Km, SSW

MONITORING MAP OF THE STUDY AREA

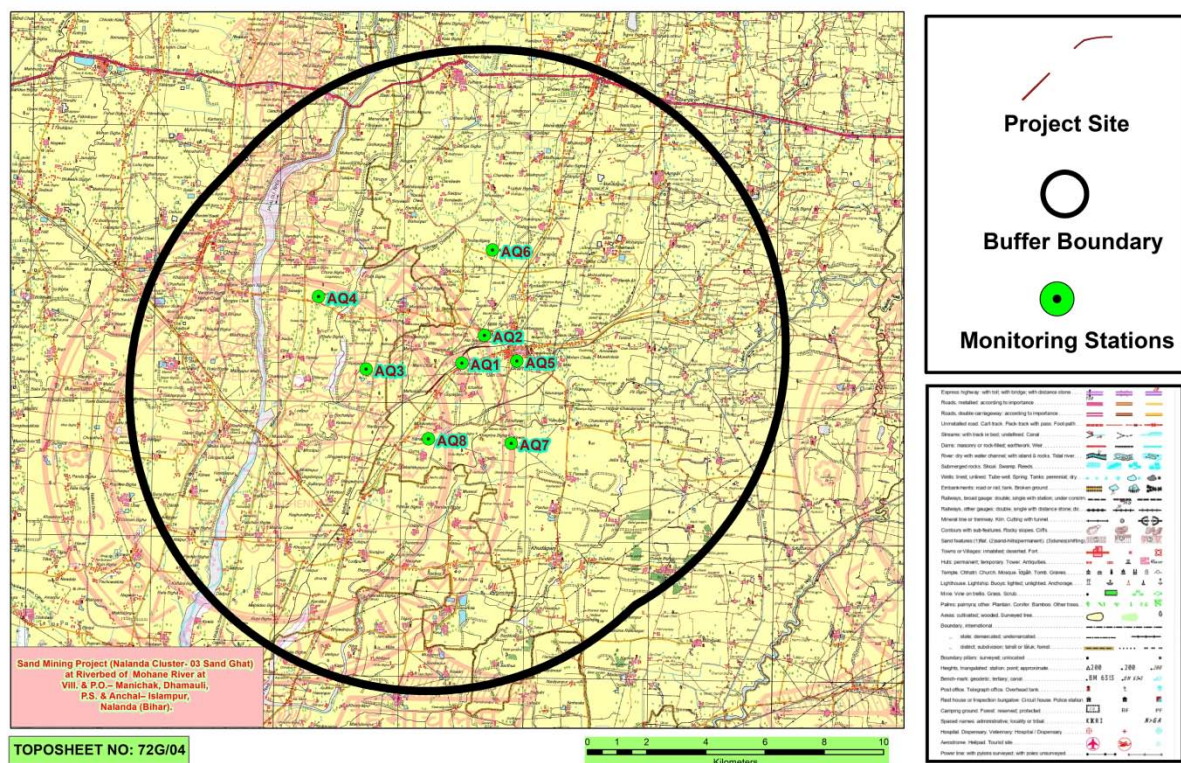


Figure 3.4 Ambient Air Quality Monitoring Stations

Table-3.7: Ambient Air Quality in the Study Area PM_{2.5}

Location Code	Name of the station	PM _{2.5} ($\mu\text{g}/\text{m}^3$)			
		Min	Max	Average	98 th Percentile
AAQ1	Shiv Nagar Near Project Site (Mohane 1)	30.27	41.68	36.18	40.88
AAQ2	Attasaray Near Project Site (Mohane 2)	31.3	44.8	39.9	43.5
AAQ3	Rustampur From Block (Mohane 1)	36.2	45.6	40.6	44.9

Chapter-III	BASELINE DATA DESCRIPTION
Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	

AAQ4	Serthua From Block (Mohane 2)	33	46.2	41.6	45.4
AAQ5	Islampur From Block (Mohane 2)	45.7	55.8	51.3	55.1
AAQ6	Mojaphra From Block (Mohane 2)	36.2	46.3	40.5	45.7
AAQ7	Mahmadpur From Block (Mohane 1)	38.1	48.6	42.8	47.7
AAQ8	Sanda From Block (Mohane 1)	40.3	52.3	45.8	51.6

Table-3.8: Ambient Air Quality in the Study Area PM10

Location Code	PM10 ($\mu\text{g}/\text{m}^3$)				
	Name of the station	Min	Max	Average	98 th Percentile
AAQ1	Shiv Nagar Near Project Site (Mohane 1)	53.55	69.12	63.04	68.09
AAQ2	Attasaray Near Project Site (Mohane 2)	59.9	78.5	69.9	76
AAQ3	Rustampur From Block (Mohane 1)	60.2	77	70.4	76.9
AAQ4	Serthua From Block (Mohane 2)	60.4	79.1	71.6	78.9
AAQ5	Islampur From Block (Mohane 2)	78.1	94.5	88.2	93.7
AAQ6	Mojaphra From Block (Mohane 2)	73.2	91.1	81.7	90.5
AAQ7	Mahmadpur From Block (Mohane 1)	71.3	87.6	81.9	86.5
AAQ8	Sanda From Block (Mohane 1)	70.7	85.5	79.1	84.8

Table-3.9: Ambient Air Quality in the Study Area SO2

Location Code	SO2 ($\mu\text{g}/\text{m}^3$)				
	Name of the station	Min	Max	Average	98 th Percentile
AAQ1	Shiv Nagar Near Project Site (Mohane 1)	3.8	8.08	5.98	7.95
AAQ2	Attasaray Near Project Site (Mohane 2)	4.9	8.6	6.6	8.6
AAQ3	Rustampur From Block (Mohane 1)	5	9	6.6	8.9
AAQ4	Serthua From Block (Mohane 2)	4.6	9.5	6.6	9
AAQ5	Islampur From Block (Mohane 2)	8.7	13.1	10.7	12.9

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AAQ6	Mojaphra From Block (Mohane 2)	4.3	7.6	5.7	7.4
AAQ7	Mahmadpur From Block (Mohane 1)	6.7	10.3	8.2	10.1
AAQ8	Sanda From Block (Mohane 1)	3.3	8.4	5.2	7.8

Table-3.10: Ambient Air Quality in the Study Area NO2

Location Code	NO2 ($\mu\text{g}/\text{m}^3$)				
	Name of the station	Min	Max	Average	98 th Percentile
AAQ1	Shiv Nagar Near Project Site (Mohane 1)	6.53	13.43	9.1	12.5
AAQ2	Attasaray Near Project Site (Mohane 2)	7.4	14	10.1	13.4
AAQ3	Rustampur From Block (Mohane 1)	7.9	15.9	10.5	14.9
AAQ4	Serthua From Block (Mohane 2)	7.5	15.1	10.3	14.3
AAQ5	Islampur From Block (Mohane 2)	18.5	25.1	21	24.5
AAQ6	Mojaphra From Block (Mohane 2)	6.1	15.7	9.8	14.3
AAQ7	Mahmadpur From Block (Mohane 1)	15.3	21.4	17.4	20.3
AAQ8	Sanda From Block (Mohane 1)	5	12.5	8.7	12.3

3.3.4.1 Baseline Scenario

Particulate Matter (PM_{2.5})

Fine particles include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. In general some of the important sources of particulate matter are mines. The following sources of particulate matter in the study area are identified:

- Emission due to vehicular movement
- Dust generation from ground or other mining operations

PM_{2.5} recorded within the study area was in the range of 30.27 $\mu\text{g}/\text{m}^3$ to 55.8 $\mu\text{g}/\text{m}^3$. Table 3.3 were compared with the National Ambient Air Quality Standards (NAAQS) and found that all sampling stations recorded in the study area are within the applicable limits i.e., 60 $\mu\text{g}/\text{m}^3$ for PM_{2.5} for industrial, residential, rural and other areas.

Suspended Particulate Matter (PM₁₀)

Suspended particulate matter in general terms is the particulate matter in suspension in ambient air. It includes dust, smoke etc. In general some of the important sources of suspended particulate matter are mines. The following sources of suspended particulate matter in the study area are identified:

- Emission due to vehicular movement
- Dust generation from ground or other mining operations

The minimum and maximum level of PM₁₀ recorded within the study area was in the range of 53.55 µg/m³ to 94.5 µg/m³. The 24 hourly average values of PM₁₀ were compared with the National Ambient Air Quality Standards (NAAQS) and found that all sampling stations recorded in the study area are within the applicable limits i.e., 100 µg/m³ for PM₁₀ in industrial, residential, rural and other areas.

Sulphur Dioxide (SO₂)

Sulphur dioxide gas is an inorganic gaseous pollutant. Sulphur dioxide emissions are expected to be emitted wherever combustion of any fuel containing Sulphur takes place. The Sulphur in the fuel will combine with oxygen to form Sulphur dioxide. The following sources of Sulphur dioxide in the study area are identified:

- Emissions from domestic/consumption of fuel (coal, diesel, etc)

Sulphur dioxide in atmosphere is significant because of its toxicity; Sulphur dioxide is capable of causing illness and lung injury. Further it can combine with water in the air to form toxic acid aerosols that can corrode metal surfaces, fabrics and the leaves of plants. Sulphur dioxide is an irritant to the eyes and respiratory system. Excessive exposure to Sulphur dioxide causes breathing related diseases as it affects the lungs.

The minimum and maximum concentration of SO₂ recorded within the study area was 3.3 µg/m³ to 13.1 µg/m³. The 24 hourly average values of SO₂ were compared with the National Ambient Air Quality Standards (NAAQS) and it was found that all sampling stations recorded values are below the applicable limits 80 µg/m³ for Residential, Rural and other areas.

Oxides of Nitrogen (NO₂)

The important sources of oxides of Nitrogen are from utilities and auto exhaust due to

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vehicular movement in mine lease area. The following sources of oxides of nitrogen in the study area are identified.

- Emissions from vehicular movements in the study area.

Oxides of Nitrogen in the presence of sunlight will undergo reactions with a number of organic compounds to produce all the effects associated with photochemical smog. NO₂ has inherent ability to produce deleterious effects by themselves like toxicity. It causes asphyxiation when its concentration is great enough to reduce the normal oxygen supply from the air. The minimum and maximum level of NO₂ recorded within the study area was in the range of was 6.6 µg/m³ to 17.50 µg/m³.

The 24 hourly average values of NO₂ were compared with the National Ambient Air Quality Standards (NAAQS) and it was found that all sampling stations recorded values are below the applicable limits 80 µg/m³ for Residential, Rural and other areas.

Ambient Air Quality in the Study Area, Free Silica

Location Code	Free Silica (µg/m ³)		
	Name of the station	Min	Max
AAQ1	Shiv Nagar Near Project Site (Mohane 1)	1.50	1.81
AAQ2	Attasaray Near Project Site (Mohane 2)	1.52	1.83
AAQ3	Rustampur From Block (Mohane 1)	1.49	1.70
AAQ4	Serthua From Block (Mohane 2)	1.54	1.90
AAQ5	Islampur From Block (Mohane 2)	1.41	1.71
AAQ6	Mojaphra From Block (Mohane 2)	1.57	1.92
AAQ7	Mahmadpur From Block (Mohane 1)	1.59	1.78
AAQ8	Sanda From Block (Mohane 1)	1.61	1.81

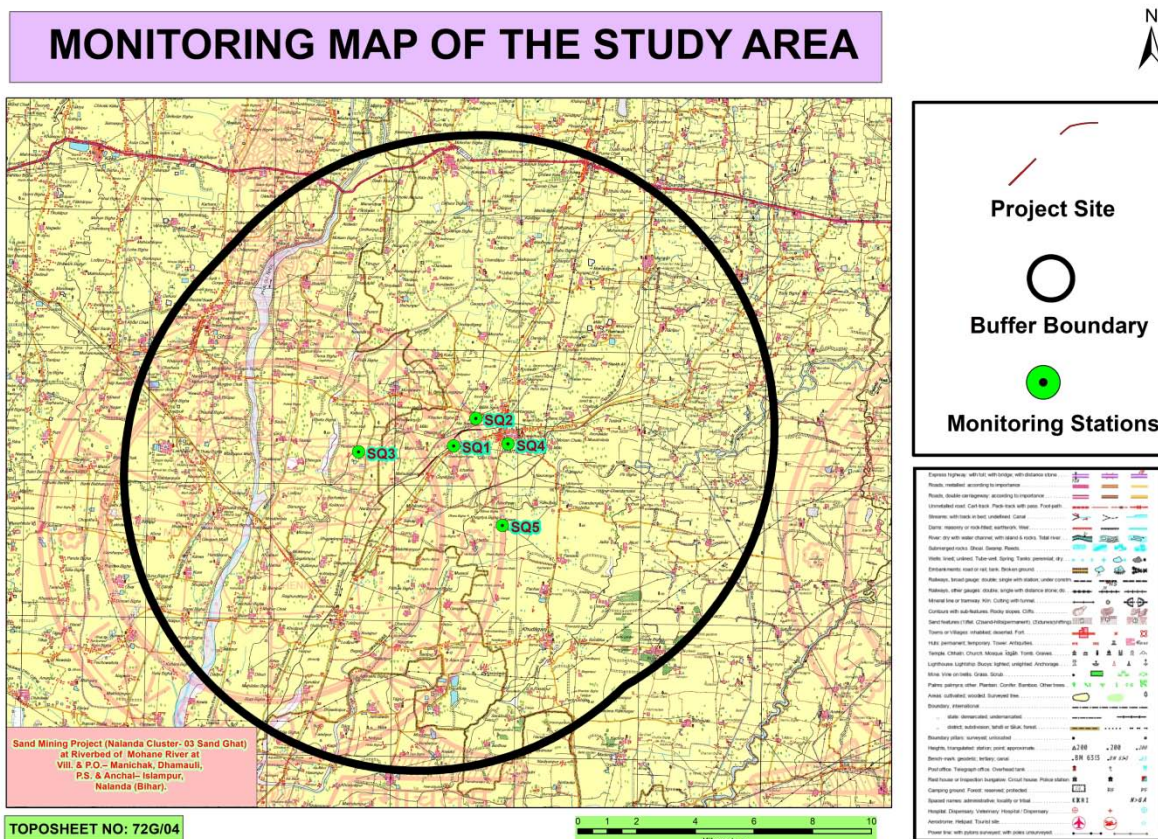
Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

3.4 SOIL ENVIRONMENT

Soil may be defined as a thin layer of earth's crust, a medium for the growth of plants. The soil characteristics include both physical and chemical properties. The soil survey and soil sample were carried out / collected to assess the soil characteristics of the study area. Soil samples were collected from 05 locations and analyzed as per CPCB norms. The soil sampling locations are marked in **Figure 3.5** and shown in **Table 3.11**. The physico-chemical characteristic of these soil samples is given in **Table 3.12**.

Table 3.11: Description of soil sampling locations

Location ID	Location	Distance, direction
SQ1	Shiv Nagar Near Project Site (Mohane 1)	0.26 Km, NE
SQ2	Attasaray Near Project Site (Mohane 2)	0.28 Km, N
SQ3	Rustampur From Block (Mohane 1)	2.35 Km, W
SQ4	Islampur From Block (Mohane 2)	1.55 Km, E
SQ5	Mahmadpur From Block (Mohane 1)	3.40 Km, SE



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Table 3.12: Physico-chemical properties of soil

S.No	Parameter	Unit	SQ-1	SQ-2	SQ-3	SQ-4	SQ-5
1	Texture	-	Sandy Loam	Sand	Sandy Loam	Sandy Loam	Loamy Sand
	Silt	%	17.2	2.23	13.5	11.2	2.15
	clay	%	18.7	6.92	16.3	15.2	10.2
	Sand	%	64.1	90.85	70.2	73.6	87.65
2	pH	-	7.90	8.29	8.27	8.12	8.03
3	Electrical Conductivity	µmhos/cm	186	180	154	172	126
4	Cation exchange capacity	meq/100 gm	13.34	11.43	13.5	12.01	11.1
5	Potassium	mg/kg	63.77	71.12	63.9	74.86	51.3
6	Sodium	mg/kg	86.24	55.31	25.6	62.67	19.2
7	Calcium	mg/kg	2292.56	1962.85	1788	2056.61	1359
8	Magnesium	mg/kg	160.76	144.01	516.3	152.13	487
9	Sodium Absorption Ratio	-	0.46	0.32	0.14	0.35	0.11
10	Water Holding Capacity	%	30.2	20.4	29.1	28.2	22.9
11	Porosity	%	38.9	50.24	42.1	40.3	48.16

Observations:

Samples collected from identified locations indicate the soil is sandy type and the pH value ranging from 7.90 to 8.29, which shows that the soil is alkaline in nature. Potassium is found to be from 51.3 mg/kg to 74.86 mg/kg

3.5 NOISE ENVIRONMENT

The noise levels within the study area were recorded using Sound Level Meter and noise monitoring results were compared with the Ambient Noise Quality Standard notified under Environment Protection Act, 1986. The levels recorded are as stated in **Table 3.13**. The noise level monitoring locations are marked in **Figure 3.6** and shown in **Table 3.14**.

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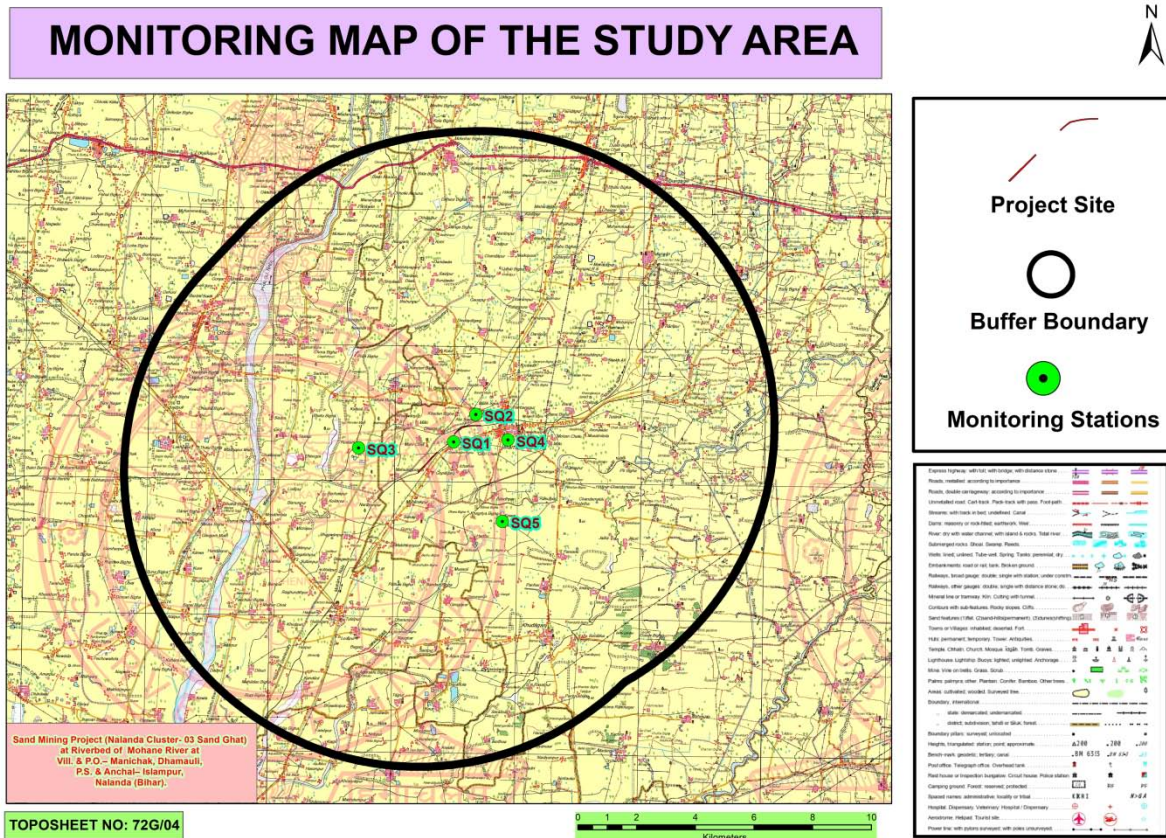


Figure 3.6 Noise Monitoring Stations

Table 3.13: Noise Quality Monitoring Stations

Location ID	Location	Distance, direction
NQ1	Project Site (Mohane 1)	-
NQ2	Attasaray Near Project Site (Mohane 2)	0.28 Km, N
NQ3	Rustampur From Block (Mohane 1)	2.35 Km, W
NQ4	Serthua From Block (Mohane 2)	5.50 Km, WNW
NQ5	Islampur From Block (Mohane 2)	1.55 Km, E
NQ6	Mojaphra From Block (Mohane 2)	3.1 Km, N
NQ7	Mahmadpur From Block (Mohane 1)	3.40 Km, SE
NQ8	Sanda From Block (Mohane 1)	1.90 Km, SSW

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Table 3.14: Noise Monitoring Results

S. No.	Locations		Equivalent Noise Level, dB (A)			
			Limit (as per CPCB Guidelines), Leq, dB(A)		Observed value Leq, dB(A)	
			DAY*	NIGHT*	DAY*	NIGHT*
1	NQ1	Residential Zone	55	45	51.7	40.2
2	NQ2	Residential Zone	55	45	52.1	41.8
3	NQ3	Silence zone	50	40	43.1	38.9
4	NQ4	Residential Zone	55	45	47.9	40.7
5	NQ5	Residential Zone	55	45	45.4	41.4
6	NQ6	Residential Zone	55	45	47.9	43.7
7	NQ7	Residential Zone	55	45	50.4	41.4
8	NQ8	Residential Zone	55	45	52.5	43.8

Results

Noise monitoring reveals that the minimum & maximum noise levels at day time were recorded as 43.1 dB(A) to 52.7dB(A) respectively. The minimum & maximum noise levels at night time were found to be 38.9 dB (A) & 43.8 dB(A) respectively.

There are several sources in the 10 km radius of study area, which contributes to the local noise level of the area. On the commencement of the project, the sound from traffic activities will add to the ambient noise level of the area. This will be kept under check by taking proper suggestive measures.

3.6 BIOLOGICAL ENVIRONMENT

3.6.1 Introduction

Biodiversity reflects the potential of a regional ecosystem and also biological communities influence and react sensitively to changes in the balance of environmental stresses.

Conservation of the biodiversity is essential for the sustainable development as it not only provides the food, fodder and medicine, but also contributes to improvement of essential environmental factors. Before starting any Environmental Impact Assessment study, it is

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necessary to identify the baseline of relevant environmental parameters which are likely to be affected as a result of the operation of the proposed project. A similar approach has been adopted for conducting the study on Biological Environment for this Project.

The study was conducted in the project area to assess all the details the biological environment especially flora and fauna for their diversity. The present study is highlighting the various issues pertaining to floristic diversity and the faunal wealth in the core area *i.e.* Banka sand mine block 5 and buffer zone *i.e.* area within 10 km radius.

3.6.2 Description of the Study Area

Nalanda Cluster- 03 Sand Ghat mine is located on the dry river bed of Mohane River over an area of 6.40 ha in Nalanda district of Bihar. Nalanda district lies under the Seismic Zone-IV as per IS-1893 (part-1)-2002. Forest of Nalanda district comprises of tropical moist deciduous vegetation due to high temperature and humidity. Land development refers to the activities which increase the fertility of land leading to higher productivity. There is no any Eco-sensitive zone such as Wildlife Sanctuary and National Parks present in the buffer zone while one Jungle Jhari forest are present in the buffer zone.

The proposed project site lies in the Agro climatic zone of the middle gangetic plain region. It is a fertile alluvial plain drained by the Ganga and its tributaries. Rice, maize, millets in kharif, wheat, gram, barley, peas, mustard and potato in Rabi are important crops and the village people are mainly agrarian.

Forests

The Forest cover in the state, based on interpretation of satellite data of Nov 2008 Jan 2009 is 6845 km² which is 7.27 % of the states geographical area. In terms of forest canopy density classes the state has 231 sq km very dense forest, 3,280 sq km moderately dense forest, 3,334 sq km open forest. In terms of forest canopy density classes, the Banka district under very dense forest area is nil, 111 sq km area under moderately dense forest and 110 sq km area under open forest. Therefore, approx. 7.31 % of the total geographical area of the district is under forest cover. (Source: India State of Forest Report Bihar, 2011; http://fsi.nic.in/cover_2011/bihar.pdf)

3.6.3 Methodology

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The ecological survey has been conducted during winter season for the collection of primary data of flora and fauna, and other environmental observations from Core zone (at the project site) and Buffer zone (around 10 km radius of the project site).

A detailed survey was conducted to evaluate floral and faunal composition of the study area. Primary data on floral and faunal composition was recorded during site visits and secondary data was collected from the Forest Department and published relevant literature. The mode of data and parameters considered during field investigations is given in Table below.

Table 3.15 Mode of data collection & parameters considered during the Survey

Aspect	Data	Mode of data collection	Parameters monitored
Terrestrial Ecology	Primary data collection	By field survey	Floral and Faunal diversity
	Secondary data collection	*Forests department of Bihar *Department of Forest and Environment Bihar *Published literatures	Floral and Faunal diversity and study of vegetation, forest type, importance etc.

Vegetation Study

Vegetation study was conducted in both buffer and core zones. The inventory of plants was prepared through the field visits, personal interviews and group discussion with local people. The species composition revealed that plants are deciduous in nature and in the shrub form.

Any species which could not be identified in the field was brought back (flowers/leaves specimen) and cross-checked with the help of expert institutions/resource person.

a) Flora and Fauna of Core Zone

Flora

The core zone comprises flat sandy bed of Mohane River where mining operation is proposed. Most of the areas nearby the project site are waste land. No major trees were recorded from the core zone except some seasonal grasses. No ecologically sensitive plant species has been reported from this area. Some grass species were recorded from core zone such as Doob and Motha etc.

Fauna

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Core zone of the proposed mine area is dry sand bed and devoid of any major plant species, So, mammals and avifauna were not observed during the study period. There is no any aquatic habitat in the core zone, so aquatic flora and fauna also does not exist.

b) Flora and Fauna of Buffer Zone

Flora

Terrestrial Flora

The buffer zone devoid of any forest except in the western part of 10 km buffer at approx. 7 km there is one Jungle jhari forest area. Common trees such as Mahua (*Madhuca indica*) Mango (*Mangifera Indica*), Arjun (*Terminalia arjuna*), Neem (*Azadirachta indica*), Peepal (*Ficus religiosa* (L.)), Palas (*Butea monosperma*) Tal (*Borassus flabellifer*), Babool (*Acacia nilotica*), Khejri (*Prosopis cineraria*) have been found on the edges of agricultural fields along pathways and along the river bank. Detail list of flora has been enumerated in the tables below.

Table 3.16 List of Trees in Study area

S. No.	Botanical Name	Common Name	Family
1.	<i>Terminalia elliptica</i>	Asan	Combretaceae
2.	<i>Azadirachta indica</i>	Neem	Meliaceae
3.	<i>Melia azedarach</i> (L.)	Bakain	Meliaceae
4.	<i>Syzygium cumini</i> (L.) Skeels	Jamun	Myrtaceae
5.	<i>Ziziphus mauritiana</i> Lam.	Ber	Rahmnaceae
6.	<i>Emblica officinalis</i> Gaertn.	Amla	Euphoriaceae
7.	<i>Diospyros melanoxylon</i>	Kend	Ebenaceae
8.	<i>Tamarindus indica</i> (L.)	Emli	Caesalpiniaceae
9.	<i>Aegle marmelos</i> Linn	Bel	Rutaceae
10.	<i>Mangifera indica</i>	Mango	Anacardiaceae
11.	<i>Diospyros melanoxylon</i>	Kend	Ebenaceae
12.	<i>Borassus flabellifer</i>	Tal	Arecaceae
13.	<i>Terminalia arjuna</i>	Arjun	Combretaceae

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S. No.	Botanical Name	Common Name	Family
14.	<i>Artocarpus heterophyllus</i>	Katahal	Moraceae
15.	<i>Acacia nilotica</i>	Babool	Fabaceae
16.	<i>Bombax ceiba</i>	Semal	Malvaceae
17.	<i>Madhuca indica</i>	Mahua	Sapotaceae
18.	<i>Dalbergia sissoo</i>	Sisam	Fabaceae
19.	<i>Ficus benghalensis</i>	Bargad	Moraceae
20.	<i>Neolamarckia cadamba</i>	Kadamb	Rubiaceae
21.	<i>Ficus religiosa</i>	Pipal	Moraceae

Source: <http://forest.bih.nic.in/>

Table 3.17 List of Shrubs and Herbs in Study area

S.No.	Botanical name	Local name	Family
1.	<i>Colebrookia oppositifolia, Smith.</i>	Kalabansa	Lamiaceae
2.	<i>Holarrhena pubescens</i>	-	Apocynaceae
3.	<i>Lantana camara</i>	Raimuniya	Verbenaceae
4.	<i>Bambusa gracilis</i>	Bamboo	Gramineae
5.	<i>Bambusa gracilis</i>	Bamboo	Gramineae
6.	<i>Jasminum sambac</i>	Jasmin	Apocynaceae
7.	<i>Hibiscus rosasinensis</i>	China rose	Malvaceae
8.	<i>Achyranthes aspera</i>	Apamarg/Chirchita	Amaranthaceae
9.	<i>Justicia Adhatoda</i>	Adusa	Acanthaceae
10.	<i>Anona squamosa</i>	Sitaphal	Anonaceae
11.	<i>Butea monosperma</i>	Palas	Fabaceae
12.	<i>Argemone mexicana</i>	Siarkanta	Papaveraceae
13.	<i>Calotropis gigantea</i>	Aak	Apocynaceae
14.	<i>Thevetia peruviana</i>	Kaner	Apocynaceae

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S.No.	Botanical name	Local name	Family
15.	<i>Euphorbia nivulia</i>	-	Euphorbiaceae

Fauna

Terrestrial Fauna

Table 3.18 Faunal Species observed in the Buffer Zone

S. No	English Name	Scientific Name	Schedule Status (WPA-1972)	IUCN Status
Mammals				
1	Indian porcupine	<i>Hystrix indica</i>	IV	LC
2	Indian hare	<i>Lepus nigricollis</i>	IV	LC
3	Indian Grey Mongoose	<i>Herpestes edwardsii</i>	IV	LC
4	Fulvous Fruit Bat	<i>Rousettus leschenaulti</i>	V	LC
5	Indian Field Mouse	<i>Mus booduga</i>	V	LC
6	Three-striped Palm Squirrel	<i>Funambulus palmarum</i>	II	LC
7	Bandicoot Rat	<i>Bandicota indica</i>	V	LC
8	Indian Flying Fox Bat	<i>Pteropus giganteus</i>	V	LC
Avian Fauna				
1	Rock Pigeon	<i>Columba livia</i>	IV	LC
2	House Sparrow	<i>Passer domesticus</i>	IV	LC
3	Common Babbler	<i>Turdoides caudata</i>	IV	LC
4	Jungle Babbler	<i>Turdoides striata</i>	IV	LC
5	Scarlet Mini vet	<i>Pericrocotus flammeus</i>	IV	LC
6	Jungle Crow	<i>Corvus macrorhynchos</i>	IV	LC
7	Red Jungle fowl	<i>Gallus gallus</i>	IV	LC
8	Jungle Bush Quail	<i>Perdica asiatica</i>	IV	LC
9	Jungle Myna	<i>Acridotheres fuscus</i>	IV	LC
10	Common Myna	<i>Acridotheres tristis</i>	IV	LC
11	Common Quail	<i>Coturnix coturnix</i>	IV	LC
Reptiles and Lizards				
1	Rat Snake	<i>Ptyas mucosus</i>	II	NA
2	Common Krait	<i>Bungarus caeruleus</i>	IV	NA
3	Rock Lizard	<i>Agama buberculatus</i>	-	DD
4	Chameleon	<i>Chamelion calcarata</i>	II	DD
5	Indian House Gecko	<i>Hemidactylus flaviviridis</i>	-	DD
Source: Present Survey Data and Data supported by Department of Forest, Bihar.				
IUCN Red list: LC: Least Concern, VU: Vulnerable, NE: Not Evaluated, EN:				

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S. No	English Name	Scientific Name	Schedule Status (WPA-1972)	IUCN Status
Endangered, NT: Near Threatened.				

Management Scheme/Plan (point wise) of flora and fauna of the buffer zone & core zone of the mine area.

Core zone: Lease area is located on the dry river bed of Mohane river and any animal species belongs to Schedule-I category as per Wildlife Protection Act (1972) are not observed.

Buffer zone: As per Wildlife Protection Act (1972), no Schedule-I species were observed from buffer zone. However, all care will be taken for protection of others flora & fauna also, if any in the lease hold area.

3.7 Socio-Economic Environment

Demography& Socio-Economic Features

Introduction

Sand Mining Project, Nalanda Cluster-03 Sand Ghat fall in Vill. & P.O. - Manichak, Dhamauli, P.S. & Anchal - Islampur, District Nalanda, State: Bihar. The proposed project activity will be carried out on the dry river bed.

The proposed project of 6.4 Ha is of river bed sand mining and falls under Category “B1” as per by EIA Notification, 2006 and its subsequent amendments, Ministry of Environment Forests & Climate Change, GOI.

Need for the Project and its Importance to the Country & Region

The project lies on the beds of Mohane River. The sediment in the form of river bed material (RBM) deposited in the last many years had changed the shape of the river bed from a valley to a raised land. Hence, it is necessary to remove the materials so that the stream gets channelized. Due to rapid infrastructure development in India, the demand of construction material has increased. To supply this demand, mining of sand is done. This project operation will provide employment directly and indirectly to the people residing in vicinity, thus improving the Socio- economic status of the area.

