



# Environment and Social Impact Assessment Report (Scheme AA Volume 1) (Chouka GSS)

**Jharkhand Urja Sancharan  
Nigam Limited**

**Final Report**

September 2018

[www.erm.com](http://www.erm.com)

## FINAL REPORT

Jharkhand Urja Sancharan Nigam Limited

# Environment and Social Impact Assessment Report (Scheme AA Volume 1) (Chouka GSS)

10 September 2018

Reference # 0402882

**Prepared by : Anchal Jain, Abhishek Roy  
Goswami**

---

**Soumi Ghosh**  
*Senior Consultant*

Reviewed by :



**Dhritiman Ray**  
*Principal Consultant*



---

Approved by: **Debanjan  
Bandyapodhyay**  
*Partner*



This report has been prepared by ERM India Private Limited a member of Environmental Resources Management Group of companies, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b>	<b>I</b>	
<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>1.1</b>	<b>BACKGROUND</b>	<b>1</b>
<b>1.2</b>	<b>PROJECT OVERVIEW</b>	<b>1</b>
<b>1.3</b>	<b>PURPOSE AND SCOPE OF THIS ESIA</b>	<b>2</b>
<b>1.4</b>	<b>STRUCTURE OF THE REPORT</b>	<b>2</b>
<b>1.5</b>	<b>LIMITATION</b>	<b>3</b>
<b>1.6</b>	<b>USES OF THIS REPORT</b>	<b>3</b>
<b>2</b>	<b>POLICY, LEGAL AND ADMINISTRATIVE FRAME WORK</b>	<b>5</b>
<b>2.1</b>	<b>APPLICABLE LAWS AND STANDARDS</b>	<b>5</b>
<b>2.2</b>	<b>WORLD BANK SAFEGUARD POLICY</b>	<b>9</b>
<b>3</b>	<b>PROJECT DESCRIPTION</b>	<b>11</b>
<b>3.1</b>	<b>REGIONAL SETTING</b>	<b>11</b>
<b>3.2</b>	<b>PROJECT LOCATION</b>	<b>11</b>
<b>3.2.1</b>	<b>Location</b>	<b>11</b>
<b>3.2.2</b>	<b>Accessibility</b>	<b>12</b>
<b>3.3</b>	<b>SITE SETTING</b>	<b>14</b>
<b>3.3.1</b>	<b>Project Site</b>	<b>14</b>
<b>3.3.2</b>	<b>Site Vicinity</b>	<b>14</b>
<b>3.4</b>	<b>PROJECT COMPONENT</b>	<b>17</b>
<b>3.5</b>	<b>PROJECT TIMELINE AND PROJECT COST</b>	<b>17</b>
<b>3.6</b>	<b>RESOURCE</b>	<b>18</b>
<b>3.7</b>	<b>DISCHARGES AND WASTE</b>	<b>18</b>
<b>4</b>	<b>METHODOLOGY OF ESIA</b>	<b>19</b>
<b>4.1</b>	<b>SCREENING &amp; SCOPING</b>	<b>19</b>
<b>4.2</b>	<b>BASELINE STUDIES</b>	<b>20</b>
<b>4.3</b>	<b>IMPACT ASSESSMENT</b>	<b>20</b>
<b>4.4</b>	<b>ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN PREPARATION</b>	<b>21</b>
<b>5</b>	<b>DESCRIPTION OF THE ENVIRONMENT</b>	<b>22</b>
<b>5.1</b>	<b>INTRODUCTION</b>	<b>22</b>
<b>5.2</b>	<b>LAND USE/LAND COVER</b>	<b>22</b>
<b>5.3</b>	<b>SOIL</b>	<b>24</b>
<b>5.4</b>	<b>CLIMATE AND METEOROLOGY</b>	<b>24</b>
<b>5.5</b>	<b>NATURAL HAZARD</b>	<b>25</b>
<b>5.6</b>	<b>AIR &amp; NOISE ENVIRONMENT</b>	<b>25</b>
<b>5.7</b>	<b>DRAINAGE</b>	<b>25</b>
<b>5.8</b>	<b>GROUND WATER</b>	<b>26</b>
<b>5.9</b>	<b>SURFACE WATER</b>	<b>27</b>

<b>5.10</b>	<b>ECOLOGICAL ENVIRONMENT</b>	<b>27</b>
<b>5.10.1</b>	<i>Vegetation within the Study area</i>	28
<b>5.10.2</b>	<i>Wildlife Habitat and Faunal Diversity</i>	29
<b>5.10.3</b>	<i>Critical Habitat Assessment</i>	30
<b>5.11</b>	<b>SOCIO ECONOMIC ENVIRONMENT</b>	<b>31</b>
<b>5.11.2</b>	<i>Education profile</i>	35
<b>5.11.3</b>	<i>Occupational Pattern</i>	37
<b>5.12</b>	<b>GENDER PROFILE</b>	<b>40</b>
<b>5.12.2</b>	<i>Drinking Water &amp; Sanitation Facilities</i>	41
<b>5.12.3</b>	<i>Irrigation</i>	42
<b>5.13</b>	<b>HEALTH INFRASTRUCTURE</b>	<b>42</b>
<b>5.14</b>	<b>OTHER PHYSICAL INFRASTRUCTURE</b>	<b>44</b>
<b>6</b>	<b>IMPACT ASSESSMENT AND MITIGATION MEASURES</b>	<b>45</b>
<b>6.1</b>	<b>POTENTIAL IMPACT</b>	<b>45</b>
<b>6.1.1</b>	<i>Impacts on Aesthetics &amp; Visual Quality</i>	48
<b>6.1.2</b>	<i>Air &amp; Noise Quality</i>	48
<b>6.1.3</b>	<i>Impact on Land use, Soil &amp; Drainage</i>	50
<b>6.1.4</b>	<i>Impact on Water Resource</i>	51
<b>6.1.5</b>	<i>Impact on Biological Environment</i>	51
<b>6.1.6</b>	<i>Impact on Socio-economic Conditions</i>	52
<b>6.1.7</b>	<i>Influx of Labour</i>	55
<b>6.1.8</b>	<i>Impact on Community Health and Safety</i>	56
<b>6.1.9</b>	<i>Occupational, Health and Safety</i>	57
<b>7</b>	<b>STAKEHOLDER ENGAGEMENT</b>	<b>58</b>
<b>7.1</b>	<b>INTRODUCTION</b>	<b>58</b>
<b>7.2</b>	<b>IDENTIFICATION OF STAKEHOLDERS</b>	<b>58</b>
<b>7.3</b>	<b>SUMMARY OF STAKEHOLDER CONSULTATIONS</b>	<b>61</b>
<b>8</b>	<b>ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN</b>	<b>65</b>
<b>8.1</b>	<b>MITIGATION MEASURES</b>	<b>65</b>
<b>8.2</b>	<b>ENVIRONMENT AND SOCIAL ACTION PLAN</b>	<b>73</b>
<b>8.2.1</b>	<i>Labour Management Action Plan</i>	73
<b>8.2.2</b>	<i>Gender Action Plan</i>	74
<b>8.2.3</b>	<i>Occupational Health and Safety Management Action Plan</i>	74
<b>8.2.4</b>	<i>Citizen Engagement Action Plan</i>	75
<b>8.3</b>	<b>ENVIRONMENTAL MONITORING AND REPORTING</b>	<b>79</b>
<b>8.4</b>	<b>INSTITUTIONAL SETTING AND IMPLEMENTATION ARRANGEMENTS</b>	<b>83</b>
<b>9</b>	<b>CONCLUSION AND RECOMMENDATION</b>	<b>84</b>

## **LIST OF TABLES**

Table 1.1	Details of the substation and interlinked project (Scheme AA of Phase 2)	2
Table 2.1	National/State level Acts/Rule/Policy Triggered for the Project	5
Table 2.2	World Bank Policies Triggered for the Project	9
Table 3.1	Detail of Land of Chouka substation	11
Table 3.2	Description of the Surroundings	14
Table 3.3	Project Components in the 132/33 KV Substation at Chouka	17
Table 3.4	Resource Requirement in Construction and Operation of 132/33 KV Grid Substation at Chouka	18
Table 3.5	Emission and Discharges form 132/33 KV Grid Substation at Chouka	18
Table 5.1	Existing Land Cover Pattern of the Study Area	22
Table 5.2	Location of Study Area Villages	32
Table 5.3	Demographic profiles of villages located within study area	32
Table 5.3	Demographic profiles of the Surveyed Population	33
Table 5.5	Educational facilities in study area	37
Table 5.6	Occupational pattern of villages in the study area	38
Table 5.7	Health care facilities in study area	42
Table 4.4	Scoping Matrix for Chouka Substation	46
Table 7.1	List of key stakeholders	59
Table 7.2	Stakeholders and Key Points Discussed	62
Table 8.1	Impact Mitigation Matrix	66
Table 8.2	Information Disclosure Plan	75
Table 8.3	Summary of Consultation Mechanism	77
Table 8.4	Monitoring Plan	80
Table 8.5	Responsibility Matrix	83

## **LIST OF FIGURES**

Figure 3.1	Project Location Map	13
Figure 3.2	Photographs of Site Surrounding	16
Figure 3.3	Layout of a 132/33 KV substation at Chouka	17
Figure 4.1	Impact Assessment Process	21
Figure 5.1	Land Use / Land Cover Map of the Study Area	23
Figure 5.2	Rainfall Pattern of the District (2012-2016)	24
Figure 5.3	Drainage Map of the Study Area	26
Figure 5.4	Age Group Distribution of the Surveyed Population	33
Figure 5.5	Proportion of SC/ST Population in the Study Area Villages	34
Figure 5.6	Caste Distribution of the Surveyed Population of Ghat Dulmi Village	34
Figure 5.7	Literacy profile of the study area villages	36
Figure 5.8	Educational Status of the Surveyed Population	36
Figure 5.9	Employment Status of the Surveyed Population	39
Figure 5.10	Occupational Pattern of the Surveyed Population	40
Figure 7.1	Consultations with Land Owner in Ghat Dulmi village	60
Figure 7.2	Consultations with Local Communities	60
Figure 7.3	Consultations with Head Clerk, Assistant District Collector Office	61

## ABBREVIATIONS

CEA -	Central Electricity Authority
CFC -	Chlorofluorocarbon
CGWB -	Central Groundwater Authority Board
CPCB -	Central Pollution Control Board
dB -	Decibel
DG -	Diesel Generator
EA -	Environmental Assessment
EMP -	Environmental Management Plan
ERM -	Environmental Resources Management
ESIA -	Environmental and Social Impact Assessment
ESMF-	Environmental and Social Management Framework
ESZ -	Eco-Sensitive Zone
GCC-	General Conditions of Contract
GM -	Gair Mazrua
GOI -	Government of India
GPS -	Global Positioning System
GSS -	Grid Sub Station
IESE -	Initial Environmental and Social Examination
IMD -	India Meteorological Department
IS -	Indian Standard
IUCN -	International Union for Conservation of Nature
IWPA -	Indian Wildlife Protection Act
JPSIP-	Jharkhand Power System Improvement Project
JUSNL -	Jharkhand Urja Sancharan Nigam Limited
KL-	Kilo Litre
KLD -	Kilo Litre per Day
Km -	Kilometer
KVA -	Kilo-Volts-Ampere
MVA -	Mega-Volts-Ampere
NBWL -	National Board of Wildlife
NH-	National Highway
PCB -	Pollution Control Board
PCB -	Polychlorinated Biphenyls
PfA -	Power for All
PPP -	Public Private Partnership
PUCC -	Pollution Under Control Certificate
SCC-	Special Conditions of Contract
SF6 -	Sulfur Hexafluoride
TCE -	TATA Consulting Engineer
TL -	Transmission Line
WPR-	Work Participation Ratio

## EXECUTIVE SUMMARY

The Jharkhand Urja Sancharan Nigam Limited (JUSNL) with financial assistance from the World Bank is implementing the transmission infrastructure development/upgradation under the Jharkhand Power System Improvement Project (JPSIP) and will include: (a) Creation of 25 new 132 kV substations, and (b) Development of associated 132 KV transmission lines of around 1800 kms. These 25 substations and associated transmission lines have been organized into 26 schemes. The proposed new 132 KV Grid substation at Chandil block is covered under the **Scheme AA Volume 1**.