Demography

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Demography is one of the important indicators of environmental health of an area. It includes population, sex ratio, number of households, literacy, population density, etc. In order to assess the Demographic & Socio-economic features of the area, Census data 2011, for 3 concerned districts named Nalanda, Gaya and Jehanabad of Bihar state was compiled and placed in the form of tabulation and graphical representation.

Demography of the Nalanda District

As per the census records 2011, the total population of the District is 28,77,653 persons consisting of 14,97,060 males and 13,80,593 females respectively. The decadal variation of the district has been seen at 21.4% during the decade 2001-2011. The urban area of the district has attained a higher decadal variation of 29.5% as compared to that of rural area at 20.0 percent.

As per 2011 census sex ratio of the district is 922 females per 1,000 males. The same for rural and urban areas of the district stands at 924 and 913 respectively. It is observed from the census records 2011 that sex ratio of population in the age group 0-6, which works out to 931, followed by 932 and 925 for rural and urban part of Nalanda district. As per the census records 2011, it is observed that the proportion of scheduled castes and scheduled tribe's population to the total population of the district is found to be only 21.12% and 0.05% respectively. For rural and urban areas, the respective proportion of scheduled castes and scheduled tribes to the total population of the district comes out to be 22.94% & 0.05% and 11.47% & 0.05% respectively.

As per the census records 2011, it is observed that the district has registered a literacy rate of 64.43%. As regards to rural and urban areas of the district the literacy rates have been registered 62.4% and 74.7% respectively. As per the census records 2011, the work participation rate (WPR) in the district is 26.1% for main workers and 11.6% for marginal workers. Proportion of non-workers in the district is 62.3%.

Religions

The population of the Nalanda district during 2011 was 2,877,653. Hindus constitute 92.78 percent (2,669,775 persons) of the population in the district followed by Muslims 6.88 percent (198,033 persons). All other four major religious communities have almost negligible percentages.

Mother Tongue

As population of the Nalanda district during 2001 census was 23,70,528. As per distribution of different mother tongues (languages mentioned under 8th Schedule of Constitution of India) as returned during the 2001 Census for Nalanda district, Hindi, the main mother tongue of the district was returned by 93.0 percent (22,04,025 persons) of the population. The corresponding percentage for the Urdu, the second most prominent language spoken in Nalanda district, was 6.9 percent (163,263 persons). Speakers of other Scheduled languages were very thin in number than the two described above.

Methodology

In order to assess the Demographic & Socio-economic features along with the 10km distance based on field surveys and public consultations undertaken during the baseline field study period and Census records 2011, for Nalanda, Gaya and Jehanabad districts of Bihar state was compiled and placed in the form of tabulation and graphical representation. Entire study area is observed predominantly rural and no town was found in the study area.

Purpose of the Study

Socio- economic study was conducted to establish the baseline demographic features and impacts due to this ‘Sand Ghat Project’, as operation phase of any project invariably leads to Socio-economic changes. The construction phase of any kind of project could lead to unplanned and haphazard development of slums of various size and description with little or rudimentary.

Description of Social Environment

As per the Census Records 2011, the study area has a total of 241 villages and 02 towns named Ekangar Sarai (CT) and Islampur (NP) under 3 main districts namely Nalanda, Gaya and Jehanabad districts in Bihar state. Overall study area villages are falling mainly under Sixteen (16) no of tehsils namely Karai Parsurai (03 villages), Nagar Nausa (04 villages), Harnaut (02 villages), Chandi (02 villages), Hilsa (01 village), Ekangarsarai (37 villages and 01 town), Islampur (74 villages and 01 town) tehsils of Nalanda district, Tikari (02 villages), Belaganj (05 villages), Khizirsarai (07 villages) and Imamganj (01 village) tehsils of Gaya district and Jehanabad (04 villages), Kako (04 villages), Modanganj (10 villages), Ghoshi (44 villages) and Hulasganj (41 villages) of Jehanabad districts respectively in Bihar state. Only about 3 villages were found as uninhabited villages in the 10km radial study zone.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Population Distribution (10 km)

As per the Census Records 2011, the total population of 10 km study zone was recorded as 499019 persons of 243 villages/towns of 3 Districts named Nalanda, Gaya and Jehanabad in Bihar state. Male-female wise total population was recorded as 259390 males (52.0%) and 239629 (48.0%) females respectively. Total number of 'Households' was observed as 80112 in the 10 km radius study zone. Scheduled Caste ('SC') population was observed as 93318 persons consisting of 48011 males (51.5%) and 45307 females (48.5%) in the 10 km radial study zone. Scheduled Tribes ('ST') population was also observed as 463 persons (0.1%) consisting of 234 males (50.5%) and 229 females (49.5%) in the 10 km study zone. The child population (0-6 Age) of the study area is recorded as 87837 (17.6%) and comprising of 45745 (52.0%) males & 42092 (48.0%) females respectively.

Rural and Urban population distribution is shown in **Table 3.19, Figure 3.7 & 3.8** given as follows;

Table 3.19: Rural & Urban Population Distribution (10 km)

Zone	No. of Households	Total Population			Scheduled Castes			Scheduled Tribes		
		Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
Rural	72897	456706	237516	219190	88985	45856	43129	447	225	222
%age	91.0%	91.5%	91.6%	91.5%	95.4%	95.5%	95.2%	96.5%	96.2%	97.0%
Urban	7215	42313	21874	20439	4333	2155	2178	16	9	7
%age	9.0%	8.5%	8.4%	8.5%	4.6%	4.5%	4.8%	3.5%	3.8%	3.0%
Total (10km)	80112	499019	259390	239629	93318	48011	45307	463	234	229
Source-Census of India, 2011										

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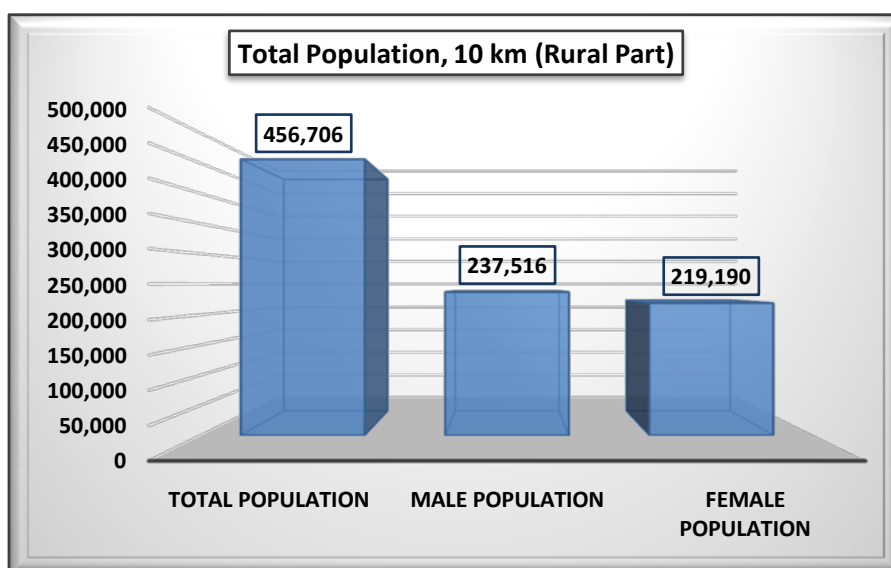


Figure 3.7: Male-Female Wise Rural Population Distribution

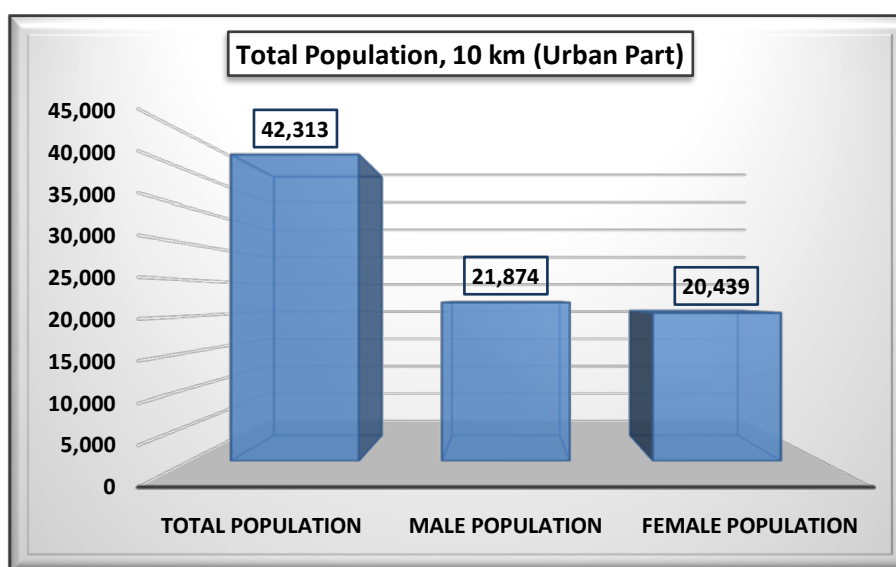


Figure 3.8: Male-Female Wise Urban Population Distribution

Village wise details of population distribution are given as follows in Table 3.20 & 3.21.

Table 3.20: Village-wise Population Distribution (10km)

Name of Village/Town	No of Households	Total Population			Child Population (0-6 Years)		
		Persons	Male	Female	Persons	Male	Female
1. District Nalanda, Bihar							
Tulsipur	76	328	182	146	46	25	21
Khanpura	65	393	202	191	58	31	27
Rasulpur	215	1233	639	594	187	96	91
Rampur	647	4039	2123	1916	831	431	400
Mohiuddinpur 1	378	2201	1138	1063	583	308	275
Shahpur	136	752	369	383	160	77	83

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Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	

Lodipur 1	678	3531	1851	1680	646	339	307
Rupaspur	519	4078	2096	1982	631	343	288
Mobarakpur	168	1020	546	474	167	89	78
Madhopur 1	1809	10089	5265	4824	1748	897	851
Ganga Bigha	109	643	342	301	127	71	56
Harbanspur	124	717	382	335	136	77	59
Chaurai	241	1313	700	613	223	111	112
Keshopur	372	2221	1141	1080	386	198	188
Mozafabad	332	2205	1142	1063	371	193	178
Mirzapur	149	976	489	487	289	135	154
Telhara	1075	6236	3161	3075	948	483	465
Telhara Sani	Uninhabited Village						
Ranipur	131	604	296	308	102	54	48
Gayaspur	448	2706	1384	1322	452	228	224
Bala Bigha	179	1173	579	594	234	106	128
Libri	88	485	244	241	73	42	31
Siriawan	345	2310	1201	1109	430	209	221
Tarupur	40	357	186	171	46	27	19
Naraich	140	782	387	395	186	84	102
Barhauna	212	1279	621	658	183	110	73
Bishunpur	160	1263	655	608	235	126	109
Soniawan	505	2721	1414	1307	323	175	148
Daniawan	237	1243	641	602	177	97	80
Kotri	104	532	268	264	96	48	48
Lodipuer	289	1898	989	909	316	172	144
Bijokhari	167	994	527	467	148	83	65
Narainpur	434	2699	1396	1303	406	194	212
Nisanpura	213	1571	823	748	295	146	149
Madhopur Amnar	170	1187	656	531	175	98	77
Tarapur	299	1698	861	837	344	191	153
Dhawan	314	1900	992	908	291	171	120
Maharaj Ganj	173	1080	555	525	192	92	100
Mojahidpur	292	1812	950	862	344	182	162
Amnar Khas	542	3203	1679	1524	535	283	252
Gomahar	367	2353	1242	1111	403	222	181
Jagai	116	796	410	386	126	66	60
Sultanpur	114	691	357	334	91	52	39
Muhammadpur 1	405	2491	1277	1214	400	197	203
Rasalpur 1	154	951	495	456	151	79	72
Mundipur	677	3749	1930	1819	579	297	282
Aungari	921	5261	2779	2482	885	458	427
Jamuawan	645	3974	2143	1831	780	401	379
Muhammadpur 2	232	1564	793	771	303	137	166
Ekangar Sarai (CT)	1127	6672	3518	3154	980	541	439
Kobil	457	2945	1507	1438	495	271	224
Mozafra	621	4025	2166	1859	719	410	309
Ratanpura	214	1477	796	681	206	132	74
Dariapur	209	1171	591	580	146	77	69
Paharpura	115	689	347	342	146	80	66
Khurrampur	195	1407	756	651	264	131	133
kasmiri Chak	149	1153	600	553	165	100	65
Sukhchain	14	101	49	52	8	6	2

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Biswak	392	2918	1557	1361	477	260	217
Milki	48	340	191	149	42	24	18
Bakaur	392	2602	1365	1237	378	204	174
Paithana	396	2707	1437	1270	494	249	245
Chhota Paithana	336	2105	1091	1014	360	189	171
Jaitipur	119	762	384	378	152	80	72
Dhekwaha	666	4017	2113	1904	689	383	306
Akbarpur	88	509	280	229	83	40	43
Pachloa	369	2572	1357	1215	441	233	208
Bhabhauna	88	520	286	234	106	58	48
Chandanpura	121	870	479	391	144	85	59
Merhi	254	1707	867	840	319	161	158
Sarthua Khurd	159	1136	594	542	212	106	106
Sonawan	353	2247	1168	1079	423	222	201
Danapur	174	1025	535	490	183	96	87
Ashrafpur	174	1224	656	568	246	134	112
Makhdumpur	228	1477	768	709	248	124	124
Ranipur	773	5060	2569	2491	751	363	388
Shekh Ali	175	1226	649	577	226	119	107
Tetaria	78	579	303	276	88	40	48
Chandharia	385	2511	1286	1225	404	195	209
Faridpur	154	975	509	466	164	84	80
Amnawan	421	2517	1315	1202	387	214	173
Barai	440	2927	1529	1398	452	229	223
Mohiuddinpur 2	90	740	406	334	125	79	46
Harbanspur	145	977	507	470	189	104	85
Kasimpur	102	669	363	306	82	42	40
Korawan	231	1314	710	604	242	124	118
Bardih	647	3956	2128	1828	618	344	274
Dhamauli	156	1060	557	503	172	81	91
Mani Chak	152	1064	563	501	170	87	83
Bhagwanpur	166	1033	540	493	101	48	53
Mahuari	382	2591	1368	1223	446	231	215
Ichahos	631	3856	2005	1851	665	319	346
Mobarakpur	289	1919	1013	906	345	181	164
Sanda	559	3801	2004	1797	653	351	302
Makhdumpur 2	167	1200	625	575	282	146	136
Herthu	482	2857	1503	1354	485	249	236
Islampur	661	4290	2233	2057	805	416	389
Dhobidiha	436	2973	1541	1432	602	323	279
Hajipur Chandar Natai	125	936	478	458	208	109	99
Chandar Natai Kharij Jama	105	782	415	367	162	81	81
Akuri	228	1744	916	828	396	210	186
Jaitia	172	996	481	515	199	90	109
Parsarai	296	1727	888	839	246	124	122
Muhammadpur 3	196	1355	693	662	323	161	162
Kewai	174	1172	597	575	242	127	115
Gangti	239	1504	796	708	271	155	116
Panhar Kharij Jama	71	494	262	232	125	69	56
Panhar	1729	11229	5859	5370	2183	1102	1081
Daura	219	1509	789	720	320	164	156
Maidi Kalan	353	2330	1195	1135	448	217	231

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Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	

Sohjana	368	2284	1183	1101	442	231	211
Maidi Khurd	209	1508	789	719	286	152	134
Chaurawan	269	1842	949	893	392	206	186
Kapasias	425	2904	1530	1374	581	313	268
Rupaspur	127	717	363	354	156	77	79
Gauspur	46	362	190	172	36	19	17
Pilkhi	394	2587	1334	1253	551	263	288
Bauri Dih	952	5451	2837	2614	891	470	421
Makhdumpur 3	95	584	320	264	138	87	51
Bardaha	695	4079	2102	1977	792	411	381
Rasalpur 2	255	1477	775	702	285	155	130
Sarthua	723	4526	2325	2201	959	484	475
Pachrukha	95	530	285	245	95	44	51
Mousuma Ramnagar	64	438	230	208	61	32	29
Islampur (NP)	6088	35641	18356	17285	6201	3185	3016
2. District Gaya, Bihar							
Benipur	92	548	279	269	90	40	50
Sivnagar	517	3150	1585	1565	605	295	310
Mahammadpur 1	84	498	255	243	70	39	31
Dharahra	151	1104	561	543	222	102	120
Fatehpur	100	659	343	316	138	73	65
Shankarpur	169	1223	642	581	256	147	109
Lachhmipur	867	5577	2894	2683	1047	517	530
Kusdehra	40	132	60	72	18	10	8
Tajpur	62	393	215	178	47	26	21
Jamuawan	493	2774	1437	1337	437	240	197
Bara	204	1396	723	673	226	119	107
Fatehpur	154	799	406	393	84	32	52
Mananpur	136	746	375	371	138	64	74
Khushahapur	225	1378	709	669	241	118	123
Dharahra	100	528	258	270	81	39	42
3. District Jehanabad, Bihar							
Beni Chak	24	138	69	69	31	15	16
Jamuawan	405	2576	1356	1220	470	255	215
Bajitpur	96	596	318	278	122	61	61
Ismailpur	352	1831	966	865	330	191	139
Tetaria	245	1451	768	683	319	172	147
Mehdi chak	42	329	179	150	58	39	19
Khopura	110	779	409	370	148	78	70
Habibpur	37	212	116	96	47	30	17
Dayalpur	113	718	326	392	134	65	69
Pewta	115	639	327	312	121	69	52
Mandai	86	574	289	285	116	60	56
Barki Akauna	309	2033	1065	968	399	202	197
Chhotki Akauna	144	775	414	361	71	42	29
Pariawan	444	2579	1323	1256	452	223	229
Bandhuganj	726	4048	2112	1936	698	352	346
Karhara	212	1278	650	628	264	133	131
Mahammadpur	65	412	224	188	63	39	24
Daharpur Milik	31	233	123	110	34	19	15
Korman	354	2200	1109	1091	448	226	222
Atiawan	279	1768	940	828	367	195	172

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Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Samarqand	128	711	348	363	147	74	73
Gandhar Arazi	Uninhabited Village						
Shahpur	550	3470	1779	1691	622	299	323
Sahpur Milik	Uninhabited Village						
Metara	338	2145	1133	1012	319	178	141
Dhorhari	122	651	324	327	84	35	49
Sarhad	41	241	136	105	36	19	17
Nawada	14	54	25	29	6	4	2
Bazidpur	112	696	370	326	99	59	40
Bharthu	617	3987	2061	1926	648	360	288
Nandna	221	1341	711	630	146	69	77
Karwa	63	440	226	214	55	31	24
Dariapur	205	1361	689	672	204	100	104
Madhopur	261	1930	1014	916	352	195	157
Mirza Bigha	243	1283	669	614	260	135	125
Birupur	255	1561	805	756	254	131	123
Kewali	149	947	480	467	144	74	70
Ghoshi	1210	7261	3765	3496	1210	644	566
Shekhpura	212	1258	656	602	256	132	124
Siripur	182	1111	582	529	186	93	93
Mehdipur	61	396	191	205	78	41	37
Damaua	104	610	319	291	90	40	50
Gorsar	391	2488	1280	1208	502	275	227
Chhapanna	148	935	500	435	174	101	73
Khiraui	269	1556	807	749	294	148	146
Daharpur	209	1298	652	646	246	115	131
Ahiasa	505	3274	1686	1588	671	341	330
Mohiuddinpur 3	185	1207	601	606	230	116	114
Bishunpur	76	499	247	252	90	48	42
Selai	303	1988	1067	921	368	216	152
Golakpur	1361	8122	4222	3900	1386	734	652
Lakhawar	1778	11737	6011	5726	2226	1183	1043
Mohammadpur	42	235	129	106	32	17	15
Uber	706	4431	2330	2101	716	392	324
Gamharpur	139	824	442	382	147	76	71
Babhanpura	276	1826	963	863	358	179	179
Korra	575	3417	1720	1697	616	312	304
Lodipur 2	187	1310	661	649	294	148	146
Faridpura	140	874	465	409	144	78	66
Bakhra	148	960	505	455	139	83	56
Shaho Bigha	610	3790	1974	1816	759	401	358
Dhuriari	503	3315	1744	1571	628	318	310
Chiri	495	2981	1552	1429	511	239	272
Dumri	129	1019	525	494	212	112	100
Sarwan	178	1160	605	555	179	91	88
Sisara	115	797	432	365	135	76	59
Ginji	215	1530	789	741	283	162	121
Kandaul	570	3024	1590	1434	523	297	226
Harpur	43	260	138	122	47	27	20
Bihta	306	1830	962	868	312	176	136
Dihuri	332	2173	1106	1067	382	182	200
Dadpur	158	885	455	430	131	71	60

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Bauri	683	4162	2177	1985	767	407	360
Khudaur	421	2458	1279	1179	483	244	239
Raghunathpur	161	989	507	482	155	83	72
Narma	464	2483	1335	1148	391	226	165
Mokimpur	195	1186	632	554	204	112	92
Mirzapur	131	786	393	393	132	62	70
Sakiyawan	270	1632	816	816	253	126	127
Lodipur 3	122	913	472	441	163	87	76
Tesaur	249	1688	887	801	324	168	156
Sarthua	343	2450	1243	1207	442	211	231
Murgawan	984	6004	3163	2841	875	454	421
Batauli	108	751	402	349	98	55	43
Jagatpur	82	563	300	263	91	50	41
Kataulia	329	2201	1171	1030	340	178	162
Rustampur	562	3606	1843	1763	694	362	332
Kokarsa	854	5111	2686	2425	834	442	392
Walipur	306	1938	1013	925	306	156	150
Lat	179	1380	706	674	199	99	100
Utimpur	132	885	464	421	145	70	75
Bolakpur	163	932	473	459	142	73	69
Surajpur	640	4183	2190	1993	703	387	316
Lodipur 4	162	1286	698	588	181	105	76
Baigni	175	1178	610	568	194	91	103
Naugarh	318	1936	971	965	323	159	164
Dabthu	461	3473	1812	1661	636	320	316
Musauli	180	1205	618	587	216	114	102
Gangapur	347	2278	1206	1072	396	206	190
Saidpur	79	510	257	253	86	33	53
Khauna	289	1780	941	839	360	193	167
Kasiyawan	249	1421	731	690	277	129	148
Keur	613	3895	2007	1888	697	355	342
TOTAL (10km)	80112	499019	259390	239629	87837	45745	42092

Source-Census of India, 2011

Table 3.21: Village-wise SC & ST Population Distribution (10km)

Name of Village/Town	Total Population	Scheduled Castes			Scheduled Tribes		
		Persons	Males	Females	Persons	Males	Females
1. District Nalanda, Bihar							
Tulsipur	328	117	68	49	0	0	0
Khanpura	393	77	41	36	1	0	1
Rasulpur	1233	98	46	52	0	0	0
Rampur	4039	645	339	306	0	0	0
Mohiuddinpur 1	2201	862	446	416	3	1	2
Shahpur	752	364	182	182	4	1	3
Lodipur 1	3531	864	443	421	0	0	0
Rupaspur	4078	1060	503	557	1	1	0
Mobarakpur	1020	42	22	20	0	0	0
Madhopur 1	10089	967	496	471	5	3	2
Ganga Bigha	643	91	56	35	0	0	0
Harbanspur	717	78	40	38	0	0	0
Chaurai	1313	196	109	87	0	0	0

Chapter-III	BASELINE DATA DESCRIPTION
Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	

Keshopur	2221	747	391	356	0	0	0
Mozafrabad	2205	13	8	5	0	0	0
Mirzapur	976	411	206	205	0	0	0
Telhara	6236	714	361	353	1	0	1
Telhara Sani	Uninhabited Village						
Ranipur	604	120	60	60	0	0	0
Gayaspur	2706	325	161	164	0	0	0
Bala Bigha	1173	119	55	64	0	0	0
Libri	485	65	34	31	0	0	0
Siriawan	2310	900	468	432	0	0	0
Tarupur	357	0	0	0	0	0	0
Naraich	782	63	34	29	0	0	0
Barhauna	1279	292	147	145	84	35	49
Bishunpur	1263	69	30	39	0	0	0
Soniawan	2721	404	211	193	1	0	1
Daniawan	1243	170	84	86	0	0	0
Kotri	532	139	68	71	0	0	0
Lodipuer	1898	238	116	122	0	0	0
Bijokhari	994	98	58	40	0	0	0
Narainpur	2699	346	192	154	3	1	2
Nisanpura	1571	491	255	236	0	0	0
Madhopur Amnar	1187	532	278	254	0	0	0
Tarapur	1698	235	113	122	7	5	2
Dhawan	1900	299	152	147	0	0	0
Maharaj Ganj	1080	69	34	35	0	0	0
Mojahidpur	1812	349	182	167	0	0	0
Amnar Khas	3203	415	203	212	0	0	0
Gomahar	2353	433	219	214	0	0	0
Jagai	796	59	33	26	0	0	0
Sultanpur	691	53	25	28	0	0	0
Muhammadpur 1	2491	444	216	228	1	1	0
Rasalpur 1	951	325	159	166	0	0	0
Mundipur	3749	470	252	218	0	0	0
Aungari	5261	894	476	418	0	0	0
Jamuawan	3974	890	482	408	1	1	0
Muhammadpur 2	1564	172	90	82	1	0	1
Ekangar Sarai (CT)	6672	640	322	318	13	6	7
Kobil	2945	796	397	399	1	1	0
Mozafra	4025	278	143	135	0	0	0
Ratanpura	1477	214	113	101	0	0	0
Dariapur	1171	202	96	106	0	0	0
Paharpura	689	187	91	96	0	0	0
Khurrampur	1407	32	19	13	0	0	0
kasmiri Chak	1153	105	48	57	0	0	0
Sukhchain	101	5	3	2	0	0	0
Biswak	2918	368	197	171	0	0	0
Milki	340	143	77	66	0	0	0
Bakaur	2602	832	433	399	1	0	1
Paithana	2707	489	244	245	0	0	0
Chhota Paithana	2105	493	272	221	0	0	0
Jaitipur	762	316	163	153	0	0	0
Dhekwaha	4017	536	279	257	2	2	0

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Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	

Akbarpur	509	72	37	35	0	0	0
Pachloa	2572	527	276	251	0	0	0
Bhabhauna	520	14	9	5	0	0	0
Chandanpura	870	37	19	18	38	21	17
Merhi	1707	119	69	50	0	0	0
Sarthua Khurd	1136	101	61	40	0	0	0
Sonawan	2247	331	160	171	0	0	0
Danapur	1025	442	238	204	1	0	1
Ashrafpur	1224	246	136	110	0	0	0
Makhdumpur	1477	251	133	118	0	0	0
Ranipur	5060	1036	517	519	1	1	0
Shekh Ali	1226	219	108	111	0	0	0
Tetaria	579	59	33	26	0	0	0
Chandharia	2511	615	327	288	0	0	0
Faridpur	975	29	15	14	0	0	0
Amnawan	2517	399	211	188	0	0	0
Barai	2927	153	79	74	0	0	0
Mohiuddinpur 2	740	143	80	63	0	0	0
Harbanspur	977	272	133	139	0	0	0
Kasimpur	669	162	81	81	0	0	0
Korawan	1314	216	106	110	0	0	0
Bardih	3956	772	411	361	0	0	0
Dhamauli	1060	143	75	68	0	0	0
Mani Chak	1064	156	78	78	0	0	0
Bhagwanpur	1033	64	39	25	0	0	0
Mahuari	2591	441	234	207	0	0	0
Ichahos	3856	974	502	472	0	0	0
Mobarakpur	1919	518	276	242	0	0	0
Sanda	3801	716	379	337	0	0	0
Makhdumpur 2	1200	563	285	278	0	0	0
Herthu	2857	477	248	229	0	0	0
Islampur	4290	1112	559	553	0	0	0
Dhobidiha	2973	270	131	139	0	0	0
Hajipur Chandar Natai	936	100	49	51	0	0	0
Chandar Natai Kharij Jama	782	363	194	169	0	0	0
Akuri	1744	109	62	47	0	0	0
Jaitia	996	193	94	99	4	1	3
Parsarai	1727	394	183	211	0	0	0
Muhammadpur 3	1355	164	78	86	0	0	0
Kewai	1172	71	37	34	0	0	0
Gangti	1504	306	178	128	0	0	0
Panhar Kharij Jama	494	218	117	101	1	1	0
Panhar	11229	2704	1388	1316	1	1	0
Daura	1509	365	188	177	0	0	0
Maidi Kalan	2330	659	339	320	1	0	1
Sohjana	2284	731	384	347	0	0	0
Maidi Khurd	1508	60	33	27	0	0	0
Chaurawan	1842	402	212	190	0	0	0
Kapasias	2904	384	210	174	1	1	0
Rupaspur	717	66	31	35	0	0	0
Gauspur	362	72	37	35	0	0	0
Pilkhi	2587	187	100	87	0	0	0

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Bauri Dih	5451	1057	547	510	1	0	1
Makhdumpur 3	584	259	143	116	0	0	0
Bardaha	4079	610	314	296	0	0	0
Rasalpur 2	1477	249	135	114	0	0	0
Sarthua	4526	1262	634	628	0	0	0
Pachrukha	530	73	39	34	0	0	0
Mousuma Ramnagar	438	32	15	17	0	0	0
Islampur (NP)	35641	3693	1833	1860	3	3	0
2. District Gaya, Bihar							
Benipur	548	177	91	86	1	0	1
Sivnagar	3150	1214	602	612	0	0	0
Mahammadpur 1	498	11	5	6	50	27	23
Dharahra	1104	94	55	39	0	0	0
Fatehpur	659	292	146	146	1	1	0
Shankarpur	1223	722	374	348	4	3	1
Lachhmipur	5577	808	403	405	10	4	6
Kusdehra	132	124	58	66	0	0	0
Tajpur	393	80	43	37	0	0	0
Jamuawan	2774	897	475	422	0	0	0
Bara	1396	356	180	176	0	0	0
Fatehpur	799	381	191	190	2	2	0
Mananpur	746	609	306	303	0	0	0
Khushahalpur	1378	142	70	72	4	1	3
Dharahra	528	306	146	160	0	0	0
3. District Jehanabad, Bihar							
Beni Chak	138	0	0	0	0	0	0
Jamuawan	2576	817	433	384	8	2	6
Bajitpur	596	89	48	41	1	1	0
Ismailpur	1831	755	394	361	0	0	0
Tetaria	1451	60	30	30	0	0	0
Mehdi chak	329	0	0	0	0	0	0
Khopura	779	105	56	49	0	0	0
Habibpur	212	26	20	6	0	0	0
Dayalpur	718	213	76	137	0	0	0
Pewta	639	201	111	90	0	0	0
Mandai	574	32	17	15	0	0	0
Barki Akauna	2033	120	65	55	0	0	0
Chhotki Akauna	775	0	0	0	0	0	0
Pariawan	2579	448	243	205	0	0	0
Bandhuganj	4048	273	144	129	0	0	0
Karhara	1278	610	310	300	1	1	0
Mahammadpur	412	26	18	8	0	0	0
Daharpur Milik	233	0	0	0	0	0	0
Korman	2200	489	246	243	0	0	0
Atiawan	1768	611	325	286	18	10	8
Samarqand	711	475	228	247	1	1	0
Gandhar Arazi	Uninhabited village						
Shahpur	3470	957	480	477	1	1	0
Sahpur Milik	Uninhabited village						
Metara	2145	304	155	149	0	0	0
Dhorhari	651	182	85	97	1	0	1
Sarhad	241	160	92	68	0	0	0

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Nawada	54	0	0	0	0	0	0
Bazidpur	696	124	63	61	0	0	0
Bharthu	3987	904	458	446	0	0	0
Nandna	1341	95	53	42	0	0	0
Karwa	440	0	0	0	0	0	0
Dariapur	1361	192	94	98	0	0	0
Madhopur	1930	393	207	186	0	0	0
Mirza Bigha	1283	247	127	120	0	0	0
Birupur	1561	167	85	82	0	0	0
Kewali	947	260	130	130	0	0	0
Ghoshi	7261	1684	869	815	2	2	0
Shekhpura	1258	440	213	227	0	0	0
Siripur	1111	67	39	28	0	0	0
Mehdipur	396	11	4	7	0	0	0
Damaua	610	181	90	91	0	0	0
Gorsar	2488	630	334	296	1	0	1
Chhapanna	935	58	30	28	0	0	0
Khiraui	1556	226	125	101	0	0	0
Daharpur	1298	50	23	27	0	0	0
Ahiasa	3274	581	308	273	0	0	0
Mohiuddinpur 3	1207	273	123	150	1	1	0
Bishunpur	499	0	0	0	0	0	0
Selai	1988	350	187	163	0	0	0
Golakpur	8122	2020	1044	976	65	33	32
Lakhawar	11737	1774	934	840	3	2	1
Mohammadpur	235	0	0	0	0	0	0
Uber	4431	1245	654	591	0	0	0
Gamharpur	824	50	24	26	0	0	0
Babhanpura	1826	520	261	259	0	0	0
Korra	3417	518	267	251	0	0	0
Lodipur 2	1310	280	140	140	0	0	0
Faridpura	874	120	68	52	0	0	0
Bakhra	960	63	31	32	0	0	0
Shaho Bigha	3790	620	325	295	0	0	0
Dhuriari	3315	788	412	376	0	0	0
Chiri	2981	719	371	348	2	0	2
Dumri	1019	160	86	74	0	0	0
Sarwan	1160	122	72	50	0	0	0
Sisara	797	143	77	66	0	0	0
Ginji	1530	395	206	189	0	0	0
Kandaul	3024	1217	647	570	7	6	1
Harpur	260	0	0	0	0	0	0
Bihta	1830	337	185	152	0	0	0
Dihuri	2173	655	339	316	2	1	1
Dadpur	885	264	124	140	5	3	2
Bauri	4162	978	507	471	4	3	1
Khudaur	2458	496	248	248	1	1	0
Raghunathpur	989	381	189	192	0	0	0
Narma	2483	187	94	93	5	4	1
Mokimpur	1186	31	18	13	0	0	0
Mirzapur	786	265	139	126	0	0	0
Sakiyawan	1632	328	169	159	5	3	2

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Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	

Lodipur 3	913	221	117	104	0	0	0
Tesaur	1688	446	235	211	38	16	22
Sarthua	2450	267	136	131	0	0	0
Murgawan	6004	609	305	304	6	4	2
Batauli	751	0	0	0	0	0	0
Jagatpur	563	89	47	42	0	0	0
Kataulia	2201	587	310	277	3	0	3
Rustampur	3606	462	216	246	9	4	5
Kokarsa	5111	902	464	438	2	1	1
Walipur	1938	326	151	175	0	0	0
Lat	1380	188	93	95	0	0	0
Utimpur	885	115	62	53	0	0	0
Bolakpur	932	75	36	39	0	0	0
Surajpur	4183	935	494	441	1	0	1
Lodipur 4	1286	346	178	168	0	0	0
Baigni	1178	258	121	137	2	1	1
Naugarh	1936	542	271	271	1	1	0
Dabthu	3473	565	292	273	0	0	0
Musauli	1205	55	28	27	0	0	0
Gangapur	2278	418	205	213	1	0	1
Saidpur	510	182	89	93	0	0	0
Khauna	1780	481	273	208	5	3	2
Kasiyawan	1421	418	207	211	0	0	0
Keur	3895	1164	607	557	7	4	3
TOTAL (10km)	499019	93318	48011	45307	463	234	229
<i>Source-Census of India, 2011</i>							

Sex Ratio

The ‘Sex Ratio’ of the study area is a numeric relationship between females and males of an area and bears paramount importance in the present day scenario where the un-ethnic pre-determination of sex and killing of female foetus during pregnancy is practiced by unscrupulous medical practitioners against the rule of the law of the country. It is evident that by contrast the practice of female foeticide is not prevalent in the study area.

The ‘Sex Ratio’ was observed as 922 females per 1000 males in the District. The same was recorded as 924 females for every 1000 males in the study area. The child (0-6 yr age) sex ratio of the stud area was observed as 920 female children per 1000 male children.

The village wise male-female population distribution for the study area is depicted and shown by graphical representation in **Figure 3.9**.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

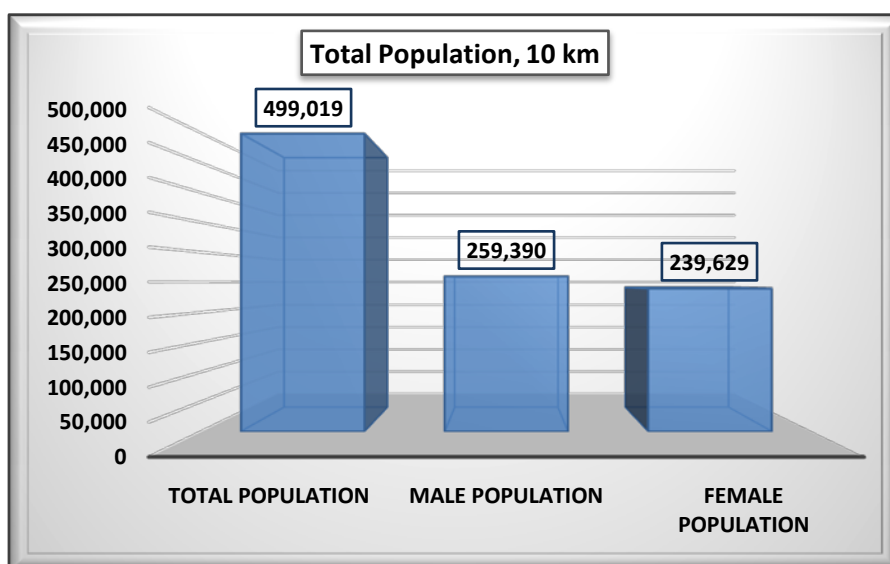


Figure 3.9: Male-Female Wise Population Distribution

Scheduled Caste & Scheduled Tribe Population

On the basis of the village wise SC & ST population distribution of the study area during 2011, the ‘Scheduled Castes’ population was observed as 93318 persons consisting of 48011 males and 45307 females respectively in the study area which accounts as 18.7% to the total population (499019 persons) of the study area. Scheduled Tribes (‘ST’) population was observed as 463 persons, accounts as 0.1% to the total population of the study zone consisting of 234 males and 229 females in the 10km radius study zone. It implies that the rest 81.2% of the total population belongs to the general category.

Male-female wise distribution of ‘SC’ & ‘ST’ population in the study area is graphically shown in **Figure 3.10 & 3.11** as follows.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

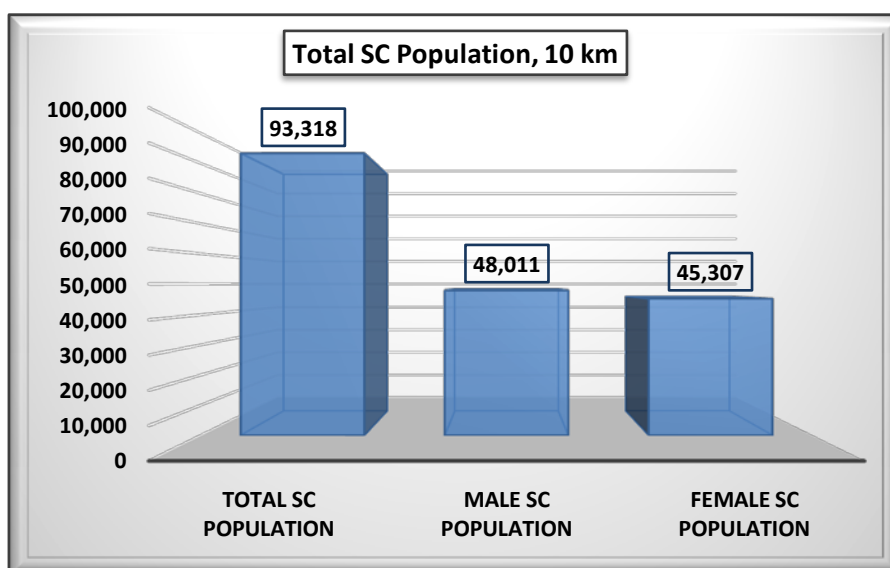


Figure 3.10: Scheduled Caste Population in the Study Area

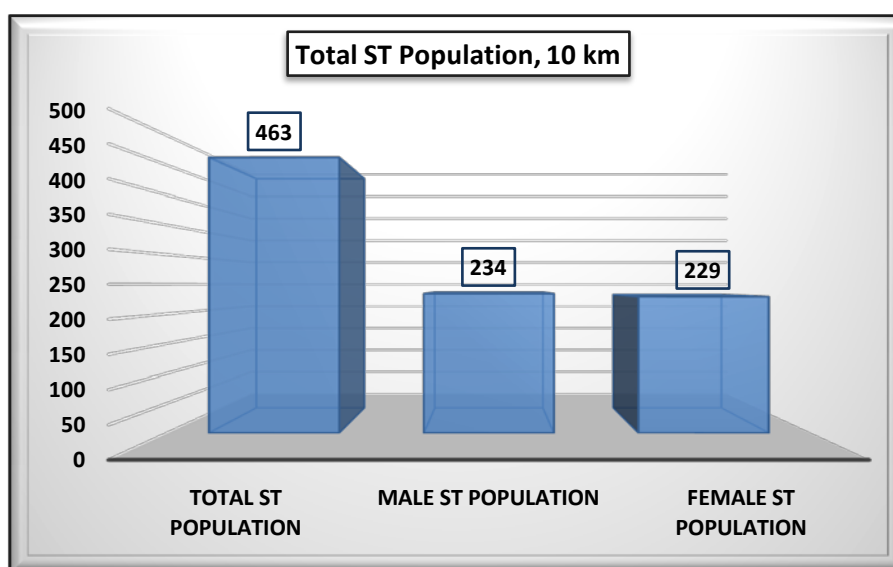


Figure 3.11: Scheduled Tribes Population in the Study Area

Literacy Rate

Literacy level is quantifiable indicator to assess the development status of an area or region. Male-Female wise literates and illiterate's population is represented in **Table 3.22**. Total literate's population was recorded as 279236 persons (56.0%) in the study area. **Table 3.22** reveals that Male-Female wise literates are observed as 167744 & 111492 persons respectively, implies that the 'Literacy Rate' is recorded as 56.0% with male-female wise percentages being 33.6% & 22.3% respectively.

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The Male-Female wise graphical representation of literates & illiterate's population in study area villages/town is shown in **Figure 3.12**.

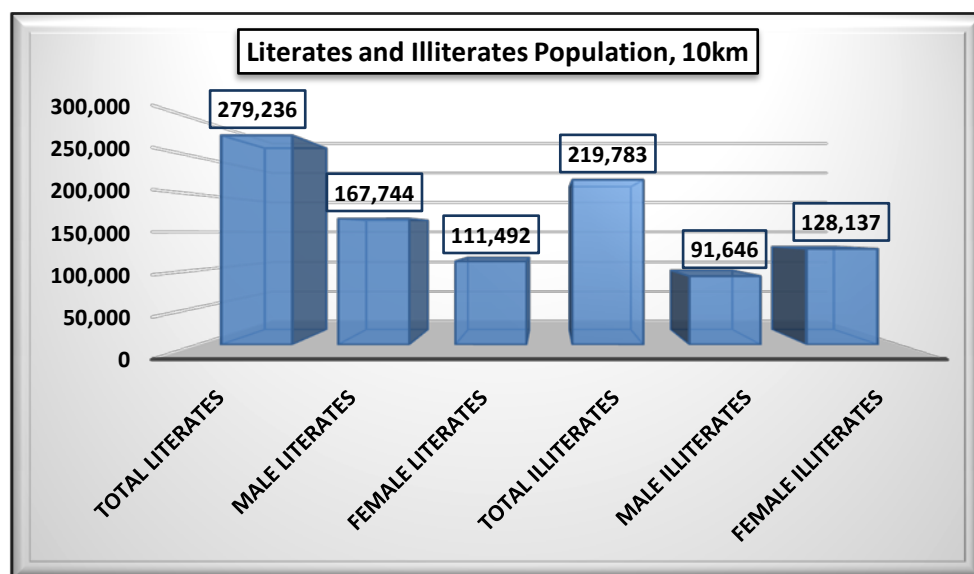


Figure 3.12: Male-Female Wise Distribution of Literates & Illiterates

Table 3.22: Male-Female Wise Literates and Illiterates (10km)

Name of Village/Town	Total Population	Literates			Illiterates		
		Persons	Males	Females	Persons	Males	Females
1. District Nalanda, Bihar							
Tulsipur	328	224	143	81	104	39	65
Khanpura	393	216	128	88	177	74	103
Rasulpur	1233	710	427	283	523	212	311
Rampur	4039	1810	1193	617	2229	930	1299
Mohiuddinpur 1	2201	817	524	293	1384	614	770
Shahpur	752	534	273	261	218	96	122
Lodipur 1	3531	1827	1127	700	1704	724	980
Rupaspur	4078	2609	1477	1132	1469	619	850
Mobarakpur	1020	723	416	307	297	130	167
Madhopur 1	10089	6328	3645	2683	3761	1620	2141
Ganga Bigha	643	318	213	105	325	129	196
Harbanspur	717	292	183	109	425	199	226
Chaurai	1313	805	509	296	508	191	317
Keshopur	2221	1287	777	510	934	364	570
Mozafraabad	2205	1228	693	535	977	449	528
Mirzapur	976	207	139	68	769	350	419
Telhara	6236	3854	2220	1634	2382	941	1441
Telhara Sani	Uninhabited Village						
Ranipur	604	216	138	78	388	158	230
Gayaspur	2706	1490	889	601	1216	495	721

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Bala Bigha	1173	708	417	291	465	162	303
Libri	485	297	171	126	188	73	115
Siriawan	2310	1315	832	483	995	369	626
Tarupur	357	266	153	113	91	33	58
Naraich	782	275	178	97	507	209	298
Barhauna	1279	759	406	353	520	215	305
Bishunpur	1263	713	449	264	550	206	344
Soniawan	2721	1855	1106	749	866	308	558
Daniawan	1243	791	465	326	452	176	276
Kotri	532	297	178	119	235	90	145
Lodipuer	1898	1112	668	444	786	321	465
Bijokhari	994	557	357	200	437	170	267
Narainpur	2699	1746	1030	716	953	366	587
Nisanpura	1571	1004	607	397	567	216	351
Madhopur Amnar	1187	772	513	259	415	143	272
Tarapur	1698	898	510	388	800	351	449
Dhawan	1900	1328	736	592	572	256	316
Maharaj Ganj	1080	604	376	228	476	179	297
Mojahidpur	1812	978	629	349	834	321	513
Amnar Khas	3203	1867	1157	710	1336	522	814
Gomahar	2353	1369	861	508	984	381	603
Jagai	796	527	319	208	269	91	178
Sultanpur	691	550	297	253	141	60	81
Muhammadpur 1	2491	1262	803	459	1229	474	755
Rasalpur 1	951	611	378	233	340	117	223
Mundipur	3749	2084	1269	815	1665	661	1004
Aungari	5261	3070	1860	1210	2191	919	1272
Jamuawan	3974	2151	1363	788	1823	780	1043
Muhammadpur 2	1564	822	510	312	742	283	459
Ekangar Sarai (CT)	6672	4505	2577	1928	2167	941	1226
Kobil	2945	1765	1002	763	1180	505	675
Mozafra	4025	2430	1481	949	1595	685	910
Ratanpura	1477	1011	582	429	466	214	252
Dariapur	1171	789	452	337	382	139	243
Paharpura	689	357	209	148	332	138	194
Khurampur	1407	903	579	324	504	177	327
kasmiri Chak	1153	826	455	371	327	145	182
Sukhchain	101	79	41	38	22	8	14
Biswak	2918	1684	1019	665	1234	538	696
Milki	340	213	134	79	127	57	70
Bakaur	2602	1635	955	680	967	410	557
Paithana	2707	1475	943	532	1232	494	738
Chhota Paithana	2105	1313	782	531	792	309	483
Jaitipur	762	454	259	195	308	125	183
Dhekwaha	4017	2215	1402	813	1802	711	1091
Akbarpur	509	273	167	106	236	113	123
Pachloa	2572	1071	708	363	1501	649	852
Bhabhauna	520	218	146	72	302	140	162
Chandanpura	870	423	289	134	447	190	257
Merhi	1707	773	495	278	934	372	562
Sarthua Khurd	1136	695	417	278	441	177	264
Sonawan	2247	1064	645	419	1183	523	660

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Danapur	1025	546	348	198	479	187	292
Ashrafpur	1224	608	395	213	616	261	355
Makhdumpur	1477	934	554	380	543	214	329
Ranipur	5060	3311	1873	1438	1749	696	1053
Shekh Ali	1226	773	483	290	453	166	287
Tetaria	579	421	247	174	158	56	102
Chandharia	2511	1488	871	617	1023	415	608
Faridpur	975	594	364	230	381	145	236
Amnawan	2517	1519	895	624	998	420	578
Barai	2927	2060	1172	888	867	357	510
Mohiuddinpur 2	740	482	286	196	258	120	138
Harbanspur	977	565	327	238	412	180	232
Kasimpur	669	449	277	172	220	86	134
Korawan	1314	636	414	222	678	296	382
Bardih	3956	2556	1513	1043	1400	615	785
Dhamauli	1060	565	348	217	495	209	286
Mani Chak	1064	703	409	294	361	154	207
Bhagwanpur	1033	670	447	223	363	93	270
Mahuari	2591	1371	925	446	1220	443	777
Ichahos	3856	2151	1350	801	1705	655	1050
Mobarakpur	1919	1048	662	386	871	351	520
Sanda	3801	2296	1389	907	1505	615	890
Makhdumpur 2	1200	517	328	189	683	297	386
Herthu	2857	1345	883	462	1512	620	892
Islampur	4290	2253	1399	854	2037	834	1203
Dhobidiha	2973	1452	929	523	1521	612	909
Hajipur Chandar Natai	936	429	288	141	507	190	317
Chandar Natai Kharij Jama	782	342	221	121	440	194	246
Akuri	1744	682	444	238	1062	472	590
Jaitia	996	503	289	214	493	192	301
Parsarai	1727	1035	589	446	692	299	393
Muhammadpur 3	1355	399	261	138	956	432	524
Kewai	1172	621	371	250	551	226	325
Gangti	1504	758	467	291	746	329	417
Panhar Kharij Jama	494	225	117	108	269	145	124
Panhar	11229	5484	3318	2166	5745	2541	3204
Daura	1509	718	446	272	791	343	448
Maidi Kalan	2330	1066	672	394	1264	523	741
Sohjana	2284	1081	716	365	1203	467	736
Maidi Khurd	1508	892	550	342	616	239	377
Chaurawan	1842	946	593	353	896	356	540
Kapasias	2904	1399	840	559	1505	690	815
Rupaspur	717	418	232	186	299	131	168
Gauspur	362	274	154	120	88	36	52
Pilkhi	2587	1104	668	436	1483	666	817
Bauri Dih	5451	2969	1817	1152	2482	1020	1462
Makhdumpur 3	584	196	143	53	388	177	211
Bardaha	4079	1828	1113	715	2251	989	1262
Rasalpur 2	1477	718	450	268	759	325	434
Sarthua	4526	1908	1188	720	2618	1137	1481
Pachrukha	530	271	184	87	259	101	158
Mousuma Ramnagar	438	300	176	124	138	54	84

Chapter-III	BASELINE DATA DESCRIPTION
Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	

Islampur (NP)	35641	22187	12415	9772	13454	5941	7513
2. District Gaya, Bihar							
Benipur	548	380	210	170	168	69	99
Sivnagar	3150	1508	907	601	1642	678	964
Mahammadpur 1	498	337	183	154	161	72	89
Dharahra	1104	623	415	208	481	146	335
Fatehpur	659	354	220	134	305	123	182
Shankarpur	1223	672	407	265	551	235	316
Lachhmipur	5577	2638	1555	1083	2939	1339	1600
Kusdehra	132	34	16	18	98	44	54
Tajpur	393	262	146	116	131	69	62
Jamuawan	2774	1376	820	556	1398	617	781
Bara	1396	721	477	244	675	246	429
Fatehpur	799	536	330	206	263	76	187
Mananpur	746	200	127	73	546	248	298
Khushahalpur	1378	830	527	303	548	182	366
Dharahra	528	160	78	82	368	180	188
3. District Jehanabad, Bihar							
Beni Chak	138	61	40	21	77	29	48
Jamuawan	2576	1298	793	505	1278	563	715
Bajitpur	596	226	164	62	370	154	216
Ismailpur	1831	984	592	392	847	374	473
Tetaria	1451	802	510	292	649	258	391
Mehdi chak	329	187	111	76	142	68	74
Khopura	779	487	312	175	292	97	195
Habibpur	212	68	49	19	144	67	77
Dayalpur	718	391	186	205	327	140	187
Pewta	639	380	209	171	259	118	141
Mandai	574	279	169	110	295	120	175
Barki Akauna	2033	1089	667	422	944	398	546
Chhotki Akauna	775	444	260	184	331	154	177
Pariawan	2579	1532	902	630	1047	421	626
Bandhuganj	4048	2295	1333	962	1753	779	974
Karhara	1278	555	362	193	723	288	435
Mahammadpur	412	317	167	150	95	57	38
Daharpur Milik	233	112	69	43	121	54	67
Korman	2200	846	546	300	1354	563	791
Atiawan	1768	905	573	332	863	367	496
Samarqand	711	316	193	123	395	155	240
Gandhar Arazi	Uninhabited Village						
Shahpur	3470	1962	1186	776	1508	593	915
Sahpur Milik	Uninhabited Village						
Metara	2145	1416	829	587	729	304	425
Dhorhari	651	476	267	209	175	57	118
Sarhad	241	146	91	55	95	45	50
Nawada	54	25	17	8	29	8	21
Bazidpur	696	456	266	190	240	104	136
Bharthu	3987	2299	1377	922	1688	684	1004
Nandna	1341	995	586	409	346	125	221
Karwa	440	265	157	108	175	69	106
Dariapur	1361	775	443	332	586	246	340
Madhopur	1930	1030	646	384	900	368	532

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Mirza Bigha	1283	697	419	278	586	250	336
Birupur	1561	950	562	388	611	243	368
Kewali	947	601	342	259	346	138	208
Ghoshi	7261	4199	2469	1730	3062	1296	1766
Shekhpura	1258	618	386	232	640	270	370
Siripur	1111	740	449	291	371	133	238
Mehdipur	396	213	116	97	183	75	108
Damaua	610	376	233	143	234	86	148
Gorsar	2488	1268	783	485	1220	497	723
Chhapanna	935	493	324	169	442	176	266
Khiraoti	1556	660	437	223	896	370	526
Daharpur	1298	686	430	256	612	222	390
Ahiasa	3274	1482	937	545	1792	749	1043
Mohiuddinpur 3	1207	593	376	217	614	225	389
Bishunpur	499	296	168	128	203	79	124
Selai	1988	1098	701	397	890	366	524
Golakpur	8122	4758	2790	1968	3364	1432	1932
Lakhawar	11737	5842	3607	2235	5895	2404	3491
Mohammadpur	235	136	100	36	99	29	70
Uber	4431	2572	1532	1040	1859	798	1061
Gamharpur	824	499	331	168	325	111	214
Babhanpura	1826	899	568	331	927	395	532
Korra	3417	1838	1108	730	1579	612	967
Lodipur 2	1310	433	292	141	877	369	508
Faridpura	874	535	326	209	339	139	200
Bakhra	960	632	380	252	328	125	203
Shaho Bigha	3790	1535	987	548	2255	987	1268
Dhuriari	3315	2007	1214	793	1308	530	778
Chiri	2981	1394	911	483	1587	641	946
Dumri	1019	540	325	215	479	200	279
Sarwan	1160	712	426	286	448	179	269
Sisara	797	485	304	181	312	128	184
Ginji	1530	902	495	407	628	294	334
Kandaul	3024	1592	920	672	1432	670	762
Harpur	260	127	90	37	133	48	85
Bihta	1830	1120	667	453	710	295	415
Dihuri	2173	1271	766	505	902	340	562
Dadpur	885	476	285	191	409	170	239
Bauri	4162	1910	1211	699	2252	966	1286
Khudaur	2458	1125	670	455	1333	609	724
Raghunathpur	989	582	319	263	407	188	219
Narma	2483	1600	970	630	883	365	518
Mokimpur	1186	619	367	252	567	265	302
Mirzapur	786	514	294	220	272	99	173
Sakiyawan	1632	960	554	406	672	262	410
Lodipur 3	913	515	291	224	398	181	217
Tesaur	1688	1005	572	433	683	315	368
Sarthua	2450	1335	847	488	1115	396	719
Murgawan	6004	3673	2175	1498	2331	988	1343
Batauli	751	537	312	225	214	90	124
Jagatpur	563	366	215	151	197	85	112
Kataulia	2201	1419	858	561	782	313	469

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Rustampur	3606	1965	1197	768	1641	646	995
Kokarsa	5111	2970	1809	1161	2141	877	1264
Walipur	1938	1177	699	478	761	314	447
Lat	1380	925	553	372	455	153	302
Utimpur	885	545	334	211	340	130	210
Bolakpur	932	515	299	216	417	174	243
Surajpur	4183	2826	1587	1239	1357	603	754
Lodipur 4	1286	837	519	318	449	179	270
Baigni	1178	805	458	347	373	152	221
Naugarh	1936	1133	646	487	803	325	478
Dabthu	3473	1965	1231	734	1508	581	927
Musauli	1205	709	413	296	496	205	291
Gangapur	2278	1388	858	530	890	348	542
Saidpur	510	313	192	121	197	65	132
Khauna	1780	796	478	318	984	463	521
Kasiyawan	1421	649	383	266	772	348	424
Keur	3895	1913	1126	787	1982	881	1101
TOTAL (10km)	499019	279236	167744	111492	219783	91646	128137
<i>Source-Census of India, 2011</i>							

Economic Profile of Nalanda District:

is the backbone of the economy, with the majority of the population engaged in agriculture. Rice, wheat, maize, pulses, potato, fruits, and vegetables are the main crops. A newly setup Ordnance Factory, one of the 41 Indian Ordnance Factories has been set up by the Ministry of Defence, Government of India to manufacture artillery shells at Nalanda by the then Defence Minister Shri George Fernandes. Then there is the railway coach maintenance plant at Harnaut Block of Nalanda.

Tourism is well developed, with lakhs of people flocking at ruins of Nalanda University, Rajgir and Pawapuri. Rajgir was the first capital of Magadh Empire. Buddha had spent years at this place. Surrounded by five hills, it has got scenic views. Pawapuri, the Nirwana place of Mahavir, is holy place for the Jains. In 2006 the Ministry of Panchayati Raj named Nalanda one of the country's 250 most backward districts (out of a total of 640). It is one of the 36 districts in Bihar currently receiving funds from the Backward Regions Grant Fund Programme (BRGF). (Source: https://en.wikipedia.org/wiki/Nalanda_district#Economy)

Workers Scenario:

Occupational studied to assess the skills of people in the study area. Occupational pattern helps in identifying major economic activities of the area. In the study area the Main and Marginal Workers population was observed as 128119(26.0%) and 58139(11.0%) to the total population (499019), while the remaining 312761 (63.0%) persons were recorded as non-

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workers. Thus it implies that the semi-skilled and non-skilled work-force required in study area for the project is available in aplenty..

The village-wise main and marginal worker's population with further classification as casual, agricultural, households and other workers is shown as follows in **Table 3.23**.

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Table 3.23: Village-wise Occupational Pattern (10km)

Name of the Village/Town	MAIN WORK_P	MAIN_CL_P	MAIN_AL_P	MAIN_HH_P	MAIN_OT_P	MARG WORK_P	MARG_CL_P	MARG_AL_P	MARG_HH_P	MARG_OT_P
1. District Nalanda, Bihar										
Tulsiapur	17	2	2	2	11	148	1	89	53	5
Khanpura	160	3	144	6	7	32	4	22	1	5
Rasulpur	586	53	384	19	130	22	0	8	0	14
Rampur	1601	401	1060	51	89	513	61	278	110	64
Mohiuddinpur 1	504	293	197	0	14	470	133	336	0	1
Shahpur	384	59	310	2	13	1	0	1	0	0
Lodipur 1	1037	246	602	51	138	409	184	217	1	7
Rupaspur	1023	90	459	55	419	194	19	89	17	69
Mobarakpur	321	109	201	0	11	4	1	3	0	0
Madhopur 1	2514	250	1544	102	618	1600	129	1194	96	181
Ganga Bigha	171	114	43	0	14	0	0	0	0	0
Harbanspur	90	4	83	1	2	80	26	47	2	5
Chaurai	766	88	629	19	30	40	0	40	0	0
Keshopur	850	43	692	19	96	42	1	29	2	10
Mozafraabad	773	140	435	152	46	87	7	53	16	11
Mirzapur	246	1	241	0	4	1	0	1	0	0
Telhara	1555	319	379	50	807	333	96	152	17	68
Telhara Sani	Uninhabited Village									
Ranipur	310	43	261	2	4	1	0	0	0	1
Gayaspur	881	383	342	12	144	59	20	34	0	5
Bala Bigha	583	199	361	7	16	14	2	9	0	3
Libri	213	0	201	0	12	0	0	0	0	0
Siriawan	402	274	109	6	13	162	18	136	3	5
Tarupur	74	0	65	2	7	130	4	121	4	1
Naraich	279	12	183	0	84	4	0	4	0	0
Barhauna	496	192	112	5	187	75	17	43	0	15
Bishunpur	69	3	1	0	65	299	32	236	0	31

Chapter-III**BASELINE DATA DESCRIPTION**

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Soniawan	676	173	255	18	230	446	35	324	10	77
Daniawan	184	86	75	5	18	257	6	229	5	17
Kotri	258	8	248	0	2	6	2	3	1	0
Lodipuer	354	162	162	2	28	172	40	41	5	86
Bijokhari	341	22	100	26	193	39	4	10	2	23
Narainpur	645	394	161	2	88	258	63	169	16	10
Nisanpura	628	179	378	8	63	130	13	110	3	4
Madhopur Amnar	631	311	305	4	11	12	5	6	0	1
Tarapur	471	257	160	0	54	143	23	115	0	5
Dhawan	711	214	332	64	101	266	146	106	6	8
Maharaj Ganj	464	136	197	1	130	25	1	17	0	7
Mojahidpur	602	202	193	38	169	322	44	236	18	24
Amnar Khas	684	207	324	7	146	369	8	330	8	23
Gomahar	765	109	556	1	99	83	0	68	1	14
Jagai	37	6	0	0	31	182	40	141	1	0
Sultanpur	129	100	4	3	22	147	3	138	0	6
Muhammadpur 1	594	113	350	19	112	405	16	124	29	236
Rasalpur 1	266	96	45	3	122	41	9	14	3	15
Mundipur	779	163	524	8	84	507	52	282	11	162
Aungari	1302	309	673	52	268	602	133	407	7	55
Jamuawan	939	106	631	29	173	184	14	141	16	13
Muhammadpur 2	537	240	205	37	55	106	10	6	18	72
Ekangar Sarai (CT)	1360	57	191	89	1023	373	9	162	13	189
Kobil	749	189	289	6	265	582	95	197	7	283
Mozafra	1457	310	908	8	231	184	33	107	16	28
Ratanpura	329	88	146	1	94	112	23	53	10	26
Dariapur	311	95	171	3	42	29	8	14	0	7
Paharpura	249	45	129	4	71	29	2	13	3	11
Khurrampur	386	86	80	38	182	45	2	8	12	23
kasmiri Chak	323	53	162	4	104	31	2	9	3	17
Sukhchain	32	14	10	0	8	1	0	0	0	1
Biswak	851	201	396	50	204	472	84	273	4	111

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Milki	177	107	63	1	6	64	48	8	0	8
Bakaur	877	278	374	145	80	395	17	145	73	160
Paithana	667	175	263	26	203	491	28	232	173	58
Chhota Paithana	594	89	290	49	166	4	0	1	0	3
Jaitipur	176	7	116	32	21	80	1	31	48	0
Dhekwa	1370	532	498	103	237	338	50	147	29	112
Akbarpur	97	42	24	8	23	209	18	53	101	37
Pachloa	356	181	146	11	18	296	29	217	14	36
Bhabhauna	234	1	124	107	2	7	0	2	5	0
Chandanpura	158	12	88	34	24	256	30	176	9	41
Merhi	455	233	131	3	88	209	7	197	0	5
Sarthua Khurd	260	80	108	5	67	192	16	136	4	36
Sonawan	901	350	396	9	146	111	70	29	1	11
Danapur	476	102	275	12	87	117	18	94	3	2
Ashrafpur	86	24	42	7	13	347	2	313	25	7
Makhdumpur	483	117	282	9	75	187	111	55	0	21
Ranipur	1699	693	601	23	382	913	97	502	64	250
Shekh Ali	309	131	94	3	81	172	115	42	2	13
Tetaria	127	65	1	6	55	88	13	15	20	40
Chandharia	552	129	184	70	169	246	2	169	13	62
Faridpur	368	76	141	5	146	115	6	51	0	58
Amnawan	608	232	254	59	63	366	19	303	25	19
Barai	751	493	152	7	99	379	15	216	140	8
Mohiuddinpur 2	158	89	13	34	22	103	7	91	1	4
Harbanspur	294	36	247	1	10	46	0	45	1	0
Kasimpur	137	82	7	1	47	46	0	33	0	13
Korawan	494	53	387	0	54	79	2	76	0	1
Bardih	1160	163	293	36	668	728	139	214	18	357
Dhamauli	724	380	213	65	66	108	41	35	5	27
Mani Chak	257	53	155	3	46	50	9	4	13	24
Bhagwanpur	269	7	144	28	90	224	7	83	22	112
Mahuari	635	90	427	36	82	334	22	292	1	19

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Ichahos	641	262	195	53	131	970	139	313	413	105
Mobarakpur	655	73	508	5	69	14	1	6	1	6
Sanda	1071	184	772	12	103	284	40	127	6	111
Makhdumpur 2	430	88	279	0	63	8	0	2	0	6
Herthu	889	136	294	19	440	654	13	273	322	46
Islampur	1132	141	688	87	216	620	117	171	176	156
Dhobidiha	1027	586	208	161	72	90	12	13	16	49
Hajipur Chandar Natai	299	152	80	9	58	94	56	9	3	26
Chandar Natai Kharij Jama	423	122	289	0	12	1	0	0	0	1
Akuri	570	3	445	108	14	352	1	236	105	10
Jaitia	310	67	233	0	10	35	5	30	0	0
Parsarai	790	117	447	25	201	39	5	17	2	15
Muhammadpur 3	442	79	350	1	12	345	47	290	3	5
Kewai	514	57	255	93	109	61	8	9	14	30
Gangti	252	167	27	1	57	137	31	92	0	14
Panhar Kharij Jama	178	44	122	1	11	25	7	11	1	6
Panhar	3003	496	1566	220	721	1198	266	753	62	117
Daura	452	165	189	69	29	128	31	15	13	69
Maidi Kalan	559	77	405	12	65	521	17	243	95	166
Sohjana	710	251	314	36	109	197	15	59	14	109
Maidi Khurd	543	252	128	136	27	48	2	16	29	1
Chaurawan	453	217	201	6	29	328	0	100	147	81
Kapasias	860	219	491	47	103	189	27	99	55	8
Rupaspur	143	60	50	8	25	29	18	4	0	7
Gauspur	128	41	79	1	7	39	4	4	1	30
Pilkhi	577	54	426	22	75	285	15	197	37	36
Bauri Dih	1517	411	601	46	459	241	26	80	24	111
Makhdumpur 3	28	22	6	0	0	272	38	234	0	0
Bardaha	1258	262	917	9	70	528	26	307	50	145
Rasalpur 2	416	74	216	0	126	160	22	30	2	106
Sarthua	1385	407	709	70	199	694	56	91	101	446
Pachrukha	276	142	125	0	9	12	0	12	0	0