The proposed substation is planned to be located on Plot No 209, 210, 211, 212 and 213 in Ghat Dulmi village of Saraikela Kharsawan District. Private land of 7.16 acre for proposed Chouka substation would be acquired by JUSNL as per The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. 0.27 acre is government land, which will be allotted to JUSNL. Permission of trees felling and transit permit for Non-Forest land will be obtained as per Jharkhand Timber and others Forest Produce (Regulation of Transit Rules-2004)- Notification dated 3rd March, 2016. The site can be accessed through Chowka-Kandra' road connects the GSS site with National Highway (NH) 43.

The project activities would involve the design, construction and operation of a 132/33 KV Sub-station. The key components of the project would include: 2 Nos 50 MVA oil cooled transformers, incoming and outgoing bays connecting to the transmission line, control room and residential quarters for JSUNL employees. Setting up of the sub-station would involve a permanent change in land use from presently wasteland to infrastructure. Construction activities are expected to cause temporary disturbances because of plying of vehicles in approach roads, site preparation involving cutting and filling of earth and soil, operation of construction machinery and equipment, and the involvement of a labour force.

During operational phase, about 16-20 employees would be located at site. Resource use would comprise of about 9 KLD of water, to be sourced through a bore well at site. On a regular basis, small amounts of domestic waste and wastewater would be generated from the site. From time to time, minor amounts of hazardous waste would also be generated and would be disposed off in conformance to regulatory requirements.

The baseline studies have profiled the environmental and social conditions of the site at Chandil Block and the study area of 2 kms around it. The studies were designed to collect information from secondary sources and to obtain primary information through site visits and consultations with local communities and other related stakeholders. Overall, the baseline is reflective of the environmental and social landscape of the area and the Saraikela

Kharsawan District. Site-specific environmental and social baseline is described in the Table below:

Environmental Setting	
Terrain & Slope	The terrain slightly slopes towards southeastern boundary with about 6-7 m drop in elevation.
Soil	The soils are characterized by red color lateritic soil which has a low pH, poor in organic carbon and well drained.
HFL data	The highest and lowest contours of the site are 213m (northern boundary) and 204 m (southern boundary) respectively.
Existing drainage pattern	There is no major drainage channel present within the proposed site and surrounding areas within 2 km. A micro drainage channel was observed near the natural body present at a distance of 100m from the project site in south-west direction.
Environmental pollution in the vicinity	The proposed substation is located in a rural setting. During the site reconnaissance, steel plant ( <i>Narsingh Ispat Limited</i> ) is located at a distance of 700m in north-west direction from the project site boundary. Ghat Dulmi village is the nearest settlement to the project site and is approx. 550m from the site in the south direction. Apart from Ghat Dulmi, there are about four (4) more villages within the 2 km study area.
Social Setting	
Status of Land	The land identified for the project is Raiti land (private land) with a small patch of GM land along the boundary of Chowka-Kandra Road. The land will be acquired as per the procedure laid in The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013).
Habitations	Ghat Dulmi village is the nearest settlement to the project site and is approx. 550m from the site in the south direction. Apart from Ghat Dulmi, there are about Four (4) more villages within the 2 km study area.
Religious & Culture related sensitivity (including sacred groves)	There are no religious structures present in the vicinity of the site.

In addition to the baseline surveys, a community consultation exercise was undertaken in the Ghat Dulmi village. Residents of the village were consulted to validate secondary information on the socio economic status of the village, understand the perceptions of the local people with respect to the planned GSS project and to identify any existing dependency of the local community on the proposed site or surroundings. The consultations revealed that there was no dependency on the plot of land which belonged to the revenue department. There is a water body located at a distance of 100m outside the site in west direction. People of Ghat Dulmi village did not raise any concern about potential disturbances to water body during construction.

Social Impact Assessment (SIA) for the land parcel was carried out Sharda Agricultural Research and Development Agency which has been empaneled by District Collector Office in 2018. As per the consultations conducted with land owners of the private land, the proposed private land is not being used for agriculture from long time due to lack of irrigation facilities. Most of agriculture in the area are dependent on the rains. Land owners revealed that none of the land owner was dependent on the private land for their livelihood.

The potential and associated impacts of the proposed project has been identified and evaluated using standard procedures. Source references including past project experience, professional judgment and knowledge of both the proposed project activities as well as environmental and social setting of the site and surroundings were used in the assessment.

The change in land use from scrubland (there is no agricultural being practiced) to infrastructure type may be considered to be having insignificant impact because the small extent of such change within the study area, which has the presence of considerable percentage of agricultural and forest land uses, would be minimal. Excavations, cutting and filling of soil and rocky outcrops present on site may lead to erosion and runoffs, which may adversely impact adjoining land parcels and / or waterbodies during the construction phase. In addition, local drainage in and around the site may get impacted due to the change of the site topography, if proper site design is not undertaken considering these factors. The proposed substation will be constructed over 7.43 acres of land (7.16 acre of private land and 0.27 acre of revenue land). The private land will be acquired from four (4) land owners belonging to Ghat dulmi village as per the procedure laid in The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013). Compensation will be provided based on the market rate of the land. Compensation at market value of wood/timber or firewood depending on the kind of tree to be determined by the Forest Department and will be paid accordingly.

With the construction phase lasting about one (1) year, construction related activities are expected to cause local level impacts (settlements of Ghat Dulmi village) on environmental quality due to re-entrainment of dust in air from earth works and construction dumps, air and noise emissions from vehicles and construction equipment, discharge of domestic waste water from labour camps and generation of construction and domestic wastes. In the construction phase, there are expected to be potential health and safety related issues due to involvement of labour in project construction activities. Influx of people (migrant workers, subcontractors and suppliers) may lead pressure on existing social infrastructure and their interactions with nearby rural communities or potentially lead to cultural conflicts, and result in additional vulnerability to women and population belonging to scheduled castes or tribes. At the same time, positive socioeconomic impacts are also expected with scope for new business opportunities for local subcontractors, skill acquisition for local workforce and employment opportunities arising from recruitment of local construction labour and staff, improvement of roads and access.

Adverse impacts caused by the project during the operational phase are expected to be minimal, with no plans for any point source emissions or discharges from the GSS to any environmental media. The operation of the facility is expected to result in generation of small amount of wastes, some of which (like oily rags, waste oil, etc.) may be hazardous in nature and are not

expected to cause any significant adverse impacts if adequate safeguards and mitigation measures are adopted, as delineated in the ESMP.

In order to ensure that the mitigation measures developed for the significant impacts of the proposed project are implemented and maintained throughout the project duration, an Environmental and Social Management Plan (ESMP) has been developed. The ESMP outlines management strategies for managing all associated and potential impacts that could affect the environment and living conditions of people in the area. These mitigation measures and plans include:

- Arrange for appropriate compensation for loss of trees (approx. 20 nos) in the project site;
- Plan for the sub-station site layout and for cutting and filling of earth in a manner that local drainages are not disturbed ;
- Acquisition of Private (Raiti) land as per the procedure laid in The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013);
- Provision of compensation at a rate higher than market rate;
- Permission of trees felling and transit permit for Non-Forest land will be obtained as per Jharkhand Timber and others Forest Produce(Regulation of Transit Rules-2004)- Notification dated 3rd March, 2016;
- Construction work during night time (10 pm to 6 am) to be prohibited to avoid any generation of dust;
- Adopt appropriate engineering and associated mitigation measures and plans to minimise adverse impacts to local communities during construction activities;
- Adopt appropriate EHS safeguards and good practices to be adopted by construction contractors to ensure that occupational health and safety risks of labours are maintained at acceptable levels. The labour force should also undergo compulsory training on work related health and safety measures; and
- Ensure local suppliers and contractors implement local employment and procurement policies to the benefit neighboring communities of Ghat Dulmi, Juga, Tirildih, Tulgram and Khunti villages.

In order to ensure that the ESMP is implemented during construction phase, specific conditions of contract for Site Contractors to be engaged have been laid down which would be made part of the Bidding document. An ESMP monitoring plan would also be implemented to enable JUSNL to ensure that the planned mitigation measures are being implemented and adverse impacts are kept to the minimum possible level.

For the implementation of the JPSIP Project JUSNL has developed a Project Implementation Unit (JPSIP PIU) headed by the Chief Engineer (Transmission, World Bank Funded Projects). The JPSIP PIU would also be responsible for driving the implementation of the E&S safeguards in JPSIP. At the field level, the Chief Engineer cum GM of the Jamshedpur Zone of JUSNL would be responsible for implementing the technical aspects of the JPSIP with respect to the Chouka GSS and would be responsible for overseeing the implementation

of the ESMP and the E&S safeguards adopted by the contractor. In addition, it is recommended that the Contractor implementing the subprojects would induct Environment and Social personnel to supervise implementation of the E&S safeguards on the ground.

Through the process of consultation and disclosures, JPSIP would ensure that the project information is communicated to the stakeholders and the feedback from the community is integrated into the execution phases of the project. A Consultation Framework has been prepared to ensure involvement of stakeholders' at each stage of project planning and implementation. In addition, a three-tier Grievance Mechanism has been proposed for handling any grievances of community related to the project i.e. Tier 1 -Circle level, Tier 2 -Zone level, Tier 3- Grievance Redresses Cell located centrally at the JPSIP PIU in Ranchi.

## 1.1

## BACKGROUND

The Government of Jharkhand with active support of the Government of India's has planned for implementing 24X7 Power for All (PfA) in Jharkhand. The program is aimed at achieving 24x7 reliable power for all the households by FY 2019. The PfA roadmap includes interventions in generation, transmission, distribution, renewable energy and energy efficiency/ proposed to be implemented during FY16 to FY19. Government of Jharkhand through Jharkhand Urja Sancharan Nigam Limited (JUSNL), the state run power transmission utility company, has planned to develop the transmission infrastructure in the State. This transmission infrastructure development is being funded from different sources e.g. domestic fund, Public Private Partnership (PPP) and multilateral funding. JUSNL has approached the World Bank for assistance to fund a part of the transmission infrastructure under the Jharkhand Power System Improvement Project (JPSIP). The project would include creation of 25 new 132 kV substations and associated 132 KV transmission lines of around 1800 Kms.

JUSNL would like to develop the projects in a sustainable manner. Towards this objective, an Environmental and Social Management Framework (ESMF) has been developed to lay out a mechanism for integrating environmental and social concerns into the planning, designing and implementation phase of JPSIP. Based on the higher level guidance provided in the ESMF, each project component is undergoing a project specific Environmental and Social Impact Assessment (ESIA). Based on the outcome of the assessment, a project specific Environmental and Social Management Plan (ESMP) is laid down for all the sub-projects.

## 1.2

## PROJECT OVERVIEW

As part of the JPSIP, JUSNL has planned for development of 25 new substations and associated transmission lines. These substations and transmission lines have further been consolidated into schemes. For the purpose of implementation, these schemes are divided into 3 Phases. The sub-projects in each of the schemes are presented as *Annexure 1*.

This Environment and Social Impact Assessment Report deals with the construction and operation of the new 132/33KV Substation at Chandil block of Saraikela Kharsawan district, which is part of Scheme AA of Phase II. The details of the other interlinked subprojects in the scheme are presented in *Table 1.1*.

**Table 1.1** *Details of the substation and interlinked project (Scheme AA of Phase 2)*

Sl. No	Details of Scheme AA	Capacity (MVA)	Length (km)
1.	132/33 kV GSS at Chouka (2x50 MVA)	100	
2.	132 kV D/C 3 Ph. Chouka - Tamar Transmission line		27.612

Source: JUSNL

The Environmental and Social Impact Assessment of the transmission line associated with the Chouka substation is presented as **Scheme AA Volume 2**.