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Mousuma Ramnagar	95	31	8	0	56	67	4	32	7	24
Islampur (NP)	9185	621	1309	819	6436	1726	77	273	470	906
2. District Gaya, Bihar										
Benipur	128	95	10	3	20	2	0	0	0	2
Sivnagar	457	76	247	36	98	639	120	238	136	145
Mahammadpur 1	133	0	126	1	6	10	0	4	1	5
Dharahra	30	4	3	0	23	342	57	218	20	47
Fatehpur	185	47	116	1	21	2	0	1	0	1
Shankarpur	369	19	317	9	24	156	18	85	22	31
Lachhmipur	1200	299	583	26	292	493	49	65	159	220
Kusdehra	77	0	74	0	3	0	0	0	0	0
Tajpur	114	54	38	0	22	0	0	0	0	0
Jamuawan	809	255	493	12	49	254	19	222	6	7
Bara	725	498	195	13	19	17	2	4	1	10
Fatehpur	257	103	142	1	11	62	22	39	0	1
Mananpur	322	3	299	12	8	15	1	8	0	6
Khushahapur	254	119	40	27	68	168	72	78	12	6
Dharahra	6	0	1	3	2	109	1	108	0	0
3. District Jehanabad, Bihar										
Beni Chak	27	7	19	0	1	34	7	27	0	0
Jamuawan	713	219	437	7	50	232	188	37	2	5
Bajitpur	212	11	189	0	12	3	2	1	0	0
Ismailpur	455	198	193	6	58	304	101	199	1	3
Tetaria	24	3	10	2	9	660	13	637	3	7
Mehdi chak	91	0	79	0	12	0	0	0	0	0
Khopura	125	68	5	0	52	31	0	20	0	11
Habibpur	58	3	45	0	10	0	0	0	0	0
Dayalpur	87	8	0	0	79	105	2	45	0	58
Pewta	192	58	118	0	16	1	0	0	0	1
Mandai	174	119	52	0	3	0	0	0	0	0
Barki Akauna	585	346	207	2	30	186	113	64	1	8
Chhotki Akauna	295	99	195	1	0	31	2	3	25	1

Chapter-III**BASELINE DATA DESCRIPTION**

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Pariawan	656	249	296	6	105	103	3	94	0	6
Bandhuganj	1301	409	469	59	364	58	9	22	5	22
Karhara	252	141	68	0	43	32	5	25	0	2
Mahammadpur	308	98	187	2	21	8	5	0	1	2
Daharpur Milik	46	42	2	2	0	2	0	0	0	2
Korman	53	18	0	6	29	684	50	596	16	22
Atiawan	97	3	14	6	74	472	66	326	6	74
Samarqand	22	0	1	0	21	205	46	157	0	2
Gandhar Arazi	Uninhabited village									
Shahpur	288	63	63	8	154	875	36	642	34	163
Sahpur Milik	Uninhabited Village									
Metara	469	267	110	15	77	140	6	88	16	30
Dhorhari	116	5	49	3	59	245	3	40	13	189
Sarhad	37	5	31	0	1	94	23	65	6	0
Nawada	11	8	2	0	1	0	0	0	0	0
Bazidpur	226	128	75	9	14	99	23	68	4	4
Bharthu	369	65	131	42	131	978	62	703	22	191
Nandna	278	99	43	27	109	125	11	32	70	12
Karwa	56	13	13	0	30	60	42	15	0	3
Dariapur	296	219	32	0	45	74	19	52	0	3
Madhopur	288	171	45	6	66	393	68	293	17	15
Mirza Bigha	35	0	4	0	31	365	34	205	2	124
Birupur	30	4	0	0	26	382	2	13	23	344
Kewali	23	1	1	0	21	191	5	1	2	183
Ghoshi	1829	146	906	324	453	940	36	176	60	668
Shekhpura	268	48	146	24	50	28	4	9	4	11
Siripur	321	153	134	1	33	20	7	4	2	7
Mehdipur	82	18	24	0	40	31	4	13	0	14
Damaua	136	14	21	0	101	113	4	8	0	101
Gorsar	612	238	319	1	54	133	95	37	0	1
Chhapanna	141	124	5	5	7	233	3	223	3	4
Khiraui	321	138	166	14	3	229	10	49	2	168

Chapter-III**BASELINE DATA DESCRIPTION**

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Daharpur	148	102	3	1	42	329	29	268	3	29
Ahiasa	499	175	203	9	112	670	121	524	2	23
Mohiuddinpur 3	155	22	68	1	64	286	4	278	0	4
Bishunpur	93	87	1	2	3	15	2	13	0	0
Selai	439	231	146	5	57	85	21	57	0	7
Golakpur	2010	350	998	210	452	482	23	374	43	42
Lakhawar	864	217	378	61	208	2824	575	1794	101	354
Mohammadpur	112	2	110	0	0	1	0	0	0	1
Uber	1009	242	471	82	214	914	24	548	59	283
Gamharpur	198	101	63	18	16	25	5	3	3	14
Babhanpura	279	76	180	1	22	258	10	242	6	0
Korra	1245	210	654	146	235	388	23	160	31	174
Lodipur 2	133	75	41	3	14	393	26	358	3	6
Faridpura	197	97	57	1	42	115	28	76	0	11
Bakhra	219	2	196	1	20	257	42	203	9	3
Shaho Bigha	727	262	265	34	166	326	8	294	15	9
Dhuriari	712	137	355	84	136	745	78	398	110	159
Chiri	552	91	119	26	316	631	60	532	12	27
Dumri	243	26	149	12	56	51	1	46	1	3
Sarwan	509	39	80	149	241	129	15	20	27	67
Sisara	233	81	61	15	76	76	2	1	11	62
Ginji	315	141	19	14	141	259	31	195	0	33
Kandaul	1089	307	595	14	173	72	9	36	1	26
Harpur	71	4	60	4	3	51	3	43	3	2
Bihta	588	319	161	15	93	74	18	6	5	45
Dihuri	584	107	410	13	54	165	8	102	7	48
Dadpur	486	248	138	4	96	2	1	0	0	1
Bauri	816	65	500	32	219	525	8	327	98	92
Khudaur	407	78	228	22	79	376	42	154	9	171
Raghunathpur	196	92	64	1	39	84	6	70	1	7
Narma	861	158	428	7	268	41	6	9	0	26
Mokimpur	203	29	125	11	38	173	16	45	26	86

Chapter-III**BASELINE DATA DESCRIPTION**

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Mirzapur	57	22	17	0	18	139	24	95	8	12
Sakiyawan	161	39	29	10	83	283	207	44	6	26
Lodipur 3	129	68	39	2	20	127	25	96	0	6
Tesaur	428	150	143	20	115	106	5	56	19	26
Sarthua	602	320	173	12	97	176	12	149	4	11
Murgawan	1948	519	1067	121	241	403	13	292	16	82
Batauli	48	2	3	2	41	172	147	17	0	8
Jagatpur	25	0	5	14	6	268	1	126	10	131
Kataulia	709	287	350	3	69	232	9	45	126	52
Rustampur	981	393	517	12	59	506	107	210	30	159
Kokarsa	1554	533	767	20	234	186	116	40	0	30
Walipur	466	124	125	62	155	225	59	43	34	89
Lat	201	45	39	15	102	208	46	44	78	40
Utimpur	160	6	73	51	30	29	0	12	2	15
Bolakpur	350	299	14	3	34	75	1	38	5	31
Surajpur	1349	174	388	319	468	407	11	123	72	201
Lodipur 4	462	159	192	15	96	33	8	21	2	2
Baigni	555	52	485	4	14	1	0	1	0	0
Naugarh	118	23	11	13	71	621	126	267	86	142
Dabthu	576	280	168	9	119	598	136	421	19	22
Musauli	534	22	506	0	6	31	1	21	0	9
Gangapur	1016	204	506	26	280	80	20	40	1	19
Saidpur	63	24	22	0	17	146	12	134	0	0
Khauna	469	19	432	0	18	350	28	317	3	2
Kasiyawan	295	40	204	10	41	319	23	258	10	28
Keur	531	84	348	14	85	1457	44	970	234	209

Chapter-III**BASELINE DATA DESCRIPTION**

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

TOTAL (10km)	128119	32893	58404	6584	30238	58139	7641	32265	5577	12656
<i>Source-Census of India, 2011</i>										
ABBREVIATIONS: MAIN WORKERS POPULATION: MAIN WORK_P: Main worker's total population, MAIN_CL_P: Main cultivated labour population, MAIN_AL_P: Main agricultural labour population, MAIN_HH_P: Main worker's population involved in household industries, MAIN_OT_P: Main other worker's population MARGINAL WORKERS POPULATION: MARG WORK_P: Marginal worker's total population, MARG_CL_P: Marginal cultivated labors total population, MARG_AL_P: Marginal agricultural labors population, MARG_HH_P: Marginal workers involved in household industries, MARG_OT_P : Marginal other workers Population										

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Distribution of work participation rate of the study area population is shown in **Table 3.24** as follows;

Table 3.24: Distribution of Work Participation Rate (10km)

Occupation Class	Year, 2011
Main Workers	128119 (26.0%)
Male	92930(72.5%)
Female	35189(27.5%)
Marginal Workers	58139(11.0%)
Male	30133(51.8%)
Female	28006(48.2%)
Non-Workers	312761(63.0%)
Male	136327 (43.6%)
Female	176434(56.4%)
Total Population (10km)	499019
<i>Source: Census of India Records, 2011</i>	

Graphical representation of Workers Scenario is given below as **Figure 3.13**.

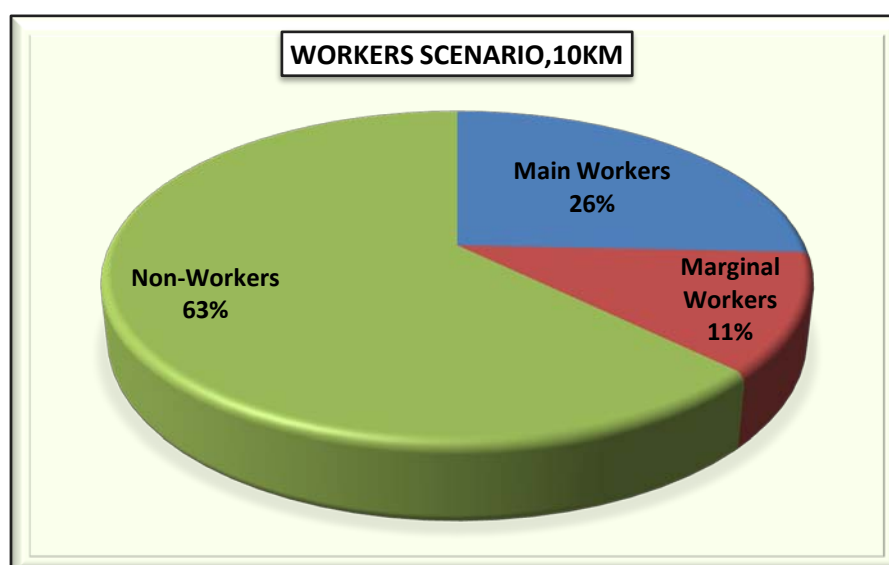


Figure 3.13: Workers Scenario of Study Area

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Composition of Main Workers:

The ‘Main Workers’ were observed as 128119 persons (26.0%) to the total population (499019) of the study area and its composition is made-up of Casual laborers as 32893 (26.0%), Agricultural laborers as 58404 (45.0%), Household workers 6584 (5.0%) and other workers as 30238 (24.0%) respectively.

Composition of Main workers is shown below as **Figure 3.14**.

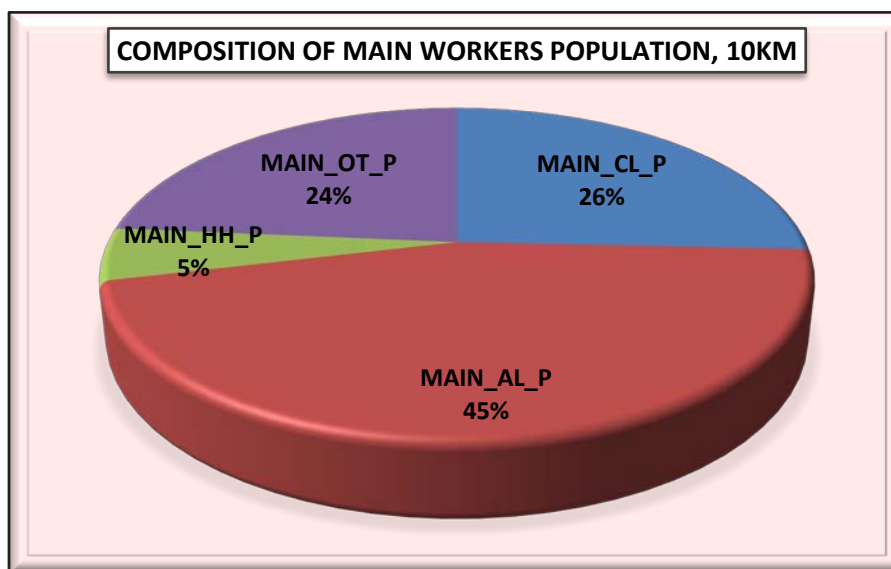


Figure 3.14: Composition of Main Workers Population

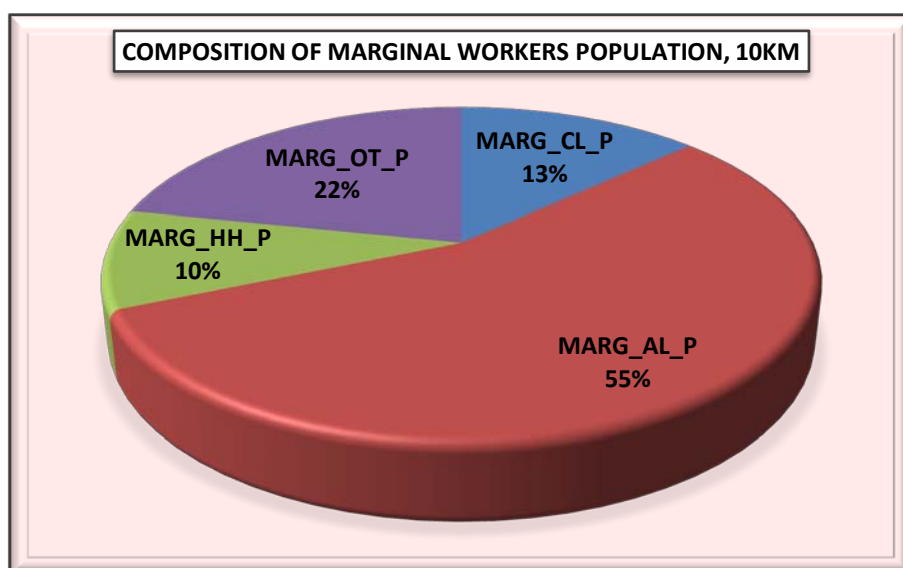
Composition of Marginal Workers:

The total marginal workers are observed as 58139 which constitute 12.0% to the total population (499019) comprising of Marginal Casual Laborers as 7641 (13.0%), Marginal Agricultural Laborers as 32265 (55.0%), Marginal Household laborers as 5577 (10.0%) and marginal other workers were also observed as 12656 (22.0%) of the total marginal workers respectively.

Details about marginal workers in the study area are tabulated in **Table 3.24** Composition of Marginal workers is shown in **Figure 3.15** as follows.

Figure 3.15: Composition of Marginal Workers

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).



Composition of Non-Workers:

The total Non-worker's population was observed as 312761 which accounts 63.0% to the total population (499019) of the study area. Male-female wise Non-worker's population was recorded as 136327 Males (43.6%) and 176434 Females (56.4%) respectively.

Details about Total Non-workers in the study area are compiled in **Table 3.25**. Graphical representation of Non-worker's population is shown as follows in **Figure 3.16**.

Table 3.25: Composition of Non-Workers

Non-Workers Population		
Persons	Males	Females
312761	136327 (43.6%)	176434 (56.4%)

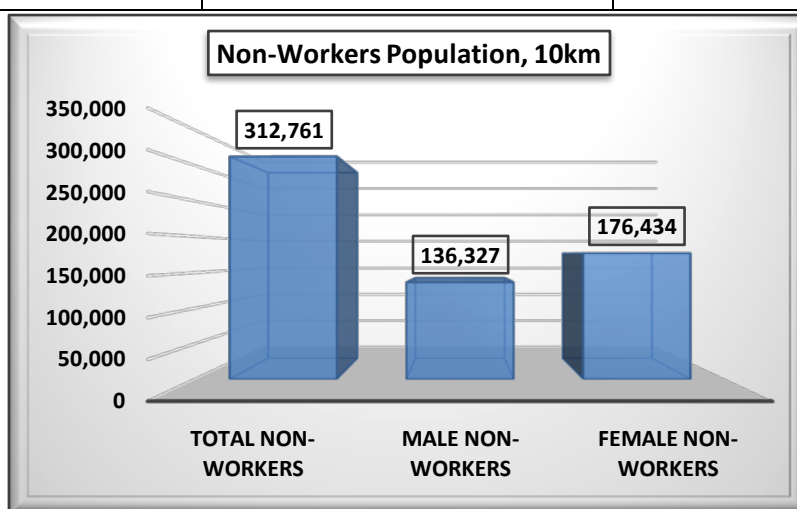


Figure 3.16: Composition of Non-Workers

Basic Infrastructure Facilities Availability*(as per the census records of 2011)*

A review of basic infrastructure facilities (Amenities) available in the study area has been done on the basis of the field survey and Census records, 2011 for the study area inhabited villages of both, Nalanda, Gaya and Jehanabaddistricts in Bihar state. The study area has average level of basic infrastructure facilities like educational, medical, potable water and power supply and transport& communication network.

As per the Census Records 2011, the study area has a total of 241 villages and 02 towns named Ekangar Sarai (CT) and Islampur (NP) under 3 main districts namely Nalanda, Gaya and Jehanabad districts in Bihar state. Overall study area villages are falling mainly under Sixteen (16) no of tehsils namely Karai Parsurai (03 villages), Nagar Nausa (04 villages), Harnaut (02 villages), Chandi (02 villages), Hilsa (01 village), Ekangarsarai (37 villages and 01 town), Islampur (74 villages and 01 town) tehsils of Nalanda district, Tikari (02 villages), Belaganj (05 villages), Khizirsarai (07 villages) and Imamganj (01 village) tehsils of Gaya district and Jehanabad (04 villages), Kako (04 villages), Modanganj (10 villages), Ghoshi (44 villages) and Hulasganj (41 villages) of Jehanabad districts respectively in Bihar state. Only about 3 villages were found as uninhabited villages in the 10km radial study zone.

Educational Facilities

There is a total no. of 305 Primary schools existing in the 10km radius study area. About 144 no of Middle schools are found in the study area. About 24 no of Higher Secondary School (SS) and only 04 no of Senior Secondary School (SSS) facility is available in the study area. The educational facilities have been further strengthening now and a number of private public schools and colleges are also functioning in the surroundings of the study area. Besides, there are Engineering and Medical colleges available in Towns and District headquarters only. Higher education facilities are available in Towns of the district. There is a considerable improvement in educational facility. The villages of the study area have no such facilities can reach within 5 to 10km range.

Availability of University Education in Nalanda District

Nalanda University also known as Nalanda International University is a newly established university in the district. The university is created as a revival of an ancient center of learning at Nalanda. The University came into existence on 25 November 2010. The University is mandated to be “an international institution for the pursuit of intellectual, philosophical, historical and spiritual studies.

Medical Facilities

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The medical facilities are provided by different agencies like Govt. & Private individuals and voluntary organizations in the study area. As per the census 2011, only 08 no of primary health centersexistin the study area; most of the study area villages depend upon the towns & district HQ of the study area having such facility. No Community Health Centre (CHC) was found in the study area. Only 53no of Primary Health Sub-Centers exists in the villages of the study area. Only 23no of Mother & Child Welfare Centersarefound in the study area. Noallopathic hospitalexists in the study area. Only 08 no of Medical Dispensaries were found in the study area. Overall study area villages are served by moderate level of medical facilities. Specialized medical facilities are available only in towns and District Headquarter (HQ) only.

Potable Water Facilities

Potable water facility is available in most of the villages of the study area. The entire study area has average level of potable water facilities. Hand Pump(HP) water facility is commonly observed in the study area as potable water facility. Out of the total 243 villages/town,about112 villages (78.3%)are served with River/Canal water in the study area. As per the census records 2011, only 09villageswere foundbeing served with Tank/Pond/Lake as potable water facility in the study area.

Communication, Road & Transport Facilities

Apart from Post &Telegraph Office (PTO) services, transport is the main communication linkage in the study area. Compiled census 2011, data shows that the study area has good postal facilities in the 10km radius zone. Only 65 villages(26.8%) were foundserving with Post Office facilities in the study area, remaining villages are depending upon towns of the study area.

The study area has average rail and road network, passes from the area. Nearest railway station is Islampur Railway Station located at a distance of approx. 3.50km, in East direction.Nearest State Highway, SH-4 & SH-71 both are passing at 150 m& 0.6 km away in East& North direction respectively.

Nearest Town is Islampur, approx. 0.3 km in E direction from Mohane 2.District Headquarters ofNalanda,is situated at approx. 30.0 km away towardsNortheast direction. Nearest airport is Gaya International Airport is located at 51.50 km away towards NW direction.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Communications (*Nalanda District*)

Roads - The district of Nalanda is well served by a network of roads. Road communication is the main mode of transportation in this district. The roads are classified as the National Highways, State Highways, Major district roads and other district roads. They are maintained by the Public Works Department, the Rural Engineering Organisation, the Zila Parishad and Municipalities. It is also connected with the interior of the district by metalled road. Four National Highway (NH) and Five State Highway (SH) cross the district. NH- 82, NH-110, NH-31 and NH-30A pass through the district. SH-4, SH-5 SH-6 SH-71 and SH-78 also pass through the district.

Railways - The district of Nalanda has a railway communication system. It is served by East Central Railway. Bakhtiarpur-Rajgir Branch line passes through the district. The latter has been converted into broad gauge. The Fatwah-Islampur Light Railway which was in service previously has been discontinued due to flood devastation caused to light railways assets. Recently railways have under taken a Broad gauge extension upto Bodh Gaya under the Buddha Pilgrimage Ring Project of Ministry of Tourism the Govt. of India and construction work is in full swing.

Airways - There are only two small aerodromes at Biharsharif and Rajgir where only small aircrafts and helicopters can land.

Boats – As there are only small rivers and a few steams in the district and these too dry up during the summer and winter seasons. There is no water communication worth mention in the district.

Banking Facility

The study area has almost all the schedule commercial banks with ATM facility at urban areas and the district HQ.

Trade and Commerce

The development of the means of communication has had a great impact on the trade and commerce of the district. The district may now be said to be fairly well- connected by Road and Rail. There is no major commercial center in the district and the market is chiefly rural in nature. The important trade centers in the district are Biharsharif, Rajgir, Silao, Pawapuri, Nagarnausa, Chandi, Noorsarai, Islampur and Hilsa. Trade consists mainly of export of rice, bidi, potatoes and hand-loom and silk factory, etc., and import of items such as coal, cement,

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wood, cotton yarn, tobacco leaf, etc. Potato is exported in trucks to the coalfields in Jharia and Dhanbad and on return journey they bring coal both for domestic and industrial purposes. Local Hats/Bazar are also available in which local produce like milk, fruit, vegetables and grains are traded.

Mines and Minerals

There geological formation of the district is generally alluvial. The Rajgir hills consist of metamorphic schists and states covered with quartzite. No mineral of any kind is found in the district. The hot water springs of Rajgir are, however, said to contain rich radioactive elements of sulphur. Sand is the only mineral which is extracted from rivers and steams coming down the hills. The district is devoid of mines and minerals. The land of district is formed of fertile Gangeticalluvium.

Power Supply

It is revealed from the compiled information on amenities availability as per the census record of 2011; most of the villages and towns are electrified for Domestic, Agriculture, and Commercial& for allpurposes. About 181 villages (74.5%) of the study area are electrified for domestic purpose, 121villages (49.8%) for agricultural purpose and 50 villages (20.6%) for commercial & for all purposes in the study area.Out of 243 villages/towns in the study area, 53villages (21.8%)including 3 uninhabited villages were found not electrified for any purpose in the study area.

The district receives its entire power supply from Bihar State Electricity Board. All the towns of Nalnda district have electricity. In the rural areas, the Government is trying to extended electric line to the maximum number of villages by implementing various schemes for rural electrification. To feed the Bihar State Electricity Board, the NTPC has established its station at Deepnagar under Bihar C.D. Block.Total numbers of villages electrified in the district are 852.

Village/town wise Basic Infrastructure and Amenities availabilities data for the entire study area is compiled and presented in **Table 3.26** as follows;

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BASELINE DATA DESCRIPTION

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Table 3.26: Village wise Basic Amenities Availability (10km)

Name of the Village/Town	Educational				Medical							Drinking Water							C T	Communication& Transport				Approach to the Village				Power Supply				Nearest Town Distance, km
	P	M	S S	S S	CH C	P H C	PH SC	MC WC	H	D	F W C	T	W	H P	T W	R	T k	P O		P T O	B S	R S	P R	K R	N W	F P	E D	E A g.	E C	E A		
1. District Nalanda, Bihar																																
Tulsipur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	1	1	2	1	2	2	2	2	Hilsa,20km	
Khanpura	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	Hilsa,14km	
Rasulpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	Hilsa,14km	
Rampur	1	2	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Hilsa,12km	
Mohiuddinpur 1	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Hilsa,10km	
Shahpur	1	0	0	0	0	0	1	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	1	2	2	1	1	2	2	2	Biharsharif,30km	
Lodipur 1	2	1	0	0	0	0	1	0	0	0	0	2	1	1	2	2	2	2	1	2	2	2	1	1	2	1	1	1	2	2	Biharsharif,27km	
Rupaspur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	2	2	Biharsharif,21km	
Mobarakpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Biharsharif,25km	
Madhopur 1	5	2	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	1	1	2	1	1	1	1	1	Hilsa,30km	
Ganga Bigha	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	1	1	2	1	1	1	2	2	Hilsa,40km	
Harbanspur	1	0	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	Hilsa,15km	
Chaurai	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Biharsharif,31km	
Keshopur	1	1	0	0	0	0	1	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,37km	
Mozafrabad	1	0	1	0	0	0	1	0	0	0	0	2	2	1	2	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	Biharsharif,36km	
Mirzapur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Biharsharif,35km	
Telhara	2	2	1	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	1	2	1	1	2	1	1	1	1	1	Biharsharif,35km	
Telhara Sani	Uninhabited Village																															Biharsharif,35km
Ranipur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Biharsharif,35km	
Gayaspur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	2	2	Biharsharif,36km	
Bala Bigha	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Biharsharif,35km	
Libri	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	1	1	2	2	Biharsharif,35km	
Siriawan	3	2	2	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,45km	
Tarupur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,45km	
Naraich	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,45km	
Barhauna	0	0	0	0	0	0	1	0	0	0	0	2	2	1	2	2	2	2	1	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,45km	

Chapter-III

BASELINE DATA DESCRIPTION

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Bishunpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1	2	2	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,45km	
Soniawan	2	1	1	0	0	0	1	0	0	0	0	2	2	1	2	2	2	2	1	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,45km	
Daniawan	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	2	2	1	2	1	1	1	2	2	Biharsharif,37km	
Kotri	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	1	1	2	2	Biharsharif,36km	
Lodipuer	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,36km	
Bijokhari	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Biharsharif,37km
Narainpur	3	1	1	0	0	0	1	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	2	1	2	1	1	1	1	1	1	Biharsharif,34km
Nisanpura	1	2	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Biharsharif,35km
Madhopur Amnar	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	2	2	2	1	2	1	1	1	1	1	Biharsharif,34km
Tarapur	2	1	1	0	0	0	0	0	0	0	0	2	1	1	1	2	2	2	1	2	1	2	1	1	2	1	1	1	1	2	2	Biharsharif,32km
Dhawan	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Biharsharif,30km
Maharaj Ganj	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1	2	2	2	2	2	2	1	2	1	1	2	1	1	1	2	2	Biharsharif,33km
Mojahidpur	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1	2	2	2	2	2	2	2	2	2	1	2	1	1	1	2	2	Biharsharif,35km
Amnar Khas	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1	2	2	2	2	2	2	1	2	1	1	2	1	1	1	2	2	Biharsharif,35km
Gomahar	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Biharsharif,33km
Jagai	1	1	0	0	0	0	0	0	0	0	0	2	1	1	1	2	2	2	1	2	1	2	1	1	2	1	1	1	1	2	2	Biharsharif,35km
Sultanpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	1	2	1	1	1	2	2	Biharsharif,33km
Muhammadpur 1	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Biharsharif,31km
Rasalpur 1	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Biharsharif,32km
Mundipur	2	2	0	0	0	0	1	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Biharsharif,41km
Aungari	2	2	1	0	0	0	1	0	0	0	0	2	2	1	1	1	2	2	1	1	2	1	1	2	2	1	1	1	1	1	1	Biharsharif,35km
Jamuawan	3	0	0	0	0	0	1	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	1	2	1	2	1	2	2	Biharsharif,29km
Muhammadpur 2	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Biharsharif,32km
Ekangar Sarai (CT)	Urban Part																														Ekangar Sarai,0km	
Kobil	1	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,5km
Mozafra	1	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	1	2	1	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,5km
Ratanpura	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,5km
Dariapur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	2	1	1	2	1	1	1	1	1	Islampur,6km
Paharpura	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Islampur,6km
Khurrampur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,6km
Kasmiri Chak	2	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,7km
Sukhchain	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,6km
Biswak	2	1	0	0	0	1	1	1	0	0	1	2	2	1	1	2	2	2	1	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,4km
Milki	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,8km

Chapter-III**BASELINE DATA DESCRIPTION**

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Bakaur	1	1	1	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,8km
Paithana	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	1	1	2	1	1	1	1	1	Islampur,15km
Chhota Paithana	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Islampur,10km
Jaitipur	2	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,20km
Dhekwa	1	1	1	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,10km
Akbarpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,12km
Pachloa	3	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	1	1	2	1	1	1	2	2	Islampur,12km
Bhabhauna	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,13km
Chandanpura	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,12km
Merhi	2	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,10km
Sarthua Khurd	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,15km
Sonawan	2	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,10km
Danapur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,10km
Ashrafpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,7km
Makhdumpur 1	2	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,10km
Ranipur	4	2	1	0	0	0	0	1	0	0	0	2	2	1	1	1	2	2	1	2	2	1	1	2	1	1	2	2	2	Islampur,12km
Shekh Ali	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Tetaria	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	1	2	2	1	1	1	1	1	2	2	2	Islampur,2km
Chandharia	2	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	1	1	2	1	1	2	2	2	Islampur,8km
Faridpur	1	0	1	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Amnawan	2	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	1	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,5km
Barai	4	2	0	0	0	0	1	0	0	0	0	2	2	1	1	1	1	2	1	2	2	1	1	2	1	1	1	2	2	Islampur,5km
Mohiuddinpur 2	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,8km
Harbanspur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	1	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,3km
Kasimpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Islampur,6km
Korawan	1	1	1	1	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Islampur,5km
Bardih	3	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	1	1	2	1	1	1	2	2	Islampur,6km
Dhamauli	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,8km
Mani Chak	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Bhagwanpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Mahuari	3	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,4km
Ichahos	3	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	1	2	1	1	2	1	1	2	2	Islampur,3km
Mobarakpur	2	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,5km
Sanda	4	2	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	1	2	2	1	1	2	1	1	2	2	2	Islampur,8km

Chapter-III**BASELINE DATA DESCRIPTION**

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Makhdumpur 2	2	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Herthu	2	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,4km
Islampur	4	2	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	1	1	2	1	1	2	2	2	Islampur,4km
Dhobidiha	2	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	1	1	2	1	1	2	2	2	Islampur,3km
Hajipur Chandar Natai	1	0	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,3km
Chandar Natai Kharij Jama	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Akuri	2	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,15km
Jaitia	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,4km
Parsarai	1	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,5km
Muhammadpur 3	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,4km
Kewai	1	1	0	0	0	0	1	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Islampur,3km
Gangti	3	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Panhar Kharij Jama	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Panhar	4	2	1	0	0	0	1	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	1	1	2	1	1	1	1	1	Islampur,10km
Daura	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,15km
Maidi Kalan	1	1	0	0	0	0	0	1	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,12km
Sohjana	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,12km
Maidi Khurd	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,15km
Chaurawan	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,12km
Kapasias	3	2	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	1	1	2	1	1	2	2	2	Islampur,14km
Rupaspur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,15km
Gauspur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,13km
Pilkhi	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Islampur,12km
Bauri Dih	3	2	1	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	1	1	2	1	1	2	2	2	Islampur,15km
Makhdumpur 3	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	2	2	2	2	Islampur,15km
Bardaha	2	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	1	1	2	1	1	2	2	2	Islampur,6km
Rasalpur 2	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	Islampur,20km
Sarthua	2	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	1	1	2	1	1	2	2	2	Islampur,20km
Pachrukhia	1	0	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	1	1	2	1	1	1	1	1	Islampur,20km
Mousuma Ramnagar	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	1	1	2	1	1	2	2	2	Islampur,18km
Islampur (NP)	Urban Part																														Islampur,0km
2. District Gaya, Bihar																															
Benipur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	2	2	2	2	Tikari,3km
Sivnagar	1	1	0	0	0	0	1	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Tikari,2km

Chapter-III**BASELINE DATA DESCRIPTION**

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Mahammadpur 1	1	0	0	0	0	0	1	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	Gaya,33km	
Dharahra	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	Gaya,30km	
Fatehpur	1	1	0	0	0	0	1	0	0	0	0	2	1	1	1	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	Gaya,27km	
Shankarpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	Gaya,28km	
Lachhmipur	1	1	0	0	0	0	1	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	1	1	1	1	1	1	1	1	Gaya,20km	
Kusdehra	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	Gaya,37km	
Tajpur	0	0	0	0	0	1	1	1	0	1	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	Gaya,36km	
Jamuawan	1	1	0	0	0	1	1	1	0	0	1	2	2	1	2	2	2	2	1	2	2	2	1	1	2	1	2	2	2	2	Gaya,35km	
Bara	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	1	2	2	2	2	1	1	2	1	2	2	2	2	Gaya,32km	
Fatehpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	1	2	2	2	2	1	1	2	1	2	2	2	2	Gaya,24km	
Mananpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	2	1	2	2	2	2	Gaya,31km	
Khushahalpur	1	2	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	1	2	1	1	2	1	2	2	2	Gaya,33km	
Dharahra	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	1	2	1	2	2	2	Sherghati,37km	
3. District Jehanabad, Bihar																																
Beni Chak	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	1	2	1	1	2	1	2	2	2	2	Jehanabad,14km	
Jamuawan	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	Jehanabad,6km	
Bajitpur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	1	2	1	1	2	1	2	2	2	2	Jehanabad,12km	
Ismailpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	1	2	1	1	1	1	2	2	2	2	Jehanabad,11km	
Tetaria	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	Jehanabad,15km	
Mehdi chak	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Jehanabad,15km
Khopura	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	1	2	1	1	2	1	2	2	2	2	Jehanabad,15km
Habibpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Jehanabad,13km
Dayalpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Jehanabad,15km
Pewta	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Jehanabad,22km
Mandai	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Jehanabad,18km
Barki Akauna	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	2	2	Jehanabad,18km
Chhotki Akauna	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	1	2	2	2	1	1	2	1	1	1	1	2	2	Jehanabad,18km
Pariawan	2	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	1	1	2	2	Jehanabad,16km	
Bandhuganj	2	1	1	0	0	1	1	1	0	1	1	2	2	1	2	2	2	2	1	2	2	2	1	1	2	1	1	1	2	2	Jehanabad,15km	
Karhara	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	Jehanabad,18km
Mahammadpur 2	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Jehanabad,17km
Daharpur Milik	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Jehanabad,17km
Korman	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	2	2	2	2	1	2	1	2	2	Jehanabad,20km
Atiawan	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	Jehanabad,28km

Chapter-III

BASELINE DATA DESCRIPTION

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Samarqand	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	2	2	1	2	2	2	2	Jehanabad,20km	
Gandhar Arazi	Uninhabited Village																												Jehanabad,20km		
Shahpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	2	2	1	2	1	2	2	Jehanabad,20km	
Sahpur Milik	Uninhabited Village																												Jehanabad,20km		
Metara	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	1	1	1	Jehanabad,30km	
Dhorhari	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	Jehanabad,29km	
Sarhad	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	Jehanabad,27km	
Nawada	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	Jehanabad,28km	
Bazidpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	Jehanabad,28km	
Bharthu	1	1	1	0	0	0	0	1	0	0	0	2	2	1	2	2	2	2	1	2	2	2	2	2	1	1	1	1	1	Jehanabad,27km	
Nandna	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	Jehanabad,26km	
Karwa	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	1	1	1	2	2	Jehanabad,20km	
Dariapur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	1	1	2	2	Jehanabad,20km
Madhopur 2	1	1	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	1	1	1	2	2	2	Jehanabad,16km	
Mirza Bigha	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	1	2	1	2	1	1	1	2	2	Jehanabad,17km
Birupur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	2	1	1	1	1	2	Jehanabad,17km
Kewali	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	2	2	1	1	1	2	Jehanabad,17km
Ghoshi	4	2	1	1	1	1	1	1	0	1	1	2	2	1	1	1	2	2	1	1	1	1	2	1	2	1	1	1	1	1	Jehanabad,15km
Shekhpura	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	2	1	1	2	2	2	Jehanabad,15km
Siripur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	2	2	Jehanabad,14km
Mehdipur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	2	1	1	2	2	2	Jehanabad,17km
Damaua	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	2	2	2	1	1	2	2	2	Jehanabad,20km
Gorsar	2	1	0	0	0	0	1	1	0	1	1	2	2	1	2	1	2	2	2	2	2	2	2	1	1	2	1	1	1	2	Jehanabad,15km
Chhapanna	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	Jehanabad,20km
Khirautei	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	2	2	2	1	2	2	2	2	Jehanabad,20km
Daharpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	1	2	2	2	2	2	2	1	1	2	2	2	Jehanabad,20km
Ahiasa	2	1	0	0	0	0	1	1	0	0	1	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	Jehanabad,18km
Mohiuddinpur 3	1	1	0	0	0	0	1	1	0	0	1	2	2	1	1	1	2	2	1	2	2	2	2	1	1	2	1	1	2	2	Jehanabad,18km
Bishunpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	2	1	2	1	1	2	2	Jehanabad,19km
Selai	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	2	2	2	Jehanabad,15km
Golakpur	3	3	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	1	2	2	2	2	1	1	2	1	1	1	2	Jehanabad,16km
Lakhawar	4	2	1	1	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	2	1	1	2	1	1	2	2	Jehanabad,15km
Mohammadpur	1	0	0	0	0	0	0	0	0	0	0	2	1	1	2	2	2	2	2	2	2	2	2	1	2	1	1	2	2	2	Jehanabad,20km
Uber	2	1	0	0	0	0	0	0	0	0	0	2	1	1	2	1	2	2	1	2	2	2	2	2	2	1	2	1	2	2	Jehanabad,20km

Chapter-III**BASELINE DATA DESCRIPTION**

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Gamharpur	1	1	0	0	0	0	0	0	0	0	0	2	1	1	2	1	2	2	2	2	2	2	1	1	1	1	2	2	2	2	Jehanabad,20km
Babhanpura	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1	2	2	2	2	Jehanabad,20km
Korra	3	1	0	0	0	0	1	1	0	0	1	2	1	1	2	2	2	2	1	2	1	1	1	1	1	1	1	1	2	2	Jehanabad,21km
Lodipur 2	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	2	2	2	2	2	1	1	1	1	2	2	2	2	Jehanabad,20km
Faridpura	2	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	Jehanabad,18km
Bakhra	1	0	0	0	0	0	0	0	0	0	0	2	1	1	2	1	2	2	2	2	2	2	1	1	1	1	1	2	2	2	Jehanabad,20km
Shaho Bigha	2	1	0	0	0	0	1	1	0	0	1	2	2	1	2	1	2	2	1	2	2	2	2	1	1	1	1	1	2	2	Jehanabad,18km
Dhuriari	4	1	0	0	0	0	1	1	0	0	1	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	2	2	2	Jehanabad,28km
Chiri	2	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	1	2	1	1	2	1	2	2	2	2	Jehanabad,18km
Dumri	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Jehanabad,20km
Sarwan	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Jehanabad,21km
Sisara	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Jehanabad,20km
Ginji	1	1	0	0	0	0	1	1	0	0	1	2	2	1	1	1	2	2	1	2	2	2	1	2	1	1	1	1	1	1	Jehanabad,20km
Kandaul	2	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Jehanabad,26km
Harpur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2	2	1	1	2	1	2	2	2	2	Jehanabad,25km
Bihta	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	2	2	2	2	Jehanabad,25km
Dihuri	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Jehanabad,20km
Dadpur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	2	2	2	2	Jehanabad,20km
Bauri	1	1	1	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	1	2	1	2	1	1	2	1	2	2	2	2	Jehanabad,20km
Khudaur	1	1	0	0	0	0	1	1	0	0	1	2	1	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	2	2	Jehanabad,22km
Raghunathpur	1	0	0	0	0	0	1	1	0	1	1	2	1	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	Jehanabad,20km
Narma	1	1	1	0	0	0	0	0	0	0	0	2	1	1	1	1	2	2	1	2	1	2	1	1	2	1	1	1	2	2	Jehanabad,20km
Mokimpur	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	1	2	1	2	2	1	2	2	2	2	Jehanabad,18km
Mirzapur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	Jehanabad,18km
Sakiyawan	1	0	0	0	0	0	0	1	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	Jehanabad,30km
Lodipur 3	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	2	2	1	2	2	2	2	Jehanabad,36km
Tesaur	2	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	1	1	2	1	2	2	2	2	Jehanabad,32km
Sarthua	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	2	2	Jehanabad,20km
Murgawan	2	1	1	0	0	1	1	1	0	1	1	2	2	1	1	1	2	2	1	2	1	2	1	1	2	1	1	1	2	2	Jehanabad,25km
Batauli	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	1	2	1	1	1	1	1	1	1	2	2	2	Jehanabad,25km
Jagatpur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	1	2	2	1	1	1	1	1	2	2	2	2	Jehanabad,25km
Kataulia	1	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	1	2	1	1	1	1	1	1	2	2	2	2	Jehanabad,25km
Rustampur	2	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	1	1	2	1	1	2	2	2	Jehanabad,24km
Kokarsa	2	0	0	0	0	0	1	1	0	0	1	2	2	1	1	1	2	2	2	2	2	2	1	1	1	1	2	2	2	2	Jehanabad,32km

Chapter-III

BASELINE DATA DESCRIPTION

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Walipur	1	0	0	0	0	0	0	0	0	0	0	2	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2	2	2	Jehanabad,18km
Lat	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	1	2	1	2	1	1	1	1	Jehanabad,20km
Utimpur	1	1	1	1	0	0	1	1	0	0	1	2	2	1	1	1	2	2	2	2	2	1	2	1	1	2	1	1	1	Jehanabad,20km
Bolakpur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	1	1	2	1	2	2	2	Jehanabad,20km
Surajpur	3	1	1	0	0	1	1	1	0	1	1	2	2	1	1	1	2	2	1	2	1	2	1	1	2	1	1	1	1	Jehanabad,22km
Lodipur 4	1	1	0	0	0	1	1	1	0	1	1	2	2	1	1	2	2	2	2	2	1	2	1	1	2	1	1	1	2	Jehanabad,23km
Baigni	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	1	2	1	1	2	1	1	2	Jehanabad,25km
Naugarh	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	1	2	1	1	2	Jehanabad,25km
Dabthu	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	1	2	1	2	2	Jehanabad,25km
Musauli	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	2	2	2	2	2	1	1	2	1	2	2	Jehanabad,30km
Gangapur	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	2	1	1	2	1	2	2	Jehanabad,30km
Saidpur	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	2	2	1	2	1	1	1	1	1	1	2	2	2	Jehanabad,25km
Khauna	1	0	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	2	Jehanabad,30km
Kasiyawan	1	1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	1	1	2	1	1	2	Jehanabad,30km
Keur	2	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	2	2	1	2	2	2	2	1	1	2	1	2	2	Jehanabad,25km
TOTAL (10km)	30	14	24	4	1	8	53	23	0	8	19	Status for Availability and Non-Availability is shown as A (1) & NA (2) respectively																		

Source-<http://www.censusindia.gov.in/2011census/dchb/DCHB.html>

Abbreviations:

Educational Facilities: P-Primary School, M-Middle School, SS-Higher Secondary Schools, SSS-Senior Secondary School

Medical Facilities: CHC-Community Health Centre, PHC-Primary Health Centre, PHSC-Primary Health Sub-Centre, MCWC-Maternity and Child Welfare Centre, H-Hospital, D-Dispensary, FWC-Family Welfare Centre

Drinking Water Facilities: T-Tap Water, W-Well Water, HP-Hand Pump, TW-Tube Well Water, R-River Water, Tk-Tank Water, O-Other Drinking Water Facility, CT-Community Toilet

Communication & Transport Facilities: PO-Post Office, SPO-Sub-Post Office, PTO-Post & Telegraph Office, Tel. -Telephone Connection, Mob. -Mobile Phone Coverage, BS-Bus Services, RS-Railways Services

Approach to Village: PR-Paved Roads, KR-Kuchha Road, FP-Foot Path

Power Supply: ED-Power Supply for Domestic use, E Ag. -Power Supply for Agricultural use, EC- Power supply for Commercial use, EA-Electricity for All Purposes

Nearest Town & Distance, km : a for < 5 Km, b for 5-10 Km and c for 10+ km of nearest place where facility is available is given.



Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Brief Description of Places of Religious, Historical or Archaeological Importance and Tourist interest in Villages and Towns of the District:*(District level information only)*

Brief description of place of religious, historical or archaeological and tourist interest are as follows;

Brief description of place of religious, historical or archaeological and tourist interest are as follows;

Ajaypur - The village Ajaypur is situated at the distance of about 6 kms. South-west from Noorsarai Block headquarters. This place is related with the king Ajay Pal the emperor of Pala dynasty. The relics of Purani Talab (old tank) and pound are situated here. Some stone images are also found at this place on which some symbols are inscripted.

Barakhurd - This place is situated in the south-west of Noorsarai block headquarters at the distance of about 6 kms. Here the relics of the Nalanda University are found. Bargaon This place is situated where the pilgrims from the district or out of district come to worship on the eve of Chhath.

Begampur - The village is situated 5 kms. North of Nalanda railway station. It has many unexcavated mounds believed to cover further ruins of the ancient university of Nalanda. It has two big tanks known as Dighi and Sanaroha.

Ghosrawan - It is a large village lying 3 kms. east of Pawapuri. The village is noted for its sculptures of stone images. Some ancient stone images have also been found in the village.

Islampur The village is the headquarters of the block bearing the same name. It is noted for its library known as Kutubkhan Quadarea which has many Persian and Arabic manuscripts. Now a Notified Area Samity is also functioning here.

Kashmiri Chak - The village is situated 6 kms. north of Islampur Bazar(Market). It is famous for its tombs of Yusuf Sah and his son Yakub Sah who were believed to have been rebels from Kashmir, hence the name of the village.

Giriak Bahbolpur - The village is situated on the Biharsharif-Ranchi road about 21 kms. south of Biharsharif. The Firiak-Rajgir hill range starts from the western part of this village. The hilltop in the village contains a Dome Shaped temple, traditionally believed to have been built by Jarasandh, the king of Magadh during the Mahabharat age.

Nalanda - The village, situated 13 kms. south of Biharsharif and at the same distance north of Rajgir, is internationally renowned as the seat of the ancient University of Nalanda. The ruins of the buildings of the University attract thousands of visitors every year. There is a museum containing important sculptures and other articles excavated from the ruins. An Institute of Pali Studies has been set up in Nalanda for the teaching of Pali language.

Parnawan - It is an ancient village situated about 5 kms. west of the block headquarters at Sarmera. It is noted for its old temple called Mahatoji's temple. A one-day fair is held every alternate year on the occasion of Baisakhi Purnima.

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Pawapuri - It is a large village lying on the Patna-Ranchi road, about 25 kms. south of Biharsharif it is a very sacred centre of pilgrimage for the Jains. Lord Mahavira is believed to have attained salvation at this place. It contains a magnificent temple situated in the midst of a large tank popularly known as Lotus Pond. The dome of the temple is of gold. It is world famous place of tourists and religious importance. Which attracts thousands of tourists and pilgrims from all over the world every year. A large fair is held on the occasion of Dipawali every year.

Sanda - It is large village situated about 5 kms. south-west of Islampur Town. It was an ancient centre for Buddhist studies. Remains of stupas, temples, pillars and stone-slabs with inscriptions have been found in the village.

Silao - It is small town and headquarters of Silao C.D. Block famous for 'Khaja' a special sweet of the place. It is a good market for local produce and food grains. Cements and fertilizers are also available here.

Bihar - Bihar (or Biharsharif), the headquarters of the district lies at a distance of about 75 kms. from state capital Patna. It is a railhead also and the Bakhtiarpur-Rajgir Dan line and Patna-Ranchi National Highway passes through it. It sprang into prominence during the Gupta period and even today, there stands a pillar 14 feet in height, inscribed with the names of Kumar Gupta and Skanda Gupta. It was also the capital of the Pal kings. According to the Tibetan Chroniclers, Gopal I, founder of the Pala Empire, had built a Vihar or monastery and hence, the name of this town and the State. It contains many graves of pirs, the most famous being hat of Makhdumul-Mulk and, therefore, it has been named as Biharsharif, i.e., Bihar, the place of ascetics. It is hub of the trade and commerce of the district. There are six cinema Halls and a Town Hall where cultural shows are held-organized from time to time. A boating facility is also available in a pond situated besides Nalanda collector's residence and about 100 yards west of Biharsharif C.D. Block Headquarters. There is a beautiful park just north of the pond which adds beauty and colours to the town. Balia Maniram's Akhara is another place of importance where a fair takes place every year in the month of Ashadha.

Rajgir - Rajgir is a small town situated about 25 kms. south of Biharsharif. It was the first recorded capital of the country. It was a flourishing town in the 6th century B.C. when Lord Buddha was roaming throughout the country to preach Buddhism. It is also a winter health resort. The following are the place of interest in the town;

Hot Springs – There are a number of hot springs in the town. The water of the springs is very good for health and a large number of tourists come to Rajgir in winter for taking bath in the ho springs.

Shanti Stupa – The Stupa has been constructed on the top of a hill by the Japanese Buddhists.

Aerial Ropeway Chairlift – It goes up to Shanti Stupa from the foot of the hill and provides a pleasant ride to the tourists who get a panoramic view of the surrounding areas.

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Vulture’s Peak – It was a favourite abode of Lord Buddha. Here he used to give his sermons. Its rocks are shaped like Vultures and hence its name.

Cyclopean Walls – Ruins of the ancient walls which provided protection to the ancient city of Rajgir.

Social and Cultural Events

Fairs and festivals are however held regularly in the district. In the decade during 2001-11, Barh Super Thermal Power Station (NTPC Barh) was established in Barh of the district.

Rehabilitation & Resettlement (R & R)

Policy to be adopted (Central/State) in respect of the project affected persons including home or land oustees and landless labour. There is no structure or habitation in the core zone mining lease area, hence, any planning with respect to Rehabilitation & Resettlement is not applicable.

4.0 GENERAL

Identification of all potential environmental impacts due to project is an essential step of Environmental Impact Assessment. In case of mining projects, impacts on biodiversity, air pollution, water pollution, waste management and social issues are significant. Both direct and indirect environmental impacts will be created on various environmental attributes due to proposed mining activity in the surrounding environment, during the operational phase.

The occurrence of sand (minor mineral) deposits, being site specific, their exploitation often does not allow for any choice except adoption of eco-friendly operation. Positive impacts on socio-economic environment are expected due to creation of employment opportunities. Mining activities are normally carried out over a long period which also encourages development in the area such as roads, schools, hospitals etc.

Keeping in mind, the environmental baseline scenario as detailed in Chapter III and the proposed mining activity described in Chapter II, it is attempted to assess the likely impact and its extent on various environmental parameters and likely mitigation measures to be adopted.

The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail:

1. Land Environment
2. Water Environment
3. Air Environment
4. Noise Environment
5. Biological Environment
6. Socio-Economic Environment
7. Solid Waste
8. Traffic Environment

4.1 LAND ENVIRONMENT

The proposed extraction of stream bed materials, mining below the existing streambed, and alteration of channel-bed form and shape may lead to several impacts such as erosion of channel bed and banks, increase in channel slope, and change in channel morphology if, the operations are not carried out scientific & systematically.

The mining and allied activities involved due to mining result in creation of temporary haul roads and formation of mined pits, etc. affecting the land use pattern. In this project, silt and clay are also produced as a constituent along with minerals, which are considered to be waste.

Anticipated Impacts:

- Mining activity will impact river bed topography by formation of excavation voids.
- River bed mining may bring in some change in topography at the nearby area of the mine lease.
- Stacks of solid waste generated from mining activity may hinder the flow of water in monsoon season.

Mitigation measures:

Adopting suitable, site-specific mitigation measures can reduce the degree of impact of mining on land. Some of the land-related mitigation measures are as follows:

- Excavated pits will get replenished annually in monsoon itself & will be restored to original.
- The mine working will remain confined to allotted river bed only, so it will not disturb any surface area outside the mine lease area which may affect topography or drainage.
- Solid waste will not be stacked on the bank side as it will hinder the flow of water in monsoon season.

4.2 WATER ENVIRONMENT

Anticipated Impacts:

Mining of sand from within or near *river* has an indirect impact on the physico-chemical habitat characteristics during monsoon season. These characteristics include in stream roughness elements, depth, velocity, turbidity, sediment transport and stream discharge.

The detrimental effects, if any, to biota resulting from bed material mining are caused by following:

- Alteration of flow patterns resulting from modification of the *river*
- An excess of suspended sediment during monsoon season.

Mitigation measures

Project activity will be carried out only in the dry part of the Mohane River. Hence, none of the project activities affect the water environment directly. In the project, it is not proposed to divert or truncate any stream in monsoon season only. No proposal is envisaged for pumping of water either from the *River* (in monsoon) or tapping the ground water.

In the lean months, the proposed mining will not expose the base flow of the *River* and hence, there will not be any adverse impact on surface hydrology.

The deposit will be worked from the top surface up to a maximum depth of 3m below ground level or above the ground water table whichever comes first. Hence mining will not affect the ground water regime as well.

Further mining will be completely stopped during the monsoon seasons to allow the excavated area to regain its natural profile.

4.3 AIR ENVIRONMENT

Impact On Air Quality

The proposed project includes various activities like development of benches, approach roads, haul roads, excavation and transportation of mineral and waste materials. These operations generally result in generation of dust and thereby pose health hazards. However, it is proposed that adequate control measures will be provided at every stage of operation such as, water sprinkling at loading, unloading points and on haul roads before transportation to reduce the fugitive dust emissions.

The mining is proposed to be carried out by opencast manual method. The air borne particulate matter (PM₁₀) generated by ore and waste handling operations, transportation and screening of ore is the main respirable air pollutant. The emissions of Sulphur dioxide (SO₂), Nitrogen Oxides (NO₂) contributed by vehicles plying on haul roads will be marginal. Prediction of impacts on air environment has been carried out taking into consideration proposed production and net increase in emissions.

4.3.1 Emissions Details

Loading - unloading and transportation of sand material, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the proposed mining activities releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Emission during, Loading and unloading was calculated by the area sources. Details of emission during loading/unloading and transportation on the haul road, wind erosion of the exposed area and road maintenance were discussed and combined impact was predicted in the worst case scenario under worst meteorological condition given as follows:

Loading and Unloading - US EPA, 2008, revision of emission factor for AP-42 was used to calculate emission of particulate matter released into the atmosphere during loading and unloading separately. Emission during loading was found more than during unloading. Emission of PM₁₀ during loading was calculated and found to be $1.92 \times 10^{-3} \text{ g/s/m}^2$ based on moisture

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content 10-20% mine. It is assumed that moisture content was 10% and further moisture content will be increased to 10-20% to reduce emission of PM₁₀ during unloading and average wind speed was 0.92 m/s as observed with site data as shown in wind rose and discussion of local meteorology of the area.

Haul Road - US EPA, 2006, revision of emission factor for AP-42 was used to calculate emission of particulate matter released into the atmosphere during transportation of ore and over burden by trucks operated per hour on haul road. Emission of PM₁₀ due to transportation of sand on haul road was 1.65×10^{-4} g/s/m² based on assumption that silt content spread on road surface was 5%, and efficiency of PM₁₀ emission control 90%. Truck will be fully covered with tarpaulin material and emission of PM₁₀ during on the haul road will be insignificant.

Mitigation measures

The collection and lifting of minerals will be done by loaders. Therefore, the dust generated is likely to be insignificant as there will be no drilling & blasting. The only air pollution sources are the road transport network of the trucks. The mitigation measures like the following will be resorted:

- ✓ Water sprinkling will be done on the haul roads twice in a day.
- ✓ Deploying PUC certified vehicles to reduce their emissions
- ✓ Proper tuning of vehicles to keep the gas emissions under check
- ✓ Monitoring to ensure compliance with emission limits would be carried out during operation
- ✓ There is no major source of emissions except emission from combustion of fuels from the Transportation Vehicles and Material Handling.
- ✓ Besides this, to control the emissions further regular preventive maintenance of Equipment / Transportation Vehicles will be carried out on contractual basis.
- ✓ It will be ensured that all transportation vehicles carry a valid PUC certificate.
- ✓ Plantation will be carried out along the approach road, river banks & at all strategic places in the vicinity area.
- ✓ Periodic air quality monitoring will be done to assess the quality and for timely corrective actions.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

- ✓ Water sprinkling will be done on the haul roads twice in a day. This will reduce dust emission further.
- ✓ Speed limits will be enforced to reduce airborne fugitive dust from vehicular traffic.
- ✓ Spillage from the trucks will be prevented by covering tarpaulin over the trucks.

4.4 NOISE ENVIRONMENT

The proposed mining activity is semi-mechanized in nature. No drilling & blasting is envisaged for the mining activity. Hence, the only impact is anticipated is due to movement of vehicles deployed for transportation of minerals.

Anticipated Impacts:

- Mental disturbance, stress& impaired hearing.
- Decrease in speech reception& communication.
- Distraction and diminished concentration affecting job performance efficiency.

The noise level in the working environment are compared with the standards prescribed by Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The summary of the permissible exposures in cases of continuous noise as per above rules is given below:

Table 4.1, Damage risk criteria for hearing loss OSHA regulations

Maximum allowable duration per day in hour	Sound pressure dB(A)	Remarks
(1)	(2)	(3)
8.0	90	1. For any period of exposure falling in between any figure and lower figure as indicated in column (1), the permissible sound is to be
6.0	92	
4.0	95	
3.0	97	
2.0	100	
1 ½	102	
1	105	

Chapter-4		Anticipated Environmental Impact And Mitigation Measures
Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).		

$\frac{3}{4}$	107	determined by extrapolation or proportionate scale. 2. No exposure in excess of 115 dB (A) is permissible.
$\frac{1}{2}$	110	
$\frac{1}{4}$	115	

Noise at lower levels (sound pressure) is quite acceptable and does not have any bad effect on human beings, but when it is abnormally high- it incurs some maleficent effects.

a. Mitigation measures

The following measures have been envisaged to reduce the impact from the transportation of minerals:

- The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones.
- No such machinery is used for mining which will create noise to have ill effects.
- Awareness will be imparted to the workers about the permissible noise levels & maximum exposure to those levels.

4.5 BIOLOGICAL ENVIRONMENT

Mining which leads to the removal of channel substrate, re-suspension of streambed sediment and stockpiling on the streambed, will have ecological impacts. These impacts may have an effect on the direct loss of stream reserve habitat, disturbances of species attached to streambed deposits, reduced light penetration, reduced primary production, and reduced feeding opportunities. Sand mining generates additional traffic, which negatively impairs the environment.

Anticipated Impacts:

Flora

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

The proposed project of river bed sand mining shall be carried out on the riverbed of Mohane River. There are no trees in the project area. The project shall also not lead to any change in land use and will be replenished every year after successive rains. The proposed mining activity, which although is an economically gainful activity, also constitutes river training work. It allows for necessary dredging activity which may otherwise lead to flooding of the valley.

There shall be negligible air emissions or effluents from the project site during loading of the truck. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

Fauna

Animals are sensitive to noise and avoid human territory. The project stretch of the river is not an identified drinking water point for the animals. However, any animal desirous of accessing the river can continue to do so upstream or downstream of the stretch during the mining activities, as there will not be any damming or diverting of water. Hence, no significant impact is anticipated from the proposed project.

Mitigation measures

As the proposed mining will be carried out in a scientific manner, not much significant impact is anticipated, however, the following mitigation measures will be taken to further minimize it:

Flora

Although, the project will not lead to any tree cutting, plantation activities shall be undertaken to improve the vegetation cover of the area. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

Fauna

The workers shall be directed to not venture out of the leased area for collecting fuel wood, or hunting. They shall also be trained not to harm any wildlife. No work shall be carried out after sunset.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

4.6 TRAFFIC ANALYSIS

Transportation Route:

The sand extracted will store the nearby storage point. From there sand will be transported to the market. Sand will be stored in to storage point and from there it will be transported in the night time when traffic load is low on nearest SH or NH.

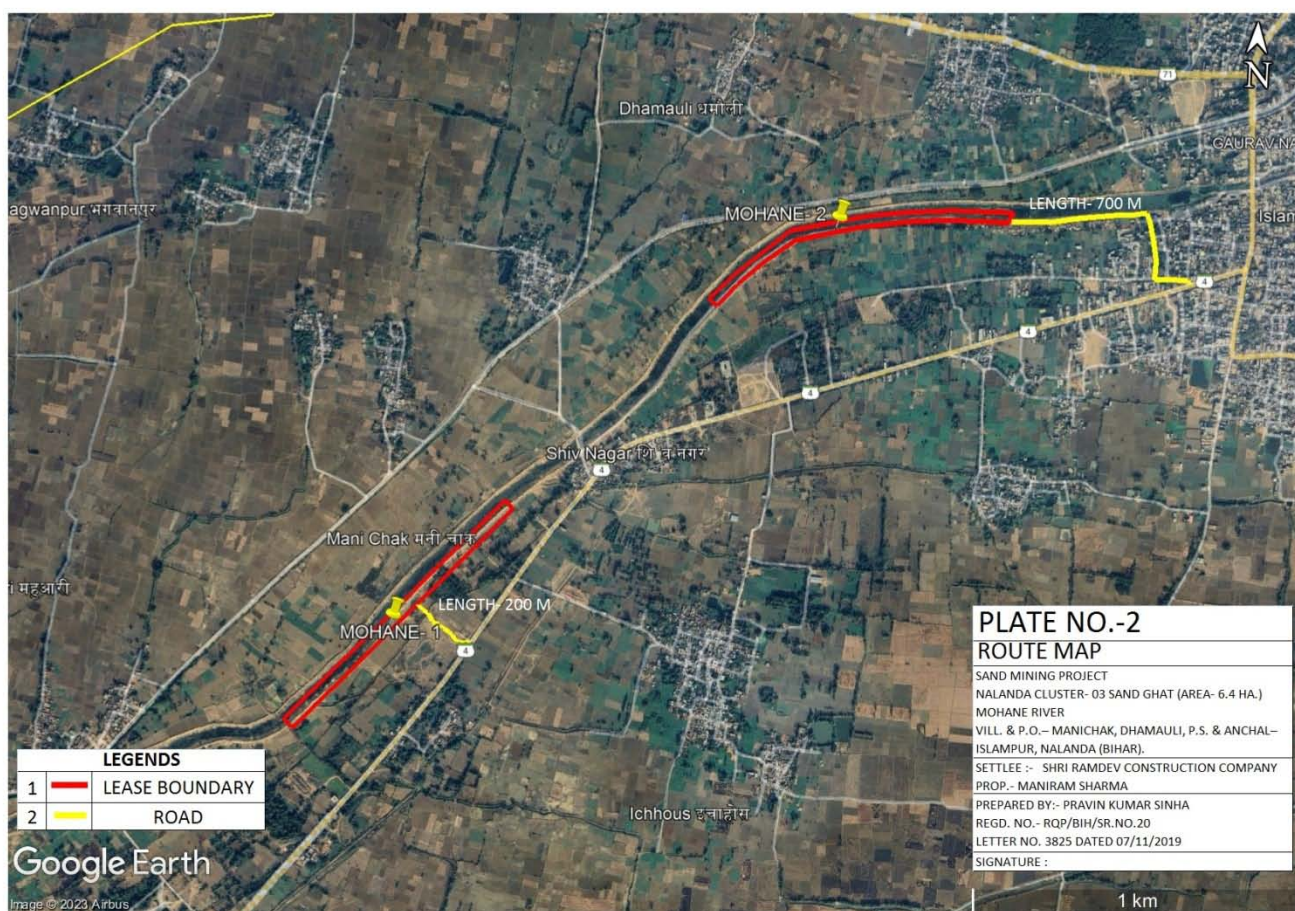


FIGURE 4.2 MAP SHOWING EVACUATION ROUTE

Traffic analysis is carried out by understanding the existing carrying capacity of the roads near to the project site and the connecting main roads in the area. Then depending on the capacity of the mine, the number of trucks that will be added to the present scenario will be compared to the carrying capacity.

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Table 4.2 (i): Existing Traffic Scenario & LOS

Road	V	C	Existing V/C Ratio	LOS
State Highway (SH-4)	2500	15000	0.16	A

Source: Capacity as per IRC: 64-1990

V= Volume of Vehicles in PCU's/day & C= Capacity of Road in PCU's/day

The existing Level of Service (LOS) is "A" & "B" i.e. excellent & very good.

V/C	LOS	Performance
0.0 - 0.2	A	Excellent
0.2 - 0.4	B	Very Good
0.4 - 0.6	C	Good / Average / Fair
0.6 - 0.8	D	Poor
0.8 - 1.0	E	Very Poor

Reference: ENVIS Technical Report, IISc, Bangalore.