### 1.3

#### *PURPOSE AND SCOPE OF THIS ESIA*

The Environment and Social Impact Assessment (ESIA) process involves the identification of the potential environmental and social issues in the project and trying to address them through design interventions. The ESIA further carries out impact prediction and evaluation of residual environmental and social issues of a Project. It then goes on to outline the proposed mitigation measures for residual impacts and enhancement measures for positive impacts which the Project will implement. The objectives of this document are to:

- Identify all potentially significant adverse and positive environmental and social issues of the Project. Enumerate the design modification which has been influenced by the ESIA process and define the final alignment of the Grid Substations (GSS);
- Gather baseline data to inform the assessment of impacts on the environment as a result of the Project;
- Suggest appropriate mitigation measures to effectively manage potential adverse impacts; and
- Develop an Environmental and Social Management Plan (ESMP) to implement suggested mitigation measures to minimize adverse impacts through effective management systems including formulation of monitoring and reporting requirements.

### 1.4

#### *STRUCTURE OF THE REPORT*

The report has been organized as follows:

- Chapter 1 above contains a brief background of JPSIP. It also presents a broad context to the ESIA Study;
- Chapter 2 presents the regulations and polices applicable and actions which are required by JUSNL;
- Chapter 3 presents the description of the proposed substation and interaction with the bio-physical and socio-economic environment;
- Chapter 4 provided methodology adopted for the ESIA study;

- Chapter 5 outlines the environmental and social setting of the proposed substation which forms the basis for assessment of potential impacts;
- Chapter 6 presents the likely impacts from the proposed substation over the lifecycle of the project along with its severity levels;
- Chapter 7 elaborates on the stakeholder identification process adopted and a brief of the public consultations undertaken to capture the local residents / stakeholders perceptions;
- Chapter 8 presents the mechanism of the implementation of the proposed mitigation measures complete with responsibility and resources requirements; and
- Chapter 9 presents the Conclusions and Recommendations

## 1.5

### **LIMITATION**

ERM would like to highlight the following limitations with regard to this ESIA document:

- Project planning for proposed transmission line has been undertaken by Tata Consulting Engineer (Hereinafter referred to as "Design Consultant") based on desktop studies and a Detailed Project Report has been developed based on the same. Detailed field survey of the project components like tower footing and the RoW is currently being undertaken by the Design Consultant. The present draft of the ESIA therefore considers the project configuration as has been outlined in Design Consultant's Report and impacts for the same has been accordingly assessed.

## 1.6

### **USES OF THIS REPORT**

The Client acknowledges that report provided by ERM in relation to the provision of Services is delivered to the Client solely for the Client's benefit. ERM, its officers, employees, contractors, and agents shall owe no duties, obligations or liabilities to any persons in connection with any use of or reliance on the Project information provided by JUSNL. We make no warranties, express or implied, including without limitation, warranties as to merchantability or fitness for a particular purpose.

ERM is not engaged in social and environmental, health & safety consulting and reporting for the purposes of advertising, sales promotion, or endorsement of any client's interests, including raising investment capital or recommending investment decisions, or other publicity purposes. The client acknowledges that the report prepared by ERM are for exclusive use of the client and agrees that ERM's reports or correspondence will not be used or reproduced in full or in part for such promotional purposes, and may not be used or relied upon in any prospectus or offering circular. The client also agrees that none of its advertising, sales promotion, or other publicity matter containing any information obtained from these assessments or reports, either in parts or entirety, will make reference to ERM's trade name. Nothing

contained in this report shall be construed as a warranty or affirmation by ERM that the site and property described in the report are suitable collateral for any loan or that acquisition of such property by any lender through foreclosure proceedings or otherwise will not expose the lender to potential environmental or social liability.

The ESMF identifies all the national and state level legislation rules and guidelines which would be applicable to JPSIP. It has also identified all the World Bank Policies and guidelines which are applicable in JPSIP. This section highlights only the relevant environmental and social policies and regulations, World Bank guidelines which are applicable for this sub- project.

## 2.1

### APPLICABLE LAWS AND STANDARDS

The applicable acts, regulations, and relevant policies in the context of the project are presented in below table.

**Table 2.1** *National/State level Acts/Rule/Policy Triggered for the Project*

Sl. No.	Regulations	Applicability & Action Required	Responsibility
<b>A. Electricity Related Regulation</b>			
1.	Electricity Act 2003 and Indian Telegraph Act 1885	<p>Under the provisions of Section 68(1):- Prior approval of the Govt. of Jharkhand (GoJ) is a mandatory requirement to undertake any new transmission project of 11 kV upward in the State thereby authorizing JUSNL to plan and coordinate activities to commission a new Transmission project.</p> <p>Under Section 164:- GoJ, may by order in writing, authorize JUSNL for the placing of electric line for the transmission of electricity confer upon licensee (i.e. JUSNL) in the business of supplying electricity under this act subject to such conditions and restrictions, if any, as GoJ may think fit to impose and to the provisions of the Indian Telegraph Act, 1885, any of the power which the Telegraph authority possesses.</p>	JUSNL, JPSIP
2.	Technical Standards for Construction of Electrical Plants and Electric Lines Regulations, 2010;	<p>The Electricity Act and Telegraph Act provide guidance on the compensation payable for damages to crops/ trees and structures for setting up of transmission line. As per the provision of the above mentioned Acts, JPSIP would require to pay compensation for any damage or loss due to its projects.</p> <p>Both the Regulations are framed by Central Electricity Authority (CEA) of India under Indian Electricity Act, 2003. These regulations provide technical standards for construction of electrical lines and safety requirements for</p>	JPSIP, Contractor