During Mine operation for **Nalanda Cluster- 03 Sand Ghat**

Proposed Capacity of Mine/annum : 80256 TPA

No. of working days : 250 days

Proposed Capacity of mine/day : 321.02

Truck Capacity : 16 tonnes

No. of trucks deployed/day : 20.06 or 21

Increase in PCU/day (21*3) : 63

Table 4.2 (ii): Modified Traffic Scenario & LOS

Road	V	C	Modified V/C Ratio	LOS
State Highway (SH-4)	2500 + 63 = 2563	15000	0.17	A

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Results

From the above analysis it can be seen that the LOS has changed from 0.16 to 0.17 at Highway intersection that remains 'A' i.e 'Excellent'. Hence, there will not so much adverse affect on the proposed evacuation roads due to additional traffic. Traffic management has been proposed as given in below

Traffic Management:

1. Roads will be repaired regularly and maintained in good conditions.
2. Haul roads will be sprinkled with water to keep the dust suppressed.
3. A supervisor will be appointed to regulate the traffic movement near the site.
4. Speed breakers will be constructed near accident prone areas to calm the traffic and its speed.

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5.0 ANALYSIS OF ALTERNATIVE TECHNOLOGY AND SITE

5.1 Site Alternatives under Consideration

Presence of sand for commercial exploitation has been identified based on the result of geological investigations and exploration. The mining projects are site specific as such alternate sites were not considered.

5.2 Analysis of Alternative Technology

5.2.1 Choice of Method of Mining

Factors in the choice of an actual mining method for a given deposit are deposit characteristics, requirement of health and safety and environmental concerns, production, scheduling scope of mechanization, workforce requirements wage rates, replenishment, operating and capital cost estimates. The selection of the mining method (development and extraction) is a key decision to be made in the opening up of a mine.

Surface or open cast mining is used for large, near-surface mineral deposits. Mineral is exploited, loaded into trucks, and hauled to a market.

The opencast mining method will be adopted because of the following reasons:

- The opencast mining operations ensure higher mineral conservation.
- Replenishment

The method used for mining is efficient for sand mining, so no alternative mining method is proposed.

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6.0 INTRODUCTION

Regular monitoring of the various environmental parameters is necessary to evaluate the effectiveness of the management programme so that the necessary corrective measures can be taken in case there are some drawbacks in the proposed programme. Since environmental quality parameters at work zone and surrounding areas are important for maintaining sound operating practices of the project in conformity with environmental regulations, the post project monitoring work forms part of Environmental Monitoring Program.

Environmental Monitoring Program will be implemented once the project activity commences. Environmental monitoring program includes (i) Environmental surveillance, (ii) analysis & interpretation of data, (iii) Preparation of reports to support environmental management system and (iv) Organizational set up responsible for the implementation of the programme.

6.1 ENVIRONMENTAL MONITORING AND REPORTING PROCEDURE

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges and wastes, for measurement against corporate or statutory standards, consent limits or targets. It may also require measurement of ambient environmental quality in the vicinity of a site using ecological/biological, physical and chemical indicators. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints.

The preventive approach to environment management may also require monitoring of process inputs, for example, type and method used, resource consumption, equipment and pollution control performance etc.

The key aims of environment monitoring are:

1. To ensure that results/ conditions are as forecast during the planning stage, and where they are not, to pinpoint the cause and implement action to remedy the situation.

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2. To verify the evaluations made during the planning process, in particular with risk and impact assessments and standard & target setting and to measure operational and process efficiency.
3. Monitoring will also be required to meet compliance with statutory and corporate requirements.
4. Finally, monitoring results provide the basis for auditing i.e. to identify unexpected changes.

6.2 MONITORING METHODOLOGIES AND PARAMETERS

Air quality monitoring

Air Quality monitoring is essential for evaluation of the effectiveness of abatement programmes and to develop appropriate control measures. Suspended Particulate Matter (SPM), Sulphur Dioxide (SO₂) and Nitrogen Dioxide (NO₂) will be monitored at the workplace i.e. core zone. The methodology proposed for is shown below:

Table 6.1, Monitoring methodologies and parameters

Parameters	Technique	Technical Protocol
PM ₁₀	Gravimetric method	IS 5182 (Part-XXIII)
Sulphur Dioxide	Improved West and Gaeke	IS-5182 (Part-II)
Nitrogen Dioxide	Modified Jacob & Hochheiser	IS-5182 (Part-VI)

Water quality monitoring

Water quality monitoring involves periodical assessment of quality of surface water and the ground water near the mining project.

- Surface water samples will be analyzed for all the parameters as per EPA, 1986
- Ground water samples will be analyzed for all the parameters as per IS-10500:2012.

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Soil quality monitoring

The soil quality monitoring is carried out to assess the soil characteristic. The soil quality will be analyzed as per CPCB norms.

Noise level monitoring

Noise level monitoring will be done for achieving the following objectives:

- a) To compare sound levels with the values specified in noise regulations
- b) To determine the need and extent of noise control of various noise generating sources

Noise level monitoring will be done at the work zone to assess the occupational noise exposure levels. Noise levels will also be monitored at the noise generating sources like mineral handling arrangements, vehicle movements and also at the nearest village for studying the impact due to higher noise levels for taking necessary control measures at the source.

Socio-economic Survey

Socio economic condition will be monitored to assess the demographic particulars of the area including the impacts on the social & economical condition on the residents nearby.

Plantation Monitoring Programme

Plantation monitoring will be done to ensure survival & growth rate of plantations.

6.3 MONITORING SCHEDULE

The schedule has been shown below for the parameters proposed for monitoring.

Table 6.2, Details of monitoring schedule

S.No.	Description of Parameters	Schedule of Monitoring
1	Air Quality	24 hourly samples twice/Thrice a week in each season except monsoon
2	Water Quality (Surface & Groundwater)	Once a season for 4 seasons in a year
3	Soil Quality	Once in a year in project area

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4	Noise Level	Twice a year for first two years & then once a year
5	Socio-economic Condition	Once in 3 years
6	Plantation Monitoring	Once in a season

6.4 MONITORING SCHEDULE - IMPLEMENTATION

An implementation programme has been prepared as it serves no purpose if it is not implemented in letter and spirit.

Implementation of proposed control measures and monitoring programme has an implication on mining site as well as on the surrounding area. Therefore, mine management should strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented in the entire study area:

- a) Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.
- b) Collection of soil samples at strategic locations once every two years and analysis thereof with regard to deleterious constituents, if any.
- c) Measurement of water level fluctuations in the nearby ponds dug wells and bore wells and to assess if mining has got any impact on it or not.
- d) Measurement of noise levels at mine site and adjacent villages will be done twice a year for first two years and thereafter once a year.
- e) Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people should also be involved.

An Environmental Management Cell (EMC) is envisaged which will be responsible for monitoring EMP and its implementation. EMC members should meet periodically to assess the progress and analyze the data collected during the month.

6.5 BUDGET ALLOCATION FOR MONITORING

The EMC will be responsible to carry on the monitoring. Budget allotment has also been proposed for the same:

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Table 6.3, Budget for monitoring

S. No.	Description	Cost to be incurred (in lakhs/annum)
1	Water Quality (Surface & Groundwater)	1.0
2	Soil Quality	0.50
3	Air Quality	1.0
4	Noise Level	0.5
5	Plantation Monitoring	0.5
6	Socio-economic Condition	0.5
TOTAL		4.0

6.6 REPORTING SCHEDULES OF THE MONITORING DATA

It is proposed that voluntary reporting of environmental performance with reference to the EMP should be undertaken. The environmental monitoring cell shall co-ordinate all monitoring programmes at site to furnish the data to the State regulatory agencies regularly in respect of the stipulated prior environmental clearance terms and conditions. The proponent shall prominently advertise in the newspapers indicating that the project has been accorded environmental clearance and also the details of website where it is displayed.

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7.0 PUBLIC CONSULTATION

This is Draft EIA report public hearing is yet to be conducted.

7.1 HAZARD IDENTIFICATION AND RISK ASSESSMENT METHODOLOGY

Risk is to expose someone or something to danger, harm or loss. The different steps of risk assessment procedure are as given below:

Step I: Hazard Identification

The purpose of hazard identification is to identify and develop a list of hazards for each job in the organization that are reasonably likely to expose people to injury, illness or disease if not effectively controlled. Workers can then be informed of these hazards and controls put in place to protect workers prior to them being exposed to the actual hazard.

Step II: Risk Assessment

Risk assessment is the process used to determine the likelihood that people exposed to injury, illness or disease in the workplace arising from any situation identified during the hazard identification process prior to consideration or implementation of control measures.

Risk occurs when a person is exposed to a hazard. Risk is the likelihood that exposure to a hazard will lead to injury or health issues. It is a measure of probability and potential severity of harm or loss.

Step III: Risk Control

Risk control is the process used to identify, develop, implement and continually review all practicable measures for eliminating or reducing the likelihood of an injury, illness or diseases in the workplace.

Step IV: Implementation of risk controls

All hazards that have been assessed should be dealt in order of priority in one or more of the following hierarchy of controls

The most effective methods of control are:

- ✓ Elimination of hazards.

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- ✓ Substitute something safer.
- ✓ Use engineering/design controls.
- ✓ Use administrative controls such as safe work procedures.
- ✓ Protect the workers i.e. by ensuring competence through supervision and training, etc.

Each measure must have a designated person assigned for the implementation of controls. This ensures that all required safety measures will be completed.

Step V: Monitor and Review

Hazard identification, risk assessment and control are an on-going process. Therefore regularly review the effectiveness of your hazard assessment and control measures. Make sure that you undertake a hazard and risk assessment when there is change to the workplace including when work systems, tools, machinery or equipment changes. Provide additional supervision when the new employees with reduced skill levels or knowledge are introduced to the workplace.

A) RISK ANALYSIS

The risk assessment portion of the process involves three levels of site evaluation:

- a) Initial Site Evaluation,
- b) Detailed Site Evaluation,
- c) Priority Site Investigations and Recommendations.

The risk assessment criteria used for all levels of site evaluation take into account two basic factors:

- The existing site conditions
- The level of the travelling public's exposure to those conditions.

The Initial Site Evaluation and Detailed Site Evaluation both apply weighted criteria to the existing information and information obtained from one site visit. The Initial Site Evaluation subdivides the initial inventory listing of sites into 5 risk assessment site groups. The Detailed Site Evaluation risk assessment is then performed on each of the three highest risk site groups in order of the group priority level of risk. The result of the Detailed Site Evaluation process is a prioritized listing of the sites within each of the three highest risk site groups.

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Risk analysis is done for:

- Forecasting any unwanted situation
- Estimating damage potential of such situation
- Decision making to control such situation
- Evaluating effectiveness of control measures

Table 7.1, Risk Likelihood Table for Guidance

Step 1: Assess the Likelihood				Step 2: Assess the Consequences		
L1	Happens every time we operate	Almost Certain	Common or repeating occurrence	C1	Fatality	Catastrophic
L2	Happens regularly (often)	Likely	Known to have occurred "has happened"	C2	Permanent disability	Major
L3	Has happened (occasionally)	Possible	Could occur or "heard of it happening"	C3	Medical/hospital or lost time	Moderate
L4	Happens irregularly (almost never)	Unlikely	Not likely to occur	C4	First aid or no lost time	Minor
L5	Improbable (never)	Rare	Practically impossible	C5	No injury	Insignificant

A logical systematic process is usually followed during a qualitative risk assessment to identify the key risk events and to assess the consequences of the events occurring and the likelihood of their occurrence Table 7.2

Table 7.2, Qualitative Risk Assessment

Risk Rank	L1	L2	L3	L4	L5
Likelihood Consequence	Almost certain	Likely	Possible	Unlikely	Rare
C1 Catastrophic	1	2	4	7	11

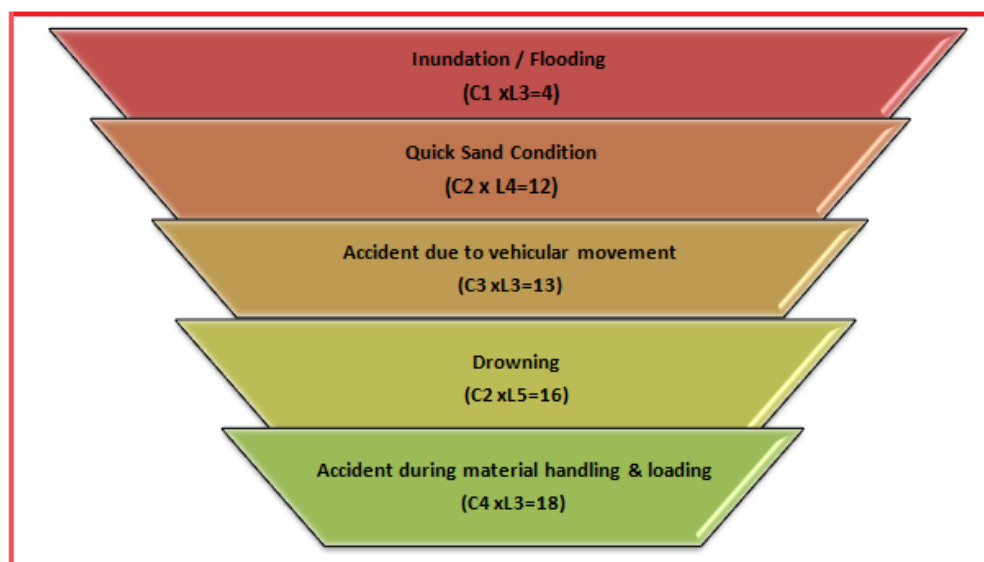
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C2 Major	3	5	8	12	16
C3 Moderate	6	9	13	17	20
C4 Minor	10	14	18	21	23
C5 Insignificant	15	19	22	24	25

RISK RATING:

HIGH RISK 1-6	MEDIUM RISK 7-15	LOW RISK 16-25
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7.2 RISK ASSESSMENT



There are various factors, which can create unsafe working conditions/hazards in mining of minor minerals from bed of river.

The key risk(hazard x probability) event rating associated with sand mining and to assess its consequences of such events occurring and the likelihood based on above Table 7.1 (ii) are as:-

The Risk rating of such hazards is as follows:

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7.2.1 INUNDATION/FLOODING

The risk rating assigned to this activity is assigned as '4' i.e., it is possible and will have catastrophic with major consequences, if work started without assessment of the *river* condition especially during monsoon season.

Inundation or flooding is expected and beneficial for these mines as during this time only the mineral reserve gets replenished.

Measures to prevent consequences of inundation/flooding

Inundation of flooding is expected and beneficial for these mines as during this time only the mineral reserve gets replenished.

1. During monsoon months and heavy rains the mining operations are ceased.
2. There should be mechanism/warning system of heavy rains and discharges from the upstream dams.

7.2.2 Quick Sand Condition

The risk rating assigned to this activity is assigned as '12' i.e., it is an unlikely event with major consequences as frequency of this risk is less likely to occur.

Two things may create the conditions to form quicksand. Underground water may seep-up and saturate the sand, thereby reducing the friction between the sand grains and giving the sand a liquid nature. Or, sand or another soil may be sifted by the force of an earthquake so that friction is lessened and the earth becomes unsteady.

This creates danger condition to the trucks plying near the *river* and banks for transportation of minerals.

Measures to Prevent Quick Sand Condition

1. The only way to avoid quick sand condition is by avoiding mineral lifting below water table.
2. Mining will be done in layers rather than going for maximum depth at one time.

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7.2.3 ACCIDENT DUE TO VEHICULAR MOVEMENT

The risk rating assigned to this activity is assigned as '13' i.e., it is possible event with moderate consequences as frequency of this operation is more but the predicted/assumed intensity is less like minor cuts, bodily injury. The possibilities of road accidents are due to reckless or untrained driver or overloading of trucks or in case pathway is not compacted suitably, etc.

Measures to Prevent Accidents during Transportation

1. All transportation within the main working should be carried out directly under the supervision and control of the management.
2. The Vehicles will be maintained/repared and checked thoroughly by the competent person.
3. A statutory provision of constant education, training etc. will go a long way in reducing the incidents of such accidents.
4. Overloading will not be permitted and will be covered with tarpaulin.
5. The maximum permissible speed limit will be ensured.
6. The truck drivers will have valid driving license.

7.2.4 DROWNING

The risk rating assigned to this activity is assigned as '16' i.e., it is a rare accident but will have major consequences, if occurred. This may occur due to flash floods etc due to which the workers at the site may get seriously injured or drowned.

Measure to Prevent Drowning

1. The mining will be done under strict supervision and only in the dry part of the *river*.
2. Mining will be completely stopped in monsoon season to avoid such accidents.
3. Deep water areas will be identified and 'No Go Zones' will be clearly marked and made aware to the mine workers.

7.2.5 ACCIDENT DURING MATERIAL HANDLING & LOADING

The risk rating assigned to this activity is assigned as '18' i.e. it is possible event with minor consequences", as frequency of this operation is more but the predicted/assumed intensity is less like minor cuts, abrasion, etc. may be due to bank of *river* collapse, over thrown boulders/pebbles, injuries due to carelessness use of hand tools, etc.

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Measures to Prevent Accidents during material handling & loading

1. The truck should be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
2. The loading should be done from one side of the truck only to avoid over throw of materials.
3. The workers should be provided with gloves and safety shoes during loading.

All the activities will be done under strict supervision/control to avoid anticipated accidents so that the risk is reduced to a level considered **As Low As Reasonably Practicable (ALARP)** conditions which are adequately safe and healthy.

7.3 DISASTERS & ITS MANAGEMENT

7.3.1 Anticipated Disaster

- 1. Floods:** Most of the areas of this district are flood prone owing to the presence of seasonal rivers. Rivers and its tributaries cause heavy losses to the human lives, livestock, land and property mainly due to flash floods. Hence no mining has been proposed during monsoon and flood alerts will be given, if any.
- 2. Earth Quake:** Banka District like other areas of Bihar is moderately vulnerable to earthquake as it exists in Zone IV. However the vulnerability to damage near the site is quite low as there are no built in structures at the site.
- 3. Drought:** due to deficiency in rainfall prime reasons of recurring drought in Bihar is the nature of soil with low mineral and humus-contents besides extremely poor water holding capacity. Recurrent rainfall variability and sustained departure from the normal rainfall vis-a-vis low reliability, fluctuating both surface and underground water resources and extremely poor water holding capacity of the major soil group appear to have clubbed together to cause frequent droughts in Bihar. Besides, there is a positive relationship between reducing forest land and the increasing rainfall variability and the phenomenon is well manifested in Bihar scenario of recurrent droughts.

7.3.2 Disaster Management Plan & Strategy

The Disaster Management Plan has three components:

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(A) Risk Analysis and Vulnerability Assessment:

The Risk Analysis and Vulnerability Assessment depict the present picture for each disaster-exposure, loss of life, property damage, etc. It also shows geographic distribution of each hazard. The various monitoring facilities, regulatory regimes, countermeasures available for each disaster are identified and listed.

(B) Response Plan:

The response plan presents an organizational structure of the District to effectively handle the disaster in a coordinated and quickest possible manner to mitigate the impact of disaster. It identifies functional areas such as relief, restoration, communication, information, transport, emergency health services etc and proposes assignments to various departments; including identifying lead and supporting departments. The response plan also lays down preparedness checklists and standing operating procedure (SOP) guidelines.

(C) Mitigation Strategy:

The mitigation strategy and plan focus on the long-term planning for impact reduction. It deals with the issues of continued commitment to hazard identification and risk assessment, applied research and technology transfer, investment- incentives for mitigation, and leadership and co-ordination for mitigation.

The mine management will be in regular contact with the District administration to gather information on natural disasters and will pass on the message at the site to avoid any loss of health or wealth due to impending disasters.

Though the responsibility of disaster management is vested with the center and state Governments, it is extremely difficult for them to deal effectively all the aspects of disaster management according to the needs of the affected people.

Thus disaster management plan of the Banka District has been prepared through incorporation of the features of Community Based Disaster Management and involvement of local governments, Municipalities etc.

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7.4 SOCIO-ECONOMIC IMPACT OF THE PROJECT & SAFETY MEASURES

INTRODUCTION

Socio-Economic Impact Assessment (SEIA) refers to systematic analysis of various social and economic characteristics of human being living in a given geographical area during a given period. The geographical area is often called Study Area or Impact Area. SEIA is carried out separately but concurrently with Environment Impact Assessment (EIA). The study area consists of core area where the project is located and a buffer area encircling the project area with a radius of 10 km from the periphery of the core area. For every new project or existing project under expansion or tied for modernization or change in product mix, Socio-economic Impact Assessment is mandatory. The Socio-economic impact assessment focuses the effect of the project on social and economic well-being of the community. The impact may be direct or indirect. Further, the impact may be positive or negative.

OBJECTIVES OF SEIA

The prime objective of the current study is to assess the impact of the proposed mining project on socio-economic characteristics of people living in the neighborhoods. Further, it is to be established whether the impending impact would be direct or indirect. Furthermore, it is to be examined whether the said impact would be positive or negative. Lastly, it is to be comprehended if the impact is positive how long it would sustain or if it is negative how soon the same could be eased.

SCOPE

The Scope of the study is as follows:

- a) To collect baseline data of the study area
- b) To comprehend socio-economic status of the people living in the study area.
- c) To assess probable impact of the project on social and economic aspects in the study area.
- d) To measure the impact of the project on Quality of life of the people living in the study area.

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- e) To ensure sustainability of positive impact.
- f) To suggest mitigation measures and agency responsible for taking action in case of adverse impact.

SOCIO-ECONOMIC IMPACT OF THE PROJECT

Impact on Demographic Composition

The proposed Project will hardly make any difference in the demographic composition of the study area as the additional employment it envisages to create will be met locally to the maximum extent. Hence, the chances of in-migration of people from outside the study area are remote. Accordingly, there will be no variation in the total population of the study area including that of sex ratio, when the mine starts operating.

Employment Opportunities

The proposed Project will provide employment to the local people. The number of workers to be deployed in the mining project will depend upon the quantity of minerals to be extracted from the mine by the lease holder. Both the miners and the unskilled workers will be recruited locally. It has estimated that around **25 people** will get employment in this mining project for a period of ten months in a year. It is a positive impact of the project since it is providing employment opportunities to the local people. The project will not affect the vulnerable groups of people.

Increased supply of sand in the market

The demand for minerals is ever increasing with the growth of the infrastructure development in our country. Both Government departments and private developers have taken up construction of roads, bridges and buildings in a big way. The requirement for the building materials is always high and there is already an acute shortage of sand in the market and the construction industry is the main sufferer. With the commencement of the proposed mining project the supply of minerals will increase and the gap between demand & supply will decrease to some extent, if not fully.

Impact on agriculture

It is non-forest land and the proposed activity is to take place in the bed of the Mohane River. There will be no negative impact on agriculture as no cultivation is taking place on

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the proposed mining area. Since, scientific mining will be adopted in the proposed mining project the area will be free from annual floods, which destroy standing crops and land & property. This is a positive impact of the proposed mining project.

Impact on road development

Movement of trucks and other vehicles to and fro the mining site is expected to increase, when mining will start. The existing roads are connecting the quarry with the national highway connected by metalled followed by un-metalled roads. Hence, there is need for road maintenance and repairing regularly in the mining area. Further, there are risks of accidents during loading of extracted minerals into trucks and transportation to markets for sells. However, accidents can be avoided by taking due care and precautions.

Income to Government

The proposed mining activity will benefit the State in the form of royalty, dead rent, fees and earnings from taxes.

Impact on Law & Order

As most of the workers to be employed in the proposed mining project are local residents no law & order problem is envisaged. It is expected that the workers will attend to their duties from their residence and return to their homes after the day's work. There would have been law & order problem if the workers were migrants and lived in shanties closed to the mining area. However, to meet any untoward incident one police post may be set up closed to the mining site.

Impact on Health

There are no chances of occurring diseases, due to mining. The minerals excavated are non-toxic. To avoid respiratory problem from dust necessary protection should be taken.

Few safety measures are outlined below:

- a) **Safe Working Environment:** The project proponent shall ensure health and safety of all the employees at work. Efforts will be made to provide and maintain a safe work environment and ensure that the machinery and equipment in use is safe for employees. Further, it will be ensured that working arrangements are not hazardous to employees.

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- b) **Provision of First Aid:** The first aid treatment reflects the hazards associated with the mining of minerals. The first-aiders will be well trained in handling patients working in the Project.
- c) **Regular Health Examination:** For all mine workers regular health examination will be made compulsory. Treatment of serious back injury; existing asthma or respiratory diseases, existing skin diseases, lung function test (pre and post ventolin), Audiograms, Chest X- ray etc. will also be taken care of.
- d) **Health Education:** Adequate health education and information related to the job will be provided to the workers. Baseline health information will be recorded for future references.
- e) **Tie-up with the Nearest Hospital for Medical Assistance:** To meet the medical needs of the mine workers tie-up with nearest hospitals will be made. Efforts will be made to reserve few beds in the above hospitals for the workers of the mining project. This will ensure timely medical aid to the affected persons.
- f) **Supply of Mask and Gloves:** The workers in the Sand mining project are subject to respiratory diseases. For protection from dust it will be made compulsory for all workers to wear masks and gloves, while working in the mine.
- g) **Administration of Anti-venom Injections:** Provision of Anti-venom therapy will be made available for administration to the workers in case of snake, spider and insect bites, while working in the mine.
- h) **Special Telephone Number:** A special telephone number will be made available to the workers in case of emergency so that they can dial the same for–medical assistances. Further, efforts will be made to provide vehicles to the patients in short duration for shifting to a hospital.
- i) **Special Group Insurance Scheme:** All the mine workers will be covered under a Group Insurance Scheme of LIC or any other Insurance company.

CONCLUSION

The commissioning of the Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar). provides employment to local people who are in search of the same. The granting of environment clearance to make mining of sand legally valid and it

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will generate revenue for the state. It is expected that prospective entrepreneurs will venture to set up industrial units in the vicinity in the near future making the area a mixed society, dependent on industry, trade and business. With the implementation of the project the occupational pattern of the people in the area will change making more people engaged in mining, industrial and business activities rather in agriculture only. The study area is still lacking in health and educational facilities. It is expected that same will improve to a great extent with opening of the project and associated industrial & business activities.

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8.0 GENERAL

Various benefits are envisaged while planning for the mining of sand from Mohane River Bed. Sand is very important minor mineral and is the principal raw material for meeting the huge demand of construction material required in building construction and infrastructure works, road material for construction and maintenance of roads / highway; elastic ballast material for rail tracks in the State of Bihar & and nearby cities and towns of Bihar. The natural available materials in shoal deposits of Mohane River bed quarry site have been found suitable from techno-economic consideration.

8.1 PHYSICAL BENEFITS

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas.

- a. **Road Transport:** There will be improved road communication due to the proposed project and maintenance will also be done time to time.
- b. **Market:** Generating useful economic resource for construction. Excavated minor mineral sand will provide a good market opportunity.
- c. **Enhancement of green cover:** As a part of reclamation plan, plantation will be carried along the river banks or along the road sides or near the civic amenities.
- a. **Creation of community assets** (infrastructure) like provision for drinking water, construction of school buildings, village roads/ linked roads, dispensary & health centre, community centre, market place etc, as a part of corporate social responsibility.

8.2 SOCIAL BENEFITS

- a) **Increase in Employment Potential due to the project activity:** Employment opportunities will increase both directly as well indirectly.
- b) **Contribution to the Exchequer** as the saleable minerals will be given royalty. Since the quarries will be leased out to successful allottees, mining operation in the state will get legalized and it will fetch income to the state exchequer.
- c) **Increased Health related activities:** Healthcare promotional activities will be undertaken. Pre-placement & and Periodic medical checkups will be done, which will

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

lift the general health status of the residents of the area. Health camps, medical aids, family welfare programs, immunization camp, sports will be arranged.

Table-8.1, Budget for Public Health

S. No.	Activities recommended for communities level services	Tentative cost (Lakh Rs) For Each Mine
1	Awareness campaigns regarding health issues in the nearby villages.	1.0
2	Provide free health checkups & medicines to the nearby villagers of the project site.	1.0
3	Assistance to set up a temporary health center during the lease tenure.	0.5
	Total	2.5

- d) **Educational attainments:** Educational activities will be promoted by the lessee. Awareness program will be arranged covering basic issues related to primary level education, environment, health and hygiene etc.
- e) **Strengthening of existing community** facilities through the Community Development Programme.

Table 8.2, Budget for Occupational Health

Particulars	Recurring Cost per year (Rs.) For Each Mine
For routine checkup	1,00,000
Medical aid as per ESI Scheme	2,00,000
Training	1,00,000
Total	4,00,000

8.3 ENVIRONMENTAL BENEFITS

- Protection of banks
- Reducing submergence of adjoining agricultural lands due to flooding.
- Reducing aggradations of river level.

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- d. Protection of crops being cultivated along the bank.
- e. A check on illegal mining activity.

8.4 CORPORATE ENVIRONMENTAL RESPONSIBILITY

2% of capital cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018. The following has been proposed considering the needs & demand of the people.

CER cost will be 2% of the total project cost. This amount will be used for social welfare.

CER COST is Rs..76,52,000 /-x 2% = Rs. 1,53,040 /-

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during Public Hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

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9.0 INTRODUCTION

The environmental management must be integrated into the process of mine planning so that ecological balance of the area is maintained and adverse effects are minimized. The Environmental Management Plan (EMP) consists of a set of monitoring programme, mitigation measures, and management control strategies to minimize adverse environmental impacts.

The EMP has therefore been made considering implementation and monitoring of environmental protection measures during and after mining operations. Measures to be taken for each of the impact areas are detailed in the following paras:

9.1 ENVIRONMENTAL MANAGEMENT CELL (EMC)

It is imperative to establish an effective organization to implement, maintain, monitor and control the environmental management system. A separate Environmental Management Cell (EMC) will be formed to look after the environment related matter of the mine. The structure of EMC is as follows:

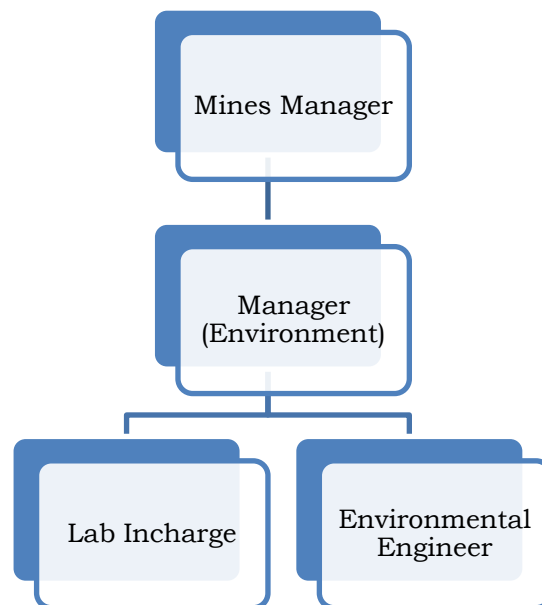


Figure 9.1 Environment Management Cell

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

The EMC will perform the following activities:

- EMC will oversee that environmental control measures are implemented as per the plan.
- EMC will ensure ambient Field monitoring like air monitoring, meteorological monitoring and noise monitoring in coordination with outside agencies.
- Coordinating the environment related activities within the organization as well as with outside agencies.
- Reporting the status report to the statutory authorities.
- Systematically document and record keeping w.r.t. environmental issues.
- Plantation and their maintenance
- Collection statistics of health of workers and population of surrounding villages.
- Environmental compliance to the regulatory authorities.
- Communication with the concerned department on the environmental issue.
- Monitoring the progress of implementation of environmental management programme.

9.2 AIR POLLUTION CONTROL MEASURES

During the course of sand mining, no toxic substances are released into the atmosphere, so there seems to be no potential threat to health of human beings. In river bed mining activities, dust will be generated during mining, loading and transportation. The only source of fugitive gaseous emission during mining is vehicles which will be used for transportation. The environmental management for air pollution control includes:

- Plantation will be done along the road-sides and also the vacant land present under Gram Panchayat after consultation with local villagers/authority.
- Dust mask provided to the workers engaged at dust generation points like excavations, loading and unloading points.
- The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads.

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- Utmost care will be taken to prevent spillage of sand and stone from the trucks.
- Water sprinkling will be done to reduce the emission of dust due to transportation of minerals.
- Overloading will be prevented. The trucks/ tractor trolley will be covered by tarpaulin covers.
- Plantation activities in consultation with village Panchayat along the roads will also reduce the impact of dust in the nearby villages.

9.3 WATER POLLUTION CONTROL MEASURES

During the operational phase of mine no waste water or industrial effluent will be generated. The environmental management for water pollution control includes:

- Water requirements for drinking, plantation and dust suppression will be met by tanker supply on the daily basis.
- Local people will be employed and no permanent housing will be done so no permanent drainage pattern for sewerage system is required as domestic sewage shall be disposed off into septic tank followed by soak pits.
- Mining in the area will be done up to depth of 3.0m maximum from the surface level well above the ground water table, therefore impact on water regime is not anticipated.
- Monitoring of water quality of nearby surface water, ground water and domestic water will be conducted once in every season except monsoon to evaluate the performance of the mitigation measures.

9.4 NOISE POLLUTION CONTROL MEASURES

As there will be no heavy earth moving machinery there will not be any major impact on noise level due to sand mining and other association activities a detailed noise survey has been carried out and results were cross referenced with standards and were found to be well within limits. Blasting technique is not used for sand mining hence no possibility of land vibration. It was found that the proposed mining activity will not have any significant impact on the noise environment of the region. The only impact will be due to transportation of sand and by excavator involve trucks and tractor trolleys.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

- Proper maintenance of all machines is being carried out, which help in reducing generation of noise during operations.
- No other equipments accept the Transportation vehicles and Excavator and Loaders (as and when required) for loading is allowed.
- Noise generated by these equipments is intermittent and does not cause much adverse impact.
- Periodical monitoring of noise will be done to adopt corrective actions wherever needed.
- Plantation will be taken up along the approach roads. The plantation minimizes propagation of noise and also arrests dust.