Sl. No.	Regulations	Applicability & Action Required	Responsibility
	Measures relating to Safety and Electric Supply Regulations, 2010	construction/ installation/protection/operation/maintenance of electric lines and apparatus. JPSIP and its contractors would comply with the requirements of these regulations.	
<b>B. Environment/Social Legislation</b>			
1.	Environment Protection Rules, 1986 and applicable standards	The standards for discharge/emission from different type of pollution source (e.g., DG sets) and industries have been laid down by CPCB under EP Rule, 1986. JPSIP would ensure that all these standards are complied during the planning, construction and operation of the project.	JPSIP, Contractor
2.	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	RFCLARRA, 2013 provides for compensation and assistance measures and adopts a consultative and participatory approach in dealing with the Project Affected Persons. <i>JPSIP would comply with relevant provisions of the Act.</i>	JPSIP
3.	Jharkhand Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Rules, 2015 (JhLARR Rules, 2015)	State Rules specify the process for carrying out Social Impact Assessment and Consent Requirements for the land to be acquired. <i>JPSIP would comply with relevant provisions of the Act.</i>	JPSIP
4.	Ancient Monuments & Archaeological Sites and Remains Act, 1958; Indian Treasure Trove Act, 1878; Jharkhand Ancient Monuments and Archaeological Sites, Remains and Art Treasures Act, 2016.	Proposed substation site is not located near or inside archaeological site. Thus National and State level Acts on Ancient Monuments and Archaeological Sites will not be triggered for this project. However, treasure, archaeological artefacts can be found during excavation work; for which procedure laid down in Indian Treasure Trove Act, 1878 would be followed.	JPSIP, Contractor
5.	Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	Generation of waste oil and used transformer oil at site would attract the provisions of Hazardous Waste and other waste Rules, 2016. The hazardous wastes have to be disposed through CPCB/SPCB approved recyclers only. JPSIP would obtain authorization for hazardous waste under this Rule. JPSIP would also maintain record of hazardous waste and submit the desired return (Form 4) in prescribed form to JSPCB.	JPSIP
6.	E-Waste (Management) Rules, 2016	JPSIP, being the bulk consumer of electrical and electronic equipment will ensure that e-waste generated is channelized through collection center or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of	JPSIP

Sl. No.	Regulations	Applicability & Action Required	Responsibility
7.	Battery (Management & Handling) Rules 2001	the producer to authorized dismantler or recycler. It is the responsibility of the bulk consumer <sup>(1)</sup> (JPSIP) to ensure that the used batteries are deposited with the dealer, manufacturer, or registered recycler for handling and disposal. A half-yearly return (Form-1) is to be filed as per the rule to JSPCB.	JPSIP
8.	Ozone Depleting Substances (Regulation and Control) Rules, 2000	JPSIP shall follow the provisions of the notification and shall phase out all equipment, which uses these substances. In case of substation no equipment would be procured which contain CFC's.	JPSIP, Design Consultant
9.	Central Ground Water Authority (CGWA) Public Notice dated 4 <sup>th</sup> January 2017	Permission need to be obtained from State Level Ground Water Resources Development Authority and Central Ground Water Authority for installation of bore well and abstraction of ground water resource.	JPSIP
10.	Regulation of Polychlorinated Biphenyls Order, 2016	The use of polychlorinated biphenyls or any equipment containing PCB would be prohibited entirely from 31 <sup>st</sup> December 2025. As per the DPR, insulating oils that will be used in the transformers will be PCB free.	JPSIP and Design Consultant
11.	Permission of trees felling and transit permit for Non-Forest land as per Jharkhand Timber and others Forest Produce(Regulation of Transit Rules-2004)- Notification dated 3 <sup>rd</sup> March, 2016.	As per the Notification, a pre-inspection of trees required to be conducted before granting of tree felling permission. An online application will be submitted to Divisional Forest Officer which will be forwarded to Range Forest Officer for verification. After inspection of the plot for land type, type of species, total numbers and measurement. RFO will submit the report for DFO for further process and final issuance of Tree felling permit.	Divisional Forest Officer, Range Forest Officer
<b>C. Labour related Legislation</b>			
1.	The Child Labour (Prohibition and Regulation) Act, 1986	This Act prohibits engagement of children in certain employments and regulates the conditions of work of children in other certain employments. JPSIP and its contractors would comply with the requirements of these regulations.	JPSIP, Contractor
2.	Contract Labour (Regulation & Abolition) Act 1970	This Act regulates the employment of contract labors in certain establishments and prohibits for its abolition in certain circumstances. JPSIP and its contractors would comply with the requirements of these regulations.	

(1) 'Bulk Consumer' means a consumer such as the Departments of Central Government like Railways, Defense, Telecom, Posts and Telegraph, the Department of State Government, the Undertakings, Boards and other agencies or companies who purchase hundred or more than hundred batteries per annum.

Sl. No.	Regulations	Applicability & Action Required	Responsibility
3.	Minimum Wage Act, 1948	Under this Act, Jharkhand State government has notified minimum wage rate for the workers. JPSIP's contractors would provide minimum wage to its workers as per the minimum wage rate provided in the said notification.	
4.	(Abolition) Act, 1976	This Act abolished bonded labour system to prevent the economic and physical exploitation of the weaker sections of the people. JPSIP and its contractors would comply with the requirements of these regulations.	
5.	Grievance Redressal Machinery under Industrial Disputes Amendment Act, 2010	This Act provides mechanism for setting up of grievance redressal committee in industrial establishment. JPSIP and its contractors would comply with the requirements of these regulations.	
6.	Employees' Provident Fund and Miscellaneous Provisions Act, 1952	This Act provides for the institution of provident funds, pension fund and deposit-linked insurance fund for employees in factories and other establishments. JPSIP and its contractors would comply with the requirements of these regulations.	
7.	The Payment of Wages Act, 1936, amended in 2005; Workmen's Compensation Act, 1923	This Act provides for timely disbursement of wages payable to employed persons covered by the Act. JPSIP and its contractors would comply with the requirements of these regulations.	
8.	Maternity Benefit Act, 1961;	This Act regulates the employment of women in certain establishments for certain periods before and after child-birth and to provide for maternity benefit and certain other benefits. JPSIP and its contractors would comply with the requirements of these regulations.	
9.	Employees State Insurance Act, 1948	This Act provides certain benefits to employees in case of sickness, maternity and 'employment injury'. This Act is applicable to employees earning Rs 15,000 or less per month. JPSIP and its contractors would comply with the requirements of these regulations.	
10.	Inter-state Migrant Workmen Act, 1979	This Act regulates the employment of inter-State migrant workmen and provides for their conditions of service. JPSIP and its contractors would comply with the requirements of these regulations.	
11.	(Forms and Time of Service of Notice) Rules, 2004	This Rule comes in force for occurrence of accident in connection with the generation, transmission, supply or use of electricity and electric line. JPSIP would incorporate requirements of these regulations in contract document of procurement.	
12.	(Regulation of Employment	This regulation provides conditions of service of building and other construction	

Sl. No.	Regulations	Applicability & Action Required	Responsibility
	and Conditions of Service) Act, 1996	workers including their safety, health and welfare measures. JPSIP and its contractors would comply with the requirements of these regulations.	