9.5 BIOLOGICAL ENVIRONMENT

Although, there are no significant adverse impacts from the project, the following measures are proposed to minimize anticipated impacts:

- It will be ensured that no mining activity will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season for many of the species.
- As the mining site has no vegetation, no clearance of vegetation will be done.
- Prior to closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts on aquatic habitats.
- Sprinkling will be done on the haul roads with water to avoid the dust emission, thus avoiding damage to the crops.
- Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
- No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
- No night time mining will be allowed which may catch the attention of wild life.
- Workers will be made aware of the importance of the wildlife and signage will be displayed at the sensitive areas to caution the workers & other passerby.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

- **Greenery development:** The project will not lead to any tree cutting. However, a social responsibility, greenery will be developed along the both sides of road and the bank of river. Community services will be deployed in raising these plantations. Trees of economic importance and native origin such as fruit trees shall be planted.
- Approx. 64 trees will be planted around haul road during the plan period.
- The trees proposed for plantation are:
- As per Sustainable Sand Management & Mining Guidelines 2016, minimum 05 plant per hectare will be proposed for development of greenbelt but in this project 10 plants per hectare will be proposed for better condition of environment.
- Total Number of plants for cluster of Sand Blocks are given below.

Sand Ghat	Area (Ha)	Plants
Nalanda Cluster- 03 Sand Ghat	6.4	6.4*10 Plants= 64 plants
Total Plants		64 plants

Table 9.1:- List of Plant selected for Green Belt Development

	Agro-climatic zone & Sub zone	Middle Genetic Plains, North west alluvial sub zone	
S/n	Scientific name	Common Name	Pollution control features
1	<i>Acacia nilotica</i>	Babul	Tolerant to SO ₂
2	<i>Mangifera indica</i>	Aam	Tolerant to Dust control
3	<i>Tectona grandis</i>	Sagon	Tolerant to Dust control
4	<i>Azadirachta indica</i>	Neem	Tolerant to SO ₂
5	<i>Pithecolibium duclouxii</i>	Jungle jalebi	Tolerant to SO ₂ and Dust control
6	<i>Scigium cumuni</i>	Jamun	To stop river bank erosion
7	<i>Terminalia arjuna</i>	Arjun	To stop river bank erosion
8	<i>Populus ciliate</i>	Popular	Fast growing, broad leaf

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9.6 LAND USE PLANNING

Degradation of land is not a very significant adverse impact of riverbed mining due to creation of access roads, mining operations, transportation of mined material. In order to prevent the environmental degradation of leased mine area and its surroundings, the following measures shall be taken;

- Mineral will be mined out after leaving sufficient safety zone from the bank as per sustainable sand mining guidelines-2016 for bank stability.
- The pits from where the material will be picked should not get deeper than 3.0 meter & shall follow the normal channel direction of the river.
- No foreign material shall be allowed to remain/spill in river bed and catchment area, or no pits/pockets will be allowed to be filled with such material.
- The mining is planned in non-monsoon seasons only, so that the excavated area gets replenished during the monsoon each year.
- Pits will get replenished naturally every year after monsoon.

9.7 OCCUPATIONAL HEALTH & SAFETY

Occupational safety and health is very closely related to productivity and good employer-employee relationship. The factor of occupational health in Sand Ghat of Shri Ramdev Construction Company Prop.- Maniram Sharma S/o- Bhagirath Address- Ward No.- 11, Rampura Matoriya, Dist.- Hanumangadh, Rajasthan, Pin- 335524, (Nalanda Cluster- 03 Sand Ghat), is mainly dust. Safety of employees during operation and maintenance etc. shall be as per Mines rules and regulations.

To avoid any adverse effect on the health of workers due to various pollutants, sufficient measures relating to safety and health will also be practiced:

- Provision of rest shelters for mine workers with amenities like drinking water, portable toilets etc.
- All safety measures like use of safety appliances, such as dust masks, shoes, non breakable goggles as the case may be, shall be ensured. Safety awareness programs, awards, posters, slogans related to safety etc. will be encouraged.



Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

- Training of employees for use of safety appliances and first aid in vocational training center.
- Regular maintenance and testing of all equipment as per manufacturers' guidelines.
- Periodical Medical Examination (PME) of all workers by a Medical Officer.
- First Aid facility will be provided at the mine site.
- Close surveillance of the factors in working environment and work practices which may affect environment and worker's health.
- Working of mine as per approved mining plan and environmental plans.

9.8 SOCIO-ECONOMIC ENVIRONMENT

This project operation will provide livelihood to the poorest section of the society. The overall impact of riverbed mining of sand on the social economics of the area shall be a very positive one, as not only it will generate employment opportunities for local population at mine site for transportation of mined material, etc. It will also give a good boost to the general economy of the area.

The proposed mining activity is expected to provide stimulus to socio-economic activities in the region and thereby accelerate further development processes. However, there is an apprehension that local people may get engaged in illegal activities if the proposed mining operation or the project is shelved or there is inordinate delay in its execution.

9.9 ENVIRONMENT POLICY

Shri Ramdev Construction Company Prop.- Maniram Sharma S/o- Bhagirath Address- Ward No.- 11, Rampura Matoriya, Dist.- Hanumangadh, Rajasthan, Pin- 335524, (Nalanda Cluster- 03 Sand Ghat), of Sand Ghat believes that responsible environmental stewardship comprises diligent application of well-established natural resource management, controls and practices for the protection of the mined out land, preservation of biodiversity and proper disposal of waste if any following the best environmental practices during the process of mining.

Environmental policy prescribed for standard operating process to bring into focus any violation/deviation of the environment and forest norms/conditions that the company operations will implement operational and risk management practices that provide for



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maximum protection of people and the environment. To this end, the owner resolves that company will follow the below mentioned practices:

Operate in accordance with prescribed industry standards while complying with all applicable environmental, health and safety laws and regulations.

- Establish and maintain a well-defined environmental, health and safety management system to guide its operations.
- Ensure that all employees, officers and directors understand and adhere to its environmental, health and safety management program.
- Provide operations with the necessary resources, expertise and training to effectively carry out its EHS management programs.
- Engage employees at all levels in programs directed towards minimizing adverse effects on the environment resulting from mining activity.
- Work proactively with governments and the public in the development of cost effective and realistic regulations that promote enhanced environmental, health and safety protection.
- Promote environmental awareness among its employees, their families and the communities in which it operates.
- Require those who provide services and products to practice good environmental stewardship.
- Mitigate its environmental impacts through efficient use of resources, and the reduction of input materials and waste.
- Maintain a high degree of emergency preparedness.

9.10 BUDGET ALLOCATION FOR EMP IMPLEMENTATION

Annual budget for EMC is very essential for successful implementation of EMP. Costs will be both Capital and Recurring cost as given below. The fund allocated will not be diverted for any other purposes and the top management will be responsible for this.

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Table 9.2, Budget of EMP (Nalanda Cluster- 03 Sand Ghat)

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	--	1.5
2	Pollution Monitoring i) Air pollution ii) Water pollution iii) Soil pollution iv) Noise Pollution	--	2.0
3	Plantation and salary for one gardener (part time basis).	0.64	0.5
4	Haul road Maintenance Cost	1.675	1.5
TOTAL		2.315	5.5

Note: *64 plants * 1000 Rs (for each plants including hedges and fences) =Rs 64000/-

- Salary of Labour for haul road maintenance 2 labor*300=600 per day
- 600* 250= 1,50,000/-
- * 2.5 lakh per kilometer (2,50,000 *0.67 km haul road) = 1,67,500 /-

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

10.0 INTRODUCTION

10.1 Purpose of the Report

Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR) received from SEIAA, Bihar under EIA notification of the MoEF&CC dated 14th September, 2006 and its subsequent amendment there-off and also the EIA Guidance Manual for Mining of Minerals (Feb, 2010) of MoEF&CC, Govt. of India, for seeking environmental clearance for mining of Sand in the applied mining lease area.

10.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT

10.2.1 Identification of Project

The Proposed Sand Mining Project is located on Nalanda Cluster- 03 Sand Ghat at Mohane - 1 at Vill. & P.O.– Manichak, P.S. & Anchal– Islampur, Nalanda (Bihar). and Mohane -2 Vill. & P.O.– Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

The Proposed Production is 38400 Cum/Year or 80256 Tonnes per annum and Area of the project site is 6.40 ha.

As per the Director of Geology, Bihar, the modification of mining plan has been approved .As per EIA notification 2016 and subsequent amendments, the project is coming under category ‘B’ (B1) and the lease area is more than 5.0 Ha, approved Mining Plan, Pre-feasibility Report and EMP are required for Environment Clearance in respect of the said quarry lease. Copy of letter is enclosed as **Annexure No. II**.

10.3 BRIEF DESCRIPTION OF PROJECT

The proposed project is Open Cast Semi-Mechanized Mining of Sand with a proposed production of 38400 Cum/Year or 80256 TPA. The project has been proposed by (Nalanda Cluster- 03 Sand Ghat - Shri Ramdev Construction Company, Prop.- Maniram Sharma S/o- Bhagirath Address- Ward No.- 11, Rampura Matoriya, Dist.- Hanumangadh, Rajasthan, Pin- 335524).

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

The proposed project is over an area 6.40 ha on Mohane River at Village Manichak, Dhamauli, Anchal– Islampur District- Nalanda, (Bihar). As per MoEF, New Delhi Gazette dated 14th September 2006 and amended thereof, the proposed mining project is categorized as **Category ‘B-1’**. The estimated project cost for the proposed project is Rs - 76,52,000 /- (including auction cost).

The proposed mining lease area falls in Survey of India Toposheet 72G/4 & 72G/8.

The mine lease co-ordinates and connectivity details are listed below:

Table: 10.1 Mine lease Co-ordinates

Nalanda Cluster- 03 Sand Ghat

S. No	Sand Ghat	Area (in Ha)	Co-ordinates		Ghat/Village	River
1	Nalanda Cluster- 03 Sand Ghat Mohane -1	3.5	A	25° 7'40.47"N 85°10'28.10"E	Vill. & P.O.– Manichak, P.S. & Anchal– Islampur, Nalanda (Bihar).	Mohane
			B	25° 7'39.56"N 85°10'29.09"E		
			C	25° 8'2.05"N 85°10'51.81"E		
			D	25° 8'2.95"N 85°10'50.93"E		
	Mohane -2	2.9	A	25° 8'23.59"N 85°11'11.87"E	Vill. & P.O.– Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).	
			B	25° 8'22.94"N 85°11'12.82"E		
			C	25° 8'32.51"N 85°11'44.12"E		
			D	25° 8'33.49"N 85°11'44.37"E		

The details of environmental setting are given in **Table-10.2**.

Table-10.2: Details of Environmental Setting

Sr. No.	Particulars	Details
1	Location	

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Sr. No.	Particulars	Details		
a	Village	Mauja – Manichak & Dhamauli		
b	District	Nalanda		
c	State	Bihar		
2	Elevation above	Nalanda Cluster- 03 Sand Ghat (69.4 ASML to 67.8 ASML)		
3	Nearest National /State Highway	H-4 at a distance of approx. 150 m in E direction from Mohane 1. SH-71 at a distance of approx. 0.6 Km in N direction from Mohane 2.		
4	Nearest Railway station	Blocks	Railway Station	Distance (Km) Direction
		Mohane -1	Islampur Railway Station	Approx. 3.50 km, towards E direction.
		Mohane -2	Islampur Railway Station	Approx. 2.23 km, towards E direction.
5	Nearest Airport	Blocks	Airport	Distance (Km) Direction
		Mohane -1 & Mohane - 2	JPN International Airport Patna	Approx 51.50 km towards NW direction.
6	Ecological Sensitive Areas (Wildlife Sanctuaries)	There is no any Ecological Sensitive Areas Like National Park, Wildlife Sanctuaries, etc are found within 10 km of the study area.		
7	Seismic Zone	Zone- IV Source <i>BMTC</i> 2 nd edition https://www.bmtpc.org/disaster%20resistnace%20technolgies/ZONE%20IV.htm		

10.4 PROJECT DESCRIPTION

10.4.1 Salient features of mine lease

The salient features of mine lease are given below:

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Table-10.3: Salient features of mine lease

Sr. No.	Parameter	Description
1	Name of the Mine	Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Village Manichak, Dhamauli, Anchal– Islampur District- Nalanda, (Bihar).
2	Mining Capacity	38400 Cum/Year or 80256 TPA
3	Method of mining	Open cast semi-mechanized mining/OTFM
4	Total ML area	6.40 ha
5	Depth of mining	1.0 m depth
6	Manpower	25 persons
9	Water Requirement	4.60 KLD
10	Source of Water	Tanker/ Nearby village.

10.4.2 Mineral Reserves and production

Mineable reserves have been computed up to 1m depth from surface. Benches having height 1.0 m & width 6.0 m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by Specific gravity (2.09 g/cm³) to get the tonnage.

Table 10.4 Classification Mineral Reserves

Sand Ghat	Area (Hect)	Geological Reserves (m ³)	Mineable Reserves (m ³)	Annual Permitted Reserve As per LoI (m ³)
Nalanda Cluster- 03 Sand Ghat	6.4	64000	49857	38400

Total Mineable Reserve = 49857 CUM or 104202 Tonnes

The annual extractable RBM comes to 38400 CUM or 80256 Tonnes.

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In the lease area the river flow being reduced and sediment load get deposited. During flood season, the area gets replenished with sediments and source of erosion at this location. It is a river bed deposit and mined out area shall be replenished each year during monsoon period and depth of quarry shall be filled back by river sand each year and area will restore its original topography.

10.4.3 Conceptual Plan

Mine Applied Area will be worked for Nalanda Cluster- 03 Sand Ghat. However, as the digging depth will be restricted to 1.0 m only. This will be further replenished during rainy season. Balu Ghat will be worked systematically as the width is limited while length is much more. As the lease period is only 5 (Five) years, some of the area will be left un-worked at the end of lease period.

(i) Final Slope Angle to Be Adopted: Height of the bench is limited to 1 m while width of individual bench shall be kept 6.0 m. River bank side will be protected by working in dry part of the river and by leaving safety distance of the width of the river of 5 meter. Bank side natural slope will not be disturbed. This will prevent collapse of bank and erosion. However, the height of the bank with respect to river bed is varying from 3-4 meters.

(ii) During plan period workings will be carried out in the Balu ghat at a time of the Applied Area simultaneously. Scattered workings will ensure safety, remove congestion of vehicles and will have better control and management.

(iii) Ultimate Capacity of Dumps: There will be no OB removal / during the plan period. Therefore no proposal has been envisaged for its separate dumping. No outside material will be filled up in the extracted zone.

The conceptual plan & section of each mining plots are attached with mine plan.

10.4.4 Method of Mining

Mining activity will be carried out by open cast semi- mechanized method/OTFM. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

10.5 AFFORESTATION PROGRAMME

Topsoil if any would be utilized for intensive plantation and greenbelt development, all along the bank of the river. The details of plantation and number of saplings to be planted are given below. Approx. 64 trees will be planted around haul road during the plan period.

10.6 LAND USE PATTERN

The mine lease area is flat river bed and river banks. There is no forest land or agriculture land in the mine lease area. The entire mining lease lies within River.

10.7 BASELINE ENVIRONMENTAL STATUS

10.7.1 Soil Quality

Five soil samples were collected in and around the mine lease area to assess the present soil quality of the region. The pH of the soil indicates that the soil is slightly alkaline in nature. Based on the results, it is evident that the soils are not contaminated by any polluting sources.

10.7.2 Meteorology

Meteorological data at the site was monitored during March 2023 to May 2023 representing pre monsoon season. It was observed that the during study period, temperature ranged from 21 °C to 44 °C.

10.7.3 Ambient Air Quality

Ambient Air Quality Monitoring (AAQM) has been carried out at 8 locations. The minimum and maximum level of PM₁₀ recorded within the study area was in the range of 53.55 µg/m³ to 94.5 µg/m³. The Particulate Matter (PM_{2.5}) range of 30.27 µg/m³ to 55.8 µg/m³. Sulphur dioxide (SO₂) between 3.3 µg/m³ to 13.1 µg/m³. Oxides of Nitrogen (NO₂) between 6.6 µg/m³ to 17.50 µg/m³. The results thus obtained indicate that the concentrations of PM₁₀, SO₂ and NO₂ in the ambient air are well within the National Ambient Air Quality (NAAQ) standards for Residential and Rural areas.

10.7.4 Water quality

The Ground water sampling was taken from 05 locations. The analysis results indicate that the pH ranges between 7.0 to 7.80, Total hardness varies from 211 mg/l to 238 mg/l. & Total dissolved solids vary from 277 mg/l to 328 mg/l.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

The results indicate groundwater is generally in conformity with the drinking water standards (IS: 10500).

10.7.5 Noise Quality

Noise monitoring reveals that the minimum & maximum noise levels at day time were recorded as 43.1 dB(A) to 52.7dB(A) respectively. The minimum & maximum noise levels at night time were found to be 38.9 dB (A) & 43.8 dB(A) respectively.

10.7.6 Ecological Environment

Based on the field studies and review of published literature, There is no any Ecological Sensitive Areas Like National Park, Wildlife Sanctuaries, etc are found within 10 km of the study area.

10.8 ANTICIPATED ENVIRONMENTAL IMPACTS

10.8.1 Impact on Air Environment

The proposed mining activities loading and movement of other transport vehicles used in mining will generate dust (SPM/RSPM). Proper water sprinkling shall be carried out at the mine site. The mineral will be transported by road through covered tarpaulin trucks/tippers to reduce the fugitive emission caused by the wind.

10.8.2 Impact on Water Environment

Mining of sand from within or near river has an indirect impact on the physico-chemical habitat characteristics during monsoon season. These characteristics include in stream roughness elements, depth, velocity, turbidity, sediment transport and stream discharge.

The detrimental effects, if any, to biota resulting from bed material mining are caused by following:

- Alteration of flow patterns resulting from modification of the river
- An excess of suspended sediment during monsoon season.

Project activity will be carried out only in the dry part of the Mohane River. Hence, none of the project activities affect the water environment directly. In the project, it is not proposed to divert or truncate any stream in monsoon season only. No proposal is envisaged for pumping of water either from the *River* (in monsoon) or tapping the ground water.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

10.8.3 Impact on Water Quality

Analysis results of water samples collected from the buffer zone indicate that the pH, total dissolved solids (TDS) are well below the prescribed limits.

No wastewater generation is envisaged due to the mining operations. The sanitary wastewater will be sent to septic tanks.

10.8.4 Impact on Noise Environment

The proposed mining activity is semi-mechanized/OTFM in nature. No drilling & blasting is envisaged for the mining activity. Hence, the only impact is anticipated is due to movement of vehicles deployed for transportation of minerals. The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.

10.8.5 Impact on Land Environment

The proposed extraction of stream bed materials, mining below the existing streambed, and alteration of channel-bed form and shape may lead to several impacts such as erosion of channel bed and banks, increase in channel slope, and change in channel morphology if, the operations are not carried out systematically.

The systematic and scientific removal of sand will not cause bed degradation. The silt and clay generated as waste will be used for plantation or filling up low lying area elsewhere. The mining is planned in non monsoon seasons only, so that the excavated area gets replenished gradually during the monsoons each year.

10.8.6 Impact on flora and fauna

As the proposed mining will be carried out in a scientific manner, not much significant impact is anticipated. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season for many of the species. The mining site has no vegetation; no clearance of vegetation will be done. Haul roads will be sprinkled with water which would reduce the dust emission, thus avoiding damage to the crops.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

10.8.7 Impact on Socio - Economic Aspects

The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement. No public buildings, places, monuments etc exist within the lease area or in the vicinity. The mining operation will not disturb/ relocate any village or need resettlement. Thus no adverse impact is anticipated. The impact of mining activity in the area is positive on the socio-economic environment of the region. Sand mining will be providing employment to local people whenever there is requirement of manpower.

10.9 ENVIRONMENTAL MANAGEMENT PLAN

- Extraction will be done from the bed leaving safety zone from bank.
- The maximum working depth will remain above ground water table of the area.
- Provide health facilities to the workers & surrounding people in the impact area to reduce the health impacts.
- Ensuring wildlife protection & arranging awareness campaigns for the same.
- Minimize activities that release fine sediment to the river.
- Effective mitigation measures will be adopted to minimize disturbance during transportation & handling of minerals:
- Establishment of reclamation program with plantation of local/native & fast growing species
- Establishment of restoration plan during the closure of mine at the onset of monsoon season.
- Establishment of effective Disaster Management Plan to take timely precautionary measures to avoid effects of impending disasters.
- Establishment of effective Monitoring Program monitored by Environment Management Cell.

10.10 ENVIRONMENTAL MONITORING PROGRAM

Table 10.5: Post project environmental monitoring

S. No.	Description of Parameters	Schedule of Monitoring

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

1	Air Quality	24 hourly samples twice a week in each season except monsoon
2	Water Quality (Surface & Groundwater)	Once a season for 4 seasons in a year
3	Soil Quality	Once in a year in project area
4	Noise Level	Twice a year for first two years & then once a year
5	Socio-economic Condition	Once in 3 years
6	Plantation Monitoring	Once in a season

10.11 ENVIRONMENTAL PROTECTION COST

The details of the cost to be incurred for successful monitoring of environmental parameters and implementation of control measures are given in **Table-10.6**.

Table 10.6: Cost of Environmental Protection Measures
Budget of EMP (Nalanda Cluster- 03 Sand Ghat)

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	--	1.5
2	Pollution Monitoring i) Air pollution ii) Water pollution iii) Soil pollution iv) Noise Pollution	--	2.0
3	Plantation and salary for one gardener (part time basis).	0.64	0.5
4	Haul road Maintenance Cost	1.675	1.5
TOTAL		2.315	5.5

Note: *64 plants * 1000 Rs (for each plants including hedges and fences) =Rs 64000/-

- Salary of Labour for haul road maintenance 2 labor*300=600 per day
- 600* 250= 1,50,000/-
- * 2.5 lakh per kilometer (2,50,000 *0.67 km haul road) = 1,67,500 /-

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

10.12 ADDITIONAL STUDIES

10.12.1 Risk Assessment

The complete mining operation will be carried out under the management control and direction of a qualified mine manager holding. The DGMS have been regularly issuing standing orders, model, standing orders and circulars to be followed by the mine management in case of disaster, if any.

10.12.2 Disaster Management Plan

Emergency preparedness is an important aspect in the planning of Disaster Management. Personnel would be trained suitably and prepared mentally and physically in emergency response through carefully planned, simulated procedures. Similarly, the key personnel and essential personnel shall be trained in the operations.

10.12.3 Public Consultation

This is a draft EIA report. Public Hearing will be incorporated in FEIA report.

10.13 PROJECT BENEFITS

Physical Benefits: Road Transport, Market, Enhancement of green cover & Creation of community assets.

Social Benefits: Increase in Employment Potential, Contribution to the Exchequer, Increased Health related activities, Educational attainments & Strengthening of existing community facilities.

Environmental Benefits:

- Controlling river channel and protection of banks.
- Reducing submergence of adjoining agricultural lands due to flooding.
- Reducing aggradation of river level.
- A check on illegal mining activity.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Corporate Social Responsibility

2% of capital cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018. The following has been proposed considering the needs & demand of the people.

CER cost will be 2% of the total project cost. This amount will be used for social welfare.

CER COST is Rs.76,52,000 /-x 2% = Rs. 1,53,040 /-

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during Public Hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

10.14 CONCLUSIONS

- The mining operations will meet the compliance requirements of MoEF&CC;
- Community impacts will be beneficial, as the project will generate significant economic benefits for the region;
- Monitoring program will be followed till the mining operations continue.
- With the effective implementation of the Environment Management Plan (EMP) during the mining activities, the proposed project can proceed without any significant negative impact on environment.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

CONSULTANT

Name of the Consultant	P and M Solution
Address	C-88, Sector 65, Noida -201301 – U.P
Credentials	Accredited by QCI/NABET
Consultant accreditation details are given below:	


Quality Council of India
 National Accreditation Board for
 Education & Training
 

CERTIFICATE OF ACCREDITATION

P and M Solution
 First Floor, C-88, Sector-65, Noida, Uttar Pradesh- 201301

Accredited as Category -A organization under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations: Version 3 for preparing EIA/EMP reports in the following sectors:

Sl. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast / underground mining	1	1 (a) (i)	A
2.	River Valley projects	3	1 (c)	B
3.	Metallurgical industries (ferrous & non-ferrous)	8	3 (a)	B
4.	Highways,	34	7 (f)	A
5.	Building and construction projects	38	8 (a)	B
6.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in IA AC Minutes dated December 20, 2019 on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/20/1223 dated February 3, 2020. The accreditation needs to be renewed before the expiry date by P and M Solution, Noida following due process of assessment.


 Sr. Director, NABET
 Dated: February 3, 2020

Certificate No.
 NABET/EIA/1922/IA0053

Valid till
 Dec 10, 2022

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).



National Accreditation Board for Education and Training



QCI/NABET/ENV/ACO/23/2770

June 02, 2023

To

P and M Solution
C-88, Sector-65 Noida
Noida, UP

Sub.: Extension of Validity of Accreditation till Sept 01, 2023 – regarding
Ref.. 1. Certificate no. NABET/EIA/1922/IA0053
2. Request e-mail dated May 30, 2023

Dear Sir/Madam

This has reference to the accreditation of your organization under the QCI-NABET EIA Scheme, the validity of **P and M Solution** is hereby extended till Sept 01, 2023 or completion of the assessment process, whichever is earlier.

The above extension is subject to the submitted documents/required information with respect to your application and timely submission and closure of NC/Obs during the process of assessment.

You are requested not to use this letter after expiry of the above stated date.

With best regards.

(A K Jha)
Sr. Director, NABET

NABET

Project: Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River at Vill. & P.O.– Manichak, Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

Consultant Contact Details:

P and M Solution

Address –C-88, Sector 65 Noida

Mobile no. - +8377871554, 8826287364

S No	Name	EC/FAE	DETAILS
1	Pravin Kumar Sinha	EC	EC
2	Pravin Kumar Sinha	FAE	GEO
3	TapanMajumdar	FAE	HG
4	Subhash Kumar	FAE	SC
5	Manoj Kumar Pandey	FAE	EB
6	R K Tiwary	FAE	RH,AP
7	Rahul kumar	FAE	AQ
8	Abhay Nath Mishra	FAE	SE
9	Hussain Ziauddin	FAE	WP
10	Poonam Kumari Mangalam	FAE	LU
11	Jatin Kumar Srivastava	FAE	NV

EXECUTIVE SUMMARY

FOR

SAND MINING PROJECT ON MOHANE RIVER
(NALANDA CLUSTER- 03 SAND GHAT) DIST –
NALANDA (BIHAR)
(Mohane -1 & Mohane -2)

At

**Village- Manichak , Dhamauli, Anchal– Islampur,
District- Nalanda, (Bihar).**

AREA	Mohane -1– 3.5 Ha. Mohane -2– 2.9 Ha. Total Area – 6.4 Ha.
PRODUCTION	38400 cum/year or 80256 TPA

PROJECT PROPONENT

Shri Ramdev Construction Company

Prop.- Maniram Sharma

S/o- Bhagirath

Address- Ward No.- 11, Rampura Matoriya,

Dist.- Hanumangadh, Rajasthan, Pin- 335524

Environment Consultant

P and M Solution

(Accredited by QCI/NABET)

Accreditation No. : NABET/EIA/1992/IA0053

C-88, Sector 65 Noida

www.pmsolution.in



EXECUTIVE SUMMARY

INTRODUCTION

As per MoEF & CC, New Delhi Gazette dated 14th September 2006 and amended thereof, the proposed mining project is categorized as **Category 'B1'** project.

Nalanda Cluster- 03

The project has been proposed by Shri Ramdev Construction Company, Prop.- Maniram Sharma. The Proposed Sand Mining Project is located on Nalanda Cluster- 03 Sand Ghat at Mohane -1 at Vill. & P.O.– Manichak, P.S. & Anchal– Islampur, Nalanda (Bihar). and Mohane -2 Vill. & P.O.– Dhamauli, P.S. & Anchal– Islampur, Nalanda (Bihar).

LOI issued to lessee via letter no 270/khanan, Nalanda dated 24.01.2023. The Draft EIA report has been prepared according to EIA notification 2006 and its subsequent amendment thereof. TOR of the proposed project has been issued by SEIAA Bihar dated 05-06-2023.

It has been proposed to mine around 80256 Tonnes per annum for applied lease. The estimated project cost for the proposed project is **Rs 76,52,000** /- (including auction cost)

PROJECT DESCRIPTION

LOCATION

Nalanda Cluster- 03

The proposed mining lease area falls in Survey of India Toposheet Topo sheet No- 72G/4 & 72G/8. The lease area is located in Village Manichak, Dhamauli, Anchal– Islampur District- Nalanda, (Bihar). The mine lease co-ordinates are listed below:

**Pillar Co-ordinates
(Nalanda Cluster- 03 Sand Ghat)**

S. No	Sand Ghat	Area (in Ha)	Co-ordinates	
1	Nalanda Cluster- 03 Sand Ghat (Mohane -1)	3.5	A	25° 7'40.47"N 85°10'28.10"E
			B	25° 7'39.56"N 85°10'29.09"E
			C	25° 8'2.05"N 85°10'51.81"E
			D	25° 8'2.95"N 85°10'50.93"E
	Mohane -2	2.9	A	25° 8'23.59"N

				85°11'11.87"E
			B	25° 8'22.94"N 85°11'12.82"E
			C	25° 8'32.51"N 85°11'44.12"E
			D	25° 8'33.49"N 85°11'44.37"E

Area & production: The total ML area is 6.4 Ha. Proposed rate of production will be 80256 TPA.

Connectivity:

Nalanda Cluster- 03

Nalanda Cluster- 03 Sand Ghat is well connected by SH-4 at a distance of approx. 150 m in E direction from Mohane 1. SH-71 at a distance of approx. 0.6 Km in N direction from Mohane 2.

Salient Features of Project

Name of the applicant	Shri Ramdev Construction Company Prop.- Maniram Sharma
Address of Lessee	Shri Ramdev Construction Company Prop.- Maniram Sharma S/o- Bhagirath Address- Ward No.- 11, Rampura Matoriya, Dist.- Hanumangadh, Rajasthan, Pin- 335524
Name of Mine	Sand Mining Project (Nalanda Cluster- 03 Sand Ghat) at Riverbed of Mohane River
Village	Manichak & Dhamauli
District & State	Nalanda, Bihar
Mineral	Sand
Man power	
Area (ha)	6.4 ha

MINING

The mining process is opencast semi-mechanized method without drilling & blasting. This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.

The mining will be done in a rotational way. As the working is going to be methodical i.e. mining will be done in benches. There would be no risk to the employee working in the mines.

Mining will be done in layers.

The deposit will be worked from the surface of the bed up to 1 m bgl or above ground water level, whichever comes first. Hence, at no point of time mining will intersect with ground water table. Mining will be done only during the day time and completely stopped during the monsoon season.

RESERVE AND PRODUCTION

Mineable reserves have been computed up to 1m depth from surface. Benches having height 1.0 m & width 6.0 m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by Specific gravity (2.09 g/cm³) to get the tonnage.

The bench-wise annual exploitation of sand of is given below:

Nalanda Cluster- 03 Sand Ghat

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
69-68	930	32	1	29760	62199
Total				29760	62199

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
68-67	957	21	1	20097	42003
Total				20097	42003

Total Mineable Reserve = 49857 CUM or 104202 Tonnes

It is a river bed deposit and mined out area shall be replenished each year during monsoon period and depth of quarry shall be filled back by river sand each year and area will restore its original topography.

SITE FACILITIES AND UTILITIES

Water Supply

Water will be provided to workers for drinking & domestic purpose. Water will also be required for dust suppression. A total cluster water of **4.60 KLD** will be required for the proposed project. Fresh water will be only used for drinking purpose. The water will be supplied from available sources from nearby village.

Temporary Rest Shelter

A temporary rest shelter will be provided for the workers near to the site for rest. In addition, First aid box along with anti-venoms to counteract poison produced by certain species of small insects, if any and sanitation facility i.e. septic tank or community toilet facility will be provided for the workers.

BASELINE ENVIRONMENTAL STATUS

Environmental data has been collected in relation to proposed mining for Air, Noise, Water, Soil, Flora & Fauna. The baseline environment study was carried out over an area with radial distance of 10 km around the mining lease area during pre monsoon season from March 2023 to May 2023.

Meteorology

The Summarized Meteorological Data for the Monitoring Period March 2023 to May 2023) is given below:

Month	Temperature °C		Wind Speed (Km/Hr)	
	Min	Max	Average	Max
MARCH 2023	21	39	10.2	21.3
APRIL 2023	26	43	13.4	25.9
MAY 2023	29	44	12.2	24.0

Table Baseline Environmental Status

Attribute	Baseline status
Ambient Air Quality	Ambient Air Quality Monitoring reveals that the minimum & maximum concentrations of PM _{2.5} amongst all the 08 AQ monitoring stations were found to be 30.27 µg/m ³ to 55.8 µg/m ³ respectively; PM ₁₀ was in the range of 53.55 µg/m ³ to 94.5 µg/m ³

	As far as the gaseous pollutants SO ₂ and NO ₂ are concerned, the prescribed CPCB limit of 80 µg/m ³ for residential and rural areas has never been surpassed at any station.
Noise Levels	The results of the monitoring program indicated that both the daytime and night time levels of noise were well within the prescribed limits of NAAQS, at all the 08 locations monitored.
Water Quality	The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by IS: 10500.
Soil Quality	Samples collected from identified locations indicate the soil is sandy type and the pH value ranging from 7.90 to 8.29 which shows that the soil is slightly alkaline in nature.
Ecology and Biodiversity	There is no Ecological Sensitive Areas are found within 10 km of the study area.

ANTICIPATED ENVIRONMENTAL IMPACTS

Impact on Air Environment

The proposed mining activities loading and movement of other transport vehicles used in mining will generate dust (SPM/RSPM). Proper water sprinkling shall be carried out at the mine site. The mineral will be transported by road through covered tarpaulin trucks/tippers to reduce the fugitive emission caused by the wind.

Impact on Water Environment

Mining of sand from within or near *river* has an indirect impact on the physico-chemical habitat characteristics during monsoon season. These characteristics include in stream roughness, elements, depth, velocity, turbidity, sediment transport and stream discharge.

The detrimental effects, if any, to biota resulting from bed material mining are caused by following:

- Alteration of flow patterns resulting from modification of the *river*
- An excess of suspended sediment during monsoon season.

Project activity will be carried out only in the dry part of the Mohane River. Hence, none of the project activities affect the water environment directly. In the project, it is not proposed to divert or truncate any stream in monsoon season only. No proposal is envisaged for pumping of water either from the *River* (in monsoon) or tapping the ground water.

Impact on Land Environment

The proposed extraction of stream bed materials, mining below the existing streambed, and alteration of channel-bed form and shape may lead to several impacts such as erosion of channel bed and banks, increase in channel slope, and change in channel morphology if, the operations are not carried out systematically.

The systematic and scientific removal of sand will not cause bed degradation. The silt and clay generated as waste will be used for plantation or filling up low lying area elsewhere. The mining is planned in non monsoon seasons only, so that the excavated area gets replenished gradually during the monsoons each year.

Impact on Noise Environment

The proposed mining activity is semi-mechanized in nature. No drilling & blasting is envisaged for the mining activity. Hence, the only impact is anticipated is due to movement of vehicles deployed for transportation of minerals. The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.

Impact on Biological Environment

As the proposed mining will be carried out in a scientific manner, not much significant impact is anticipated. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season for many of the species. The mining site has no vegetation; no clearance of vegetation will be done. Haul roads will be sprinkled with water which would reduce the dust emission, thus avoiding damage to the crops.

Impact on Socio Economic Environment

The impact of mining activity in the area is positive on the socio-economic environment of the region. Sand mining will be providing employment to local people whenever there is requirement of manpower.

POST PROJECT ENVIRONMENTAL MONITORING

S.No.	Description of Parameters	Schedule of Monitoring
1	Air Quality	24 hourly samples twice/thrice a week in each season except monsoon
2	Water Quality (Surface & Groundwater)	Once a season for 4 seasons in a year
3	Soil Quality	Once in a year in project area
4	Noise Level	Twice a year for first two years & then once a year
5	Socio-economic Condition	Once in 3 years
6	Plantation Monitoring	Once in a season

ADDITIONAL STUDIES

Public Hearing

Public hearing is yet to be conducted.

Risk Assessment

The complete mining operation will be carried out under the management control and direction of a qualified mine manager holding. The DGMS have been regularly issuing standing orders, model standing orders and circulars to be followed by the mine management in case of disaster, if any. Moreover, mining staff will be sent to refresher courses from time to time to keep them alert.

Disaster Management Plan

Emergency preparedness is an important aspect in the planning of Disaster Management. Personnel would be trained suitably and prepared mentally and physically in emergency response through carefully planned, simulated procedures. Similarly, the key personnel and essential personnel shall be trained in the operations.

PROJECT BENEFITS

Physical Benefits: Road Transport, Market, Enhancement of green cover & Creation of community assets.

Social Benefits: Increase in Employment Potential, Contribution to the Exchequer, Increased Health related activities, Educational attainments & Strengthening of existing community facilities.

Environmental Benefits:

- Controlling *river* channel and protection of banks.
- Reducing submergence of adjoining agricultural lands due to flooding.
- Reducing aggradation of *river* level.
- A check on illegal mining activity.

CORPORATE SOCIAL RESPONSIBILITY

2% of capital cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018. The following has been proposed considering the needs & demand of the people.

CER cost for Nalanda Cluster- 03 Sand Ghat will be 2% of the total project cost. This amount will be used for social welfare. CSR COST is Rs. Rs.76,52,000 /-x 2% = Rs. 1,53,040 /-

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during Public Hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

❖ PLANTATION:

- The project will not lead to any tree cutting. However, asocial responsibility, greenery will be developed along the both sides of road and the bank of river. Community services will be deployed in raising these plantations. Trees of economic importance and native origin such as fruit trees shall be planted.
- Approx. 64 trees will be planted around haul road during the plan period.
- The trees proposed for plantation are:
- As per Sustainable Sand Management & Mining Guidelines 2016,minimum 5 plant per hectare will be proposed for development of greenbelt but in this cluster of projects 10 plants per hectare will be proposed for better condition of environment.
- Peepal, Arjun, Jamun, Banyan, Neem, Mango etc trees will be planted.

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

- Extraction will be done from the bed leaving safety zone from bank.
- The maximum working depth will remain above ground water table of the area.
- Provide health facilities to the workers & surrounding people in the impact area to reduce the health impacts.
- Ensuring wildlife protection & arranging awareness campaigns for the same.
- Minimize activities that release fine sediment to the *river*.
- Effective mitigation measures will be adopted to minimize disturbance during transportation & handling of minerals
- Establishment of reclamation program with plantation of local/native & fast growing species
- Establishment of restoration plan during the closure of mine at the onset of monsoon season.
- Establishment of effective Disaster Management Plan to take timely precautionary measures to avoid effects of impending disasters.
- Establishment of effective Monitoring Program monitored by Environment Management Cell.

BUDGET ALLOCATION FOR EMP IMPLEMENTATION

Table, Budget of EMP (Nalanda Cluster- 03 Sand Ghat)

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	--	1.5
2	Pollution Monitoring i) Air pollution ii) Water pollution iii) Soil pollution iv) Noise Pollution	--	2.0
3	Plantation and salary for one gardener (part time basis).	0.64	0.5
4	Haul road Maintenance Cost	1.675	1.5
TOTAL		2.315	5.5

Note: *64 plants * 1000 Rs (for each plants including hedges and fences) =Rs 64000/-

- Salary of Labour for haul road maintenance 2 labor*300=600 per day
- 600* 250= 1,50,000/-
- * 2.5 lakh per kilometer (2,50,000 *0.67 km haul road) = 1,67,500 /-

CONCLUSION

Based on the EIA study it is observed that there will be an increase in the dust pollution, which will be controlled by sprinkling of water and plantation. There will be an insignificant impact on ambient environment and ecology due to the mining activities moreover the mining operation will lead to direct and indirect employment generation in the area. Green belt development around the area will also be taken up as an effective pollution mitigative technique, as well as to control the pollutants released from the premises of the Mine. Monitoring program will be followed till the mining operations continue. Hence, it can be summarized that the development of the mine will have a positive impact on the socio-economic environment of the area and lead to sustainable development of the region.

कार्यकारी सारांश

बालू खनन परियोजना
(नालन्दा क्लस्टर 03 बालू घाट) जिला नालन्दा
(मोहाने -1 & मोहाने -2)
के लिए
ग्राम- मनीचक, धमौली, थाना और अंचल- इस्लामपुर,
जिला- नालन्दा, बिहार

क्षेत्रफल	मोहाने-1- 3.5 हे. मोहाने-2- 2.9 हे. कुल क्षेत्रफल – 6.40 हेक्टेयर
उत्पादन	38400 घनमीटर प्रति वर्ष या 80256 टन प्रति वर्ष

आवेदन कर्ता

श्री रामदेव कंस्ट्रक्शन कंपनी

प्रस्तावक- मनीराम शर्मा

पुत्र- भागीरथ

पता- वार्ड नं.- 11, रामपुरा मटोरिया,

जिला- हनुमानगढ़, राजस्थान, पिन- 335524

एनवायरनमेंट कन्सल्टेंट

पी & एम सल्यूशन

(क्वालिटी कौंसिल ऑफ़ इंडिया द्वारा मान्यता प्राप्त)

सी-88 सेक्टर 65 नॉएडा उत्तर-प्रदेश

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कार्यकारी सारांश

❖ परिचय

MoEF & CC (एमओईएफ एंड सीसी), नई दिल्ली राजपत्र दिनांक 14 सितंबर 2006 और उसमें समय समय पर किये गए संशोधन के अनुसार, प्रस्तावित खनन परियोजना को श्रेणी 'बी1' परियोजना के रूप में वर्गीकृत किया गया है।

नालन्दा क्लस्टर-03

परियोजना के प्रस्ताव श्री रामदेव कंस्ट्रक्शन कंपनी, प्रस्तावक- मनीराम शर्मा ने दिया है। प्रस्तावित बालू खनन परियोजना ग्राम- मनीचक, धमौली, थाना और अंचल- इस्लामपुर, जिला- नालन्दा, (बिहार) में नालन्दा क्लस्टर 03 बालू घाट (मोहाने -1 & मोहाने -2) मोहाने नदी पर स्थित है।

पत्र संख्या 270/खनन नालन्दा दिनांक 24.01.2023 के माध्यम से पट्टेदार को एलओआई जारी किया गया। ईआईए अधिसूचना 2006 और इसके बाद के संशोधन के अनुसार ड्राफ्ट ईआईए रिपोर्ट तैयार की गई है। प्रस्तावित परियोजना का टीओआर SEIAA बिहार दिनांक 03-02-2023 द्वारा जारी किया गया है।

आवेदित पट्टे के लिए प्रति वर्ष लगभग 80256 टन खनन प्रस्तावित किया गया है, प्रस्तावित परियोजना के लिए अनुमानित परियोजना लागत 76,52,000/- रुपये (नीलामी लागत सहित) है।

❖ परियोजना विवरण

❖ स्थान

नालन्दा क्लस्टर- 03

प्रस्तावित खनन पट्टा क्षेत्र सर्वे ऑफ इंडिया टोपोशीट टोपो शीट संख्या- 72G/4 & 72G/8 के अंतर्गत आता है। पट्टा क्षेत्र ग्राम- मनीचक, धमौली, थाना और अंचल- इस्लामपुर, जिला- नालन्दा, राज्य- बिहार में स्थित है। खनन पट्टा समन्वय नीचे सूचीबद्ध हैं:

स्तंभ निर्देशांक

(नालन्दा क्लस्टर- 03 बालू घाट)

क्रमांक	बालू घाट	क्षेत्रफल (हे.)	निर्देशांक	
1	नालन्दा क्लस्टर- 03 बालू घाट (मोहाने -1)	3.5	A	25° 7'40.47"N 85°10'28.10"E
			B	25° 7'39.56"N 85°10'29.09"E
			C	25° 8'2.05"N 85°10'51.81"E
			D	25° 8'2.95"N 85°10'50.93"E
	मोहाने -2	2.9	A	25° 8'23.59"N 85°11'11.87"E
			B	25° 8'22.94"N 85°11'12.82"E
			C	25° 8'32.51"N 85°11'44.12"E
			D	25° 8'33.49"N 85°11'44.37"E

क्षेत्र और उत्पादन: कुल एमएल क्षेत्र 6.40 हेक्टेयर है। उत्पादन की प्रस्तावित दर 80256 टीपीए होगी।

❖ संयोजकता

नालन्दा क्लस्टर- 03

नालन्दा क्लस्टर- 03 रेत घाट मोहने 1 से पूर्व दिशा में लगभग 150 मीटर की दूरी पर एसएच-4 द्वारा अच्छी तरह से जुड़ा हुआ है। रेत घाट मोहने 2 से उत्तर दिशा में लगभग 0.6 किमी की दूरी पर एसएच-71 द्वारा अच्छी तरह से जुड़ा हुआ है।

❖ परियोजना की मुख्य विशेषताएं

नालन्दा क्लस्टर- 03

आवेदक का नाम	श्री रामदेव कंस्ट्रक्शन कंपनी प्रस्तावक- मनीराम शर्मा
पट्टेदार का पता	श्री रामदेव कंस्ट्रक्शन कंपनी प्रस्तावक- मनीराम शर्मा पुत्र- भागीरथ पता- वार्ड नं.- 11, रामपुरा मटोरिया, जिला- हनुमानगढ़, राजस्थान, पिन- 335524
नाम	बालू खनन परियोजना (नालन्दा क्लस्टर 03 बालू घाट) जिला नालन्दा (मोहाने -1 & मोहाने -2)
गाँव	मनीचक, धमौली
जिला और राज्य	नालन्दा, बिहार
खनिज	बालू
श्रम शक्ति	25
क्षेत्र (हेक्टेयर)	6.40 हेक्टेयर

❖ ड्रिलिंग

ड्रिलिंग और ब्लास्टिंग की आवश्यकता नहीं है।

❖ खनिज का उपयोग

बालू का उपयोग निर्माण कार्यो में किया जाता है सड़क निर्माण में भी इसका उपयोग किया जाता है

❖ खनन

खनन प्रक्रिया ड्रिलिंग और ब्लास्टिंग के बिना खुली अर्ध-मशीनीकृत विधि है। यह एक ओपन कास्ट माइनिंग प्रोजेक्ट है। उत्खनन/जेसीबी ट्रक/ट्रैक्टर संयोजन या मैन्युअल आदि के उपयोग के साथ संचालन अर्ध-मशीनीकृत/ओटीएफएम होगा। बालू को अपने मौजूदा रूप में एकत्र किया जाएगा।

खनन रोटेशनल तरीके से किया जाएगा। चूंकि काम व्यवस्थित होने जा रहा है यानी बेंचों में खनन किया जाएगा। खदान में काम करने वाले कर्मचारी को कोई खतरा नहीं होगा। खनन परतों में किया जाएगा।

निक्षेप को संस्तर की सतह से 1 एमबीजीएल या भूजल स्तर से ऊपर, जो भी पहले आए, तक कार्य किया जाएगा। इसलिए, किसी भी समय खनन भूजल स्तर को नहीं काटेगा। खनन केवल दिन के समय किया जाएगा और मानसून के मौसम में पूरी तरह बंद कर दिया जाएगा।

❖ रिजर्व और उत्पादन

खनन योग्य भंडार की गणना सतह से 1 मीटर की गहराई तक की गई है। मोहाने नदी के लिए औसतन 2.09g/cm^3 लिया जाता है।

हर साल मानसून के मौसम के दौरान नदी तल से उत्खनन किए गए खनिजों की फिर से भरपाई (रिप्लेनिशमेंट) हो जाएगी। नदी के पैलियो चैनल से संबंधित क्षेत्र को समतल करके वापस बहाल किया जाएगा।

बेंचवार बालू का वार्षिक दोहन नीचे दिया गया है:

नालन्दा क्लस्टर- 03

बेंच स्तर (mRL)	लंबाई (M)	चौड़ाई (M)	गहराई (M)	मात्रा (घन मीटर)	टन
69-68	930	32	1	29760	62199
कुल				29760	62199

बेंच स्तर (mRL)	लंबाई (M)	चौड़ाई (M)	गहराई (M)	मात्रा (घन मीटर)	टन
68-67	957	21	1	20097	42003
कुल				20097	42003

कुल खनन योग्य रिजर्व = 49857 घन मीटर या 104202 टन

यह नदी तल जमा है और खनन क्षेत्र हर साल मानसून अवधि के दौरान फिर से भर जाएगा और खदान की गहराई हर साल नदी की बालू से भर जाएगा (रिप्लेनिशमेंट) और क्षेत्र अपनी मूल स्थलाकृति बहाल को कर देगा।

❖ साइट सुविधाएं और उपयोगिताएँ

• जलापूर्ति

श्रमिकों को पीने व घरेलू उपयोग के लिए पानी उपलब्ध कराया जाएगा। धूल के दमन के लिए भी पानी की आवश्यकता होगी। प्रस्तावित परियोजना के लिए 4.60 केएलडी के जल की आवश्यकता होगी। ताजे पानी का उपयोग केवल पीने के उद्देश्य के लिए किया जाएगा। आसपास के गांव के उपलब्ध स्रोतों से पानी की आपूर्ति की जाएगी।

• अस्थायी विश्राम गृह

- विश्राम के लिए स्थल के पास श्रमिकों के लिए एक अस्थायी विश्राम आश्रय प्रदान किया जाएगा। इसके अलावा, छोटे कीड़ों की कुछ प्रजातियों द्वारा उत्पादित जहर का मुकाबला करने के लिए एंटी-वेनम के साथ प्राथमिक उपचार बॉक्स, यदि कोई हो और श्रमिकों के लिए स्वच्छता सुविधा जैसे सेप्टिक टैंक या सामुदायिक शौचालय की सुविधा प्रदान की जाएगी।

• आधारभूत पर्यावरणीय स्थिति

वायु, ध्वनि, जल, मिट्टी, वनस्पति एवं जीव-जन्तुओं के लिए प्रस्तावित खनन के संबंध में पर्यावरणीय डाटा एकत्र किया गया है। बेसलाइन पर्यावरण अध्ययन मार्च 2023 से मई 2023 तक ग्री मानसून सीजन के मौसम के दौरान खनन पट्टा क्षेत्र के आसपास 10 किमी की रेडियल दूरी वाले क्षेत्र में किया गया था।

• मौसम विज्ञान

निगरानी अवधि मार्च 2023 से मई 2023 के लिए संक्षिप्त मौसम संबंधी डेटा नीचे दिया गया है:

महीना	तापमान °C		हवा की गति (किमी/घंटा)	
	न्यूनतम	अधिकतम	औसत	अधिकतम
मार्च 2022	21	39	10.2	21.3

अप्रैल 2023	26	43	13.4	25.9
मई 2023	29	44	12.2	24.0

आधारभूत पर्यावरणीय स्थिति

गुण	आधारभूत स्थिति
एम्बिएंट(परिवेशी) वायु गुणवत्ता	एम्बिएंट (परिवेशी) वायु गुणवत्ता निगरानी से पता चलता है कि सभी 08 AQ निगरानी स्टेशनों में PM2.5 की न्यूनतम और अधिकतम सांद्रता क्रमशः 30.27 $\mu\text{g}/\text{m}^3$ से 55.8 $\mu\text{g}/\text{m}^3$ पाई गई; PM10 53.55 $\mu\text{g}/\text{m}^3$ to 94.5 $\mu\text{g}/\text{m}^3$ की सीमा में था जहां तक गैसीय प्रदूषकों SO2 और NO2 का संबंध है, आवासीय और ग्रामीण क्षेत्रों के लिए 80 $\mu\text{g}/\text{m}^3$ की निर्धारित CPCB सीमा किसी भी स्टेशन पर पार नहीं की गई है।
शोर का स्तर	निगरानी कार्यक्रम के परिणामों ने संकेत दिया कि निगरानी किए गए सभी 08 स्थानों पर शोर के दिन और रात दोनों समय एनएएक्यूएस की निर्धारित सीमा के भीतर थे।
पानी की गुणवत्ता	सभी स्रोतों से भूजल पीने के उद्देश्यों के लिए उपयुक्त रहता है क्योंकि सभी घटक IS: 10500 द्वारा प्रख्यापित पेयजल मानकों द्वारा निर्धारित सीमा के भीतर हैं।
मिट्टी की गुणवत्ता	चिन्निहित किए गए स्थानों से एकत्र किए गए नमूने इंगित करते हैं कि मिट्टी रेतीली प्रकार की है और पीएच मान 7.90 से 8.29 के बीच है, जो दर्शाता है कि मिट्टी प्रकृति में थोड़ी क्षारीय है।
पारिस्थितिकी और जैव विविधता	अध्ययन क्षेत्र में कोई पर्यावरण-संवेदनशील क्षेत्र नहीं है।
सामाजिक आर्थिक	नदी तल पर बालू खनन परियोजना के कार्यान्वयन से स्थानीय लोगों को प्रत्यक्ष और अप्रत्यक्ष दोनों तरह के रोजगार के अवसर मिलेंगे। अध्ययन क्षेत्र में शिक्षा, स्वास्थ्य, आवास, पानी, बिजली आदि को और बेहतर किया जा सकता है। उम्मीद है कि प्रस्तावित खनन परियोजना और संबद्ध औद्योगिक और व्यावसायिक गतिविधियों के कारण इसमें काफी हद तक और सुधार होगा।

❖ अनुमानित पर्यावरणीय प्रभाव

• वायु पर्यावरण पर प्रभाव

प्रस्तावित खनन गतिविधियां खनन में प्रयुक्त अन्य परिवहन वाहनों की लोडिंग और आवाजाही से धूल (SPM/RSPM) उत्पन्न होगी। खदान स्थल पर उचित जल छिड़काव किया जाएगा। हवा से होने वाले क्षणिक उत्सर्जन को कम करने के लिए खनिज को ढके हुए तिरपाल ट्रकों/टिप्परो के माध्यम से सड़क मार्ग से ले जाया जाएगा।

• जल पर्यावरण पर प्रभाव

नदी के भीतर या उसके पास से बालू के खनन का मानसून के मौसम के दौरान भौतिक-रासायनिक आवास विशेषताओं पर अप्रत्यक्ष प्रभाव पड़ता है। इन विशेषताओं में धारा खुरदरापन, तत्व, गहराई, वेग, मैलापन, तलछट परिवहन और धारा निर्वहन शामिल हैं।

संस्तर सामग्री खनन से उत्पन्न बायोटा पर हानिकारक प्रभाव, यदि कोई हो, निम्नलिखित के कारण होते हैं:

- नदी के परिवर्तन के परिणामस्वरूप प्रवाह पैटर्न में बदलाव
- मानसून के मौसम में निलम्बित तलछट की अधिकता।

परियोजना गतिविधि केवल सोन नदी के शुष्क भाग में की जाएगी। इसलिए, परियोजना की कोई भी गतिविधि सीधे तौर पर जल पर्यावरण को प्रभावित नहीं करती है। परियोजना में केवल मानसून के मौसम में किसी धारा को मोड़ने या काट देने का प्रस्ताव नहीं है। नदी (मानसून में) या भूजल दोहन से पानी की पंपिंग के लिए किसी प्रस्ताव की परिकल्पना नहीं की गई है।

❖ भूमि पर्यावरण पर प्रभाव

स्ट्रीम बेड सामग्री का प्रस्तावित निष्कर्षण, मौजूदा स्ट्रीमबेड के नीचे खनन, और चैनल-बेड फॉर्म और आकार में परिवर्तन से चैनल बेड और बैंकों के क्षरण, चैनल ढलान में वृद्धि, और चैनल आकारिकी में परिवर्तन जैसे कई प्रभाव हो सकते हैं, यदि, संचालन व्यवस्थित रूप से नहीं किया जाता है।

बालू के व्यवस्थित और वैज्ञानिक तरीके से हटाने से क्यारियों का क्षरण नहीं होगा। कचरे के रूप में उत्पन्न गाद और मिट्टी का उपयोग वृक्षारोपण के लिए या निचले इलाकों को कहीं और भरने के लिए किया जाएगा। खनन की योजना गैर-मानसून मौसम में ही बनाई जाती है, ताकि उत्खनित क्षेत्र प्रत्येक वर्ष मानसून के दौरान धीरे-धीरे भर जाए।

❖ शोर पर्यावरण पर प्रभाव

प्रस्तावित खनन गतिविधि प्रकृति में अर्ध-मशीनीकृत है। खनन गतिविधि के लिए कोई ड्रिलिंग और ब्लास्टिंग परिकल्पित नहीं है। इसलिए, केवल खनिजों के परिवहन के लिए तैनात वाहनों की आवाजाही के कारण प्रभाव का अनुमान लगाया गया है। वाहनों को अच्छी चालू स्थिति में रखा जाएगा ताकि शोर को न्यूनतम संभव स्तर तक कम किया जा सके।

❖ जैविक पर्यावरण पर प्रभाव

चूंकि प्रस्तावित खनन वैज्ञानिक तरीके से किया जाएगा, इसलिए ज्यादा महत्वपूर्ण प्रभाव का अनुमान नहीं है। जलीय जीवन पर प्रभाव को कम करने के लिए मानसून के मौसम के दौरान कोई खनन नहीं किया जाएगा जो कि कई प्रजातियों के लिए मुख्य रूप से प्रजनन का मौसम है। खनन स्थल पर कोई वनस्पति नहीं है; वनस्पति की सफाई नहीं की जाएगी। ढोने वाली सड़कों पर पानी का छिड़काव किया जाएगा जिससे धूल का उत्सर्जन कम होगा और इस प्रकार फसलों को होने वाले नुकसान से बचा जा सकेगा।

❖ सामाजिक आर्थिक पर्यावरण पर प्रभाव

क्षेत्र में खनन गतिविधि का प्रभाव क्षेत्र के सामाजिक-आर्थिक वातावरण पर सकारात्मक है। बालू खनन से स्थानीय लोगों को जब भी श्रमबल की आवश्यकता होगी रोजगार उपलब्ध होगा।

पोस्ट प्रोजेक्ट पर्यावरण निगरानी

क्रम संख्या	पैरामीटर्स का विवरण	निगरानी की अनुसूची
1	हवा की गुणवत्ता	मानसून को छोड़कर प्रत्येक मौसम में सप्ताह में दो बार/तीन बार 24 घंटे के नमूने
2	जल गुणवत्ता (सतह और भूजल)	साल में 4 सीजन के लिए एक बार

3	मिट्टी की गुणवत्ता	परियोजना क्षेत्र में वर्ष में एक बार
4	शोर स्तर	साल में दो बार पहले दो साल और फिर साल में एक बार
5	सामाजिक-आर्थिक स्थिति	3 साल में एक बार
6	वृक्षारोपण निगरानी	एक बार एक मौसम में

❖ अतिरिक्त अध्ययन

• सार्वजनिक सुनवाई

जन सुनवाई अभी बाकी है।

❖ जोखिम आकलन

पूर्ण खनन कार्य एक योग्य खदान प्रबंधक होल्डिंग के प्रबंधन नियंत्रण और निर्देशन में किया जाएगा। डीजीएमएस नियमित रूप से स्थायी आदेश, मॉडल स्थायी आदेश और आपदा, यदि कोई हो, के मामले में खान प्रबंधन द्वारा पालन किए जाने वाले परिपत्र जारी करता रहा है। साथ ही खनन कर्मचारियों को सतर्क रखने के लिए समय-समय पर रिफ्रेशर कोर्स में भेजा जाएगा।

❖ आपदा प्रबंधन योजना

आपदा प्रबंधन की योजना में आपातकालीन तैयारी एक महत्वपूर्ण पहलू है। कार्मिकों को उचित रूप से प्रशिक्षित किया जाएगा और सावधानीपूर्वक नियोजित, सिम्युलेटेड प्रक्रियाओं के माध्यम से आपातकालीन प्रतिक्रिया में मानसिक और शारीरिक रूप से तैयार किया जाएगा। इसी तरह, प्रमुख कर्मियों और आवश्यक कर्मियों को संचालन में प्रशिक्षित किया जाएगा।

❖ परियोजना लाभ

- **भौतिक लाभ:** सड़क परिवहन, बाजार, हरित आवरण में वृद्धि और सामुदायिक संपत्तियों का निर्माण।
- **सामाजिक लाभ:** रोजगार क्षमता में वृद्धि, राजकोष में योगदान, स्वास्थ्य संबंधी गतिविधियों में वृद्धि, शैक्षिक उपलब्धियां और मौजूदा सामुदायिक सुविधाओं का सुदृढीकरण।

❖ पर्यावरणीय लाभ:

- ❖ नदी चैनल को नियंत्रित करना और बैंकों की सुरक्षा करना।
- ❖ बाढ़ के कारण आसपास की कृषि भूमि के डूबने को कम करना।

- ❖ नदी के स्तर के उन्नयन को कम करना।
- ❖ अवैध खनन गतिविधि पर एक जांच।

❖ कॉर्पोरेट की सामाजिक जिम्मेदारी

दिनांक 1 मई 2018 के कार्यालय ज्ञापन के अनुसार परियोजना लागत की पूंजीगत लागत का 2% कॉर्पोरेट पर्यावरणीय उत्तरदायित्व के लिए आवंटित किया जाएगा। लोगों की जरूरतों और मांग को ध्यान में रखते हुए निम्नलिखित प्रस्तावित किया गया है।

नालन्दा क्लस्टर 03 बालू घाट के लिए सीईआर (CER) लागत कुल परियोजना लागत का 2% होगी। इस राशि का उपयोग समाज कल्याण के लिए किया जाएगा। सीएसआर (CSR) लागत रु. 76,52,000 /- x 2% = रु. 1,53,040 /-

प्रत्येक गतिविधि के लिए प्रस्तावक द्वारा निर्धारित की जाने वाली धनराशि का निर्धारण जन सुनवाई के दौरान स्थानीय प्राधिकारी/लोगों एवं हितग्राहियों से चर्चा के बाद किया जायेगा। सीईआर कार्यक्रम के तहत की जाने वाली गतिविधियों का समवर्ती मूल्यांकन करने की योजना बनाई गई है।

❖ वृक्षारोपण:

- परियोजना से कोई पेड़ नहीं कटेगा। तथापि, असामाजिक उत्तरदायित्व, सड़क के दोनों ओर और नदी के किनारे हरियाली विकसित की जाएगी। इन वृक्षारोपण को बढ़ाने के लिए सामुदायिक सेवाओं को तैनात किया जाएगा। आर्थिक महत्व के पेड़ और देशी मूल के पेड़ जैसे फलों के पेड़ लगाए जाएंगे।
- योजना अवधि में हॉल रोड के आसपास लगभग 64 पौधे रोपे जाएंगे।
- वृक्षारोपण के लिए प्रस्तावित पेड़ हैं:
- सस्टेनेबल सैंड मैनेजमेंट एंड माइनिंग गाइडलाइंस 2016 के अनुसार ग्रीनबेल्ट के विकास के लिए प्रति हेक्टेयर न्यूनतम 5 पौधे प्रस्तावित किए जाएंगे लेकिन पर्यावरण की बेहतर स्थिति के लिए परियोजनाओं के इस समूह में 10 पौधे प्रति हेक्टेयर प्रस्तावित किए जाएंगे।
- पीपल, अर्जुन, जामुन, बरगद, नीम, आम आदि के पेड़ लगाए जाएंगे।

पर्यावरण प्रबंधन योजना (ईएमपी)

- रिवर बैंक से सुरक्षा क्षेत्र छोड़कर नदी तल से निकासी की जाएगी।

- अधिकतम काम करने की गहराई क्षेत्र के भूजल तालिका के ऊपर रहेगी।
- स्वास्थ्य प्रभावों को कम करने के लिए प्रभाव क्षेत्र में श्रमिकों और आसपास के लोगों को स्वास्थ्य सुविधाएं प्रदान किया जायेगा ।
- वन्यजीव संरक्षण सुनिश्चित करना और उसी के लिए जागरूकता अभियान की व्यवस्था किया जायेगा।
- नदी में महीन तलछट छोड़ने वाली गतिविधियों को किया जायेगा।
- खनिजों के परिवहन और प्रबंधन के दौरान गड़बड़ी को कम करने के लिए प्रभावी शमन उपाय अपनाए जाएंगे
- स्थानीय/देशी और तेजी से बढ़ने वाली प्रजातियों के वृक्षारोपण के साथ सुधार कार्यक्रम की स्थापना किया जायेगा
- मानसून के मौसम की शुरुआत में खान के बंद होने के दौरान बहाली योजना की स्थापना किया जायेगा
- आसन्न आपदाओं के प्रभाव से बचने के लिए समय पर एहतियाती उपाय करने के लिए प्रभावी आपदा प्रबंधन योजना की स्थापना।
- पर्यावरण प्रबंधन प्रकोष्ठ द्वारा प्रभावी निगरानी कार्यक्रम की स्थापना किया जायेगा।

❖ **ईएमपी कार्यान्वयन के लिए बजट आवंटन**

टेबल, ईएमपी का बजट (नालन्दा क्लस्टर 03)

क्रम संख्या	विवरण	पूंजी लागत (लाख)	आवर्ती लागत (लाख)
1	प्रदूषण नियंत्रण और धूल दमन	Nil	1.5
2	प्रदूषण निगरानी i) वायु प्रदूषण ii) मृदा प्रदूषण iii) जल प्रदूषण iv) ध्वनि प्रदूषण	--	2.0
3	वृक्षारोपण और वेतन एक माली के लिए (अंशकालिक आधार पर)	0.64	0.5

4	परिवहन सड़क रखरखाव लागत	1.675	1.5
कुल		2.315	5.5

नोट: *64 पौधे * 1000 रुपये (हेज और बाड़ सहित प्रत्येक पौधे के लिए) = 64,000/- रुपये

- खनन परिवहन सड़क रखरखाव के लिए श्रम का वेतन 2 श्रमिक*300=600 प्रति दिन
- 600* 250= 1,50,000/-
- *2.5 लाख प्रति किलोमीटर (2,50,000*67 किमी लंबी सड़क) = 1,67,500/-

निष्कर्ष

ईआईए अध्ययन के आधार पर यह देखा गया है कि धूल प्रदूषण में वृद्धि होगी, जिसे पानी के छिड़काव और वृक्षारोपण द्वारा नियंत्रित किया जाएगा। खनन गतिविधियों के कारण (एम्बिएंट) परिवेशी पर्यावरण और पारिस्थितिकी पर नगण्य प्रभाव पड़ेगा, इसके अलावा खनन संचालन से क्षेत्र में प्रत्यक्ष और अप्रत्यक्ष रोजगार सृजन होगा। क्षेत्र के चारों ओर हरित पट्टी का विकास एक प्रभावी प्रदूषण न्यूनीकरण तकनीक के साथ-साथ खान परिसर से निकलने वाले प्रदूषकों को नियंत्रित करने के लिए भी किया जाएगा। खनन कार्य जारी रहने तक निगरानी कार्यक्रम का पालन किया जाएगा। इसलिए, यह संक्षेप में कहा जा सकता है कि खान के विकास से क्षेत्र के सामाजिक-आर्थिक वातावरण पर सकारात्मक प्रभाव पड़ेगा और क्षेत्र के सतत विकास को बढ़ावा मिलेगा।