## 2.2

### WORLD BANK SAFEGUARD POLICY

The implementation of the World Bank Operational Policies seek to avoid, minimize or mitigate the adverse environmental and social impacts, including protecting the rights of those likely to be affected or marginalized by the proposed project. Based on the information gathered during the study, following Policies are triggered and would require adequate measures to address related safeguard concerns.

**Table 2.2** *World Bank Policies Triggered for the Project*

Sl. No.	World Bank Policies/Guidelines	Applicability	Responsibility
1.	OP 4.01 Environmental Assessment	The Bank requires environmental assessment (EA) of projects under Bank financing to help ensure that they are environmentally sound and sustainable. EA takes into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and physical cultural resources); and transboundary and global environmental aspects.	Environmental and Social Consultant and Technical Consultant of JPSIP
2.	BP 4.11 Physical Cultural Resources	<p>As per requirement of the OP 4.01, environmental assessment is being carried out for this project.</p> <p>This policy requires Bank financing projects to assess impacts on physical cultural resources at the earliest possible stage of the project planning cycle. Environmental assessment involves the preparation of a physical cultural resources management plan that includes (a) measures to avoid or mitigate any adverse impacts on physical cultural resources; (b) provisions for managing chance finds; (c) any necessary measures for strengthening institutional capacity for the management of physical cultural resources; and (d) a monitoring system to track the progress of these activities.</p> <p>Though presently there are no physical cultural resource found to be affected by the project, possibility of "chance finds" cannot be ruled out. If something is</p>	Environmental and Social Consultant of JPSIP

Sl. No.	World Bank Policies/Guidelines	Applicability	Responsibility
	3. OP 4.12 Involuntary Resettlement	found at later stage of the project (construction phase), procedures laid down in "Indian Treasure Trove Act, 1878".	JPSIP
	4. OP 4.10 Indigenous Peoples	This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by the involuntary taking of land. To avoid or minimize involuntary resettlement and, where this is not feasible, assist displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.	Environmental and Social Consultant of JPSIP/JPSIP
	5. IFC/WB General EHS Guidelines	This policy contributes to the Bank's mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples.	Environmental and Social Consultant and Technical Consultant of JPSIP
	6. IFC/WB Guidelines for Power Transmission and Distribution	Recommendations of these guidelines would be incorporated in ESMP and Bidding document for this project.	

## 3.1

## REGIONAL SETTING

The proposed Chouka GSS is planned to be located at Ghat Dulmi village in Chandil block of Saraikela Kharsawan district. The Ghat Dulmi village is part of the Dhunaburu Gram Panchayat.

## 3.2

## PROJECT LOCATION

## 3.2.1

*Location*

The proposed substation is planned to be located on Plot Nos. 209, 210, 211, 212 and 213 in Ghat Dulmi village (*Mouja*) of Saraikela Kharsawan District. Among these, Plot Nos. 209, 212 and 213 admeasuring 7.16 acres is private land and Plot Nos. 210 and 211 admeasuring 0.27 acre is government land. Details of land of Chouka substation are provided below:

**Table 3.1** *Detail of Land of Chouka substation*

Sl. No	Khata No.	Plot No.	Area in Acres	Type of Land	Type of Land
1.	16	212	2.02	Rayati Land	Private Land
2.	42	213	3.65	Rayati Land	Private Land
3.	69	209	1.49	Rayati Land	Private Land
4.	78	211	0.19	GM Land	Government Land
5.	78	210	0.08	GM Land	Government Land
<b>Total</b>			<b>7.43</b>		

*Source: Mouza map issued by Circle Inspector, Chandil*

Private land of 7.16 acre for proposed Chouka substation would be acquired by JUSNL through the provision of The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. As per Social Impact Assessment (SIA) carried out by Sharda Agricultural Research and Development Agency in 2018, there are four (4) private land owners belonging to Ghatdulmi village. Progress in the land acquisition process is described in **Box. 3.1**.

Electrical Chief Engineer of JSUNL had requested District Collector of Saraikela Kharsawan District vide Letter No. 1091 dated 9<sup>th</sup> November, 2016 for identification of GM land for construction of Chouka GSS. As per Letter No. 1391 dated 1<sup>st</sup> December 2016, issued by Circle Inspector (CI) to District Collector (DC) of Saraikela Kharsawan District, GM land of 10 acre was not available in the Chandil Circle for development of the Chouka GSS. Subsequently, during review meeting with Managing Director of JUSNL dated 6<sup>th</sup> January, 2017, instruction was provided to acquire 'rayati land' if GM land is not available. Subsequent to this, CI of Chandil Block has identified and surveyed rayati land of Plot No. 209, 210, 211, 212 and 213 in Ghat Dulmi Village and found it appropriate for construction of Chouka GSS. After verification of the land, CI has issued a letter to District Collector of Saraikela Kharsawan District vide Letter No. 731 dated 6<sup>th</sup> June, 2017 to proceed with the procedure for acquiring of land for GSS site.

Gram Sabha for the proposed land parcels was conducted on 23<sup>rd</sup> March 2018, in the presence of Gram Pradhan Mr. Baneshwar Singh. The Gram Sabha meeting (refer *Annexure 11*) was held based on the order of District Land Officer (DLO), Sareikala vide Letter No. 220. Total no. of 42 people participated in the Gram Sabha. The Gram Sabha meeting passed a unanimous resolution approving the construction of the proposed grid substation at the aforementioned location. The key aspects discussed/ issues raised during the meeting are as follows;

- (1) Acquisition of land will only be undertaken after completion of compensation payment to the land losers;
- (2) Preference will be allotted to the land losers and local communities (as per ability) in matters of employment;
- (3) All the resources to be used for construction of the grid substation needs to be locally sourced;

JUSNL has submitted fees for carrying out Social Impact Assessment (SIA) by the government empaneled agency for the land parcel to the District Collector Office, Saraikela Kharsawan district. Following this, SIA (refer *Annexure 12*) for the project was carried out by government empaneled institute. Further, Expert Group (requirement as per Section 7 of the RFCTLARR Act, 2013) is formed vide Letter dated 08<sup>th</sup> May 2018 to apprise the SIA report (including social management plan) (refer *Annexure 13*) by District Collector.

Subsequent to this, appraisal of SIA will be undertaken by Expert Group to decide the compensation based on the market rate. After finalization of compensation for the land parcel identified, a final notification will be issued containing statement of nature of public project, summary of SIA and details of Expert Group formed by respective District Collector. Issuance of final notification will take 2-3 months.

After releasing of notification and formal consent from land owners and Gram Panchayat and disbursement of compensation, the land will be acquired.

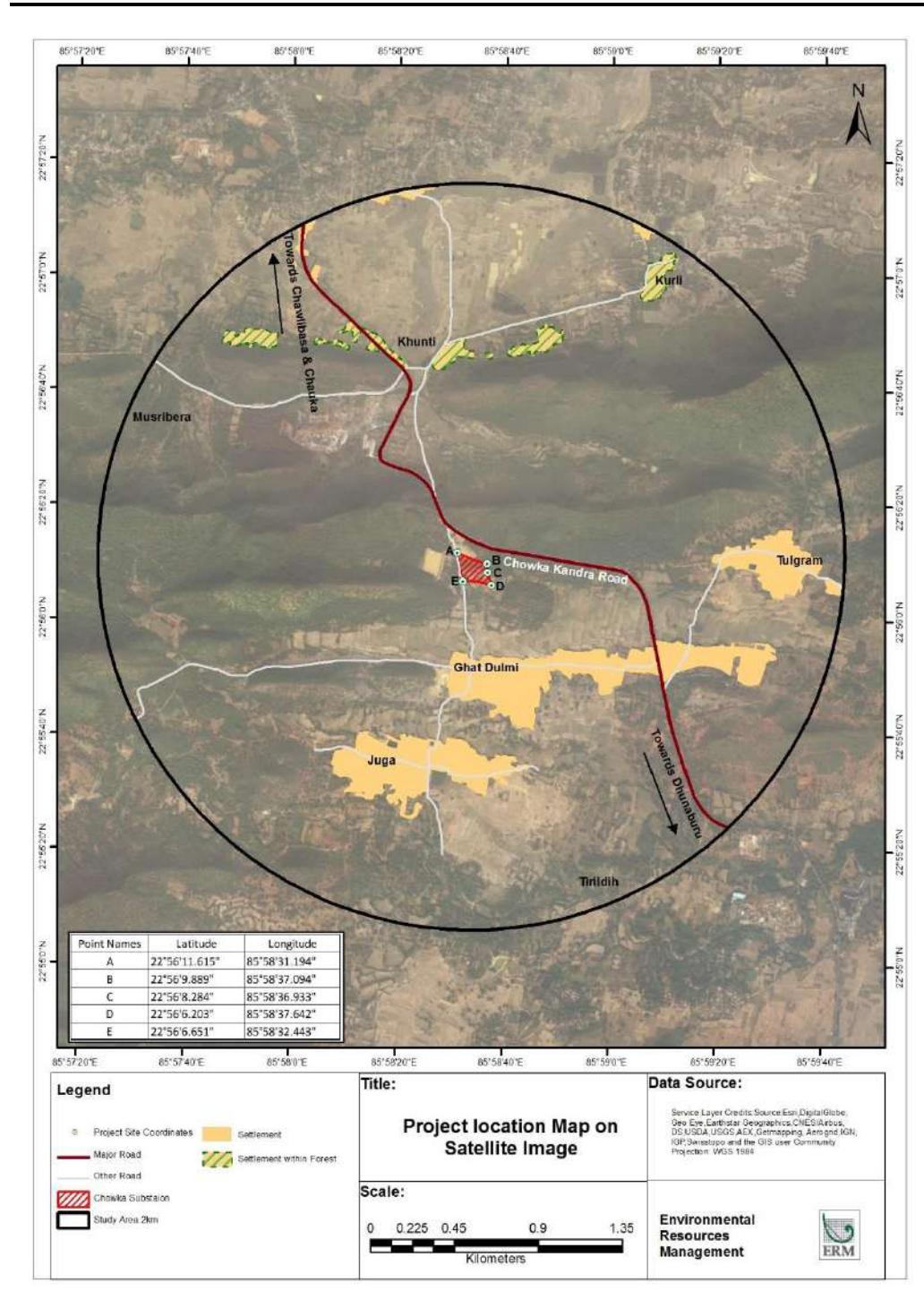
### 3.2.2

#### *Accessibility*

Proposed GSS site can be accessed through 'Chowka-Kandra' road, which traverses along north-east boundary of the GSS. This road is a 2 lane undivided carriage way and is therefore sufficient to handle movement of machineries and vehicles during project construction work. 'Chowka-Kandra' road connects the GSS site with National Highway (NH) 43, at a distance of approx. 3km in north direction. The road also connects the project site with State Highway (SH) 5 at Kandra Village.

The location, boundary and access to the site, as plotted on high-resolution satellite imagery, is shown in *Figure 3.1*.

**Figure 3.1 Project Location Map**



### 3.3 SITE SETTING

#### 3.3.1 Project Site

The substation site has an area of 7.43 acres. The site is located on a slightly undulating terrain that slopes from north-west to south-east with contours varying from 212m to 203m. The highest contour exists along the northern boundary of the site. The terrain slightly slopes towards southeastern boundary with about 6-7 m drop in elevation. The terrain elevation further drops to 198 m towards the southern boundary of the site, which records the lowest contour point.

Review of Mouza sheet of the proposed GSS site indicates that the site is located on rayati land (private land) and GM land (government land). During site visit, agriculture activity was not observed on the rayati land. Also, government land in the GSS site was observed to be occupied with grasses and shrubs. There were approximately 20 mature trees in the GSS site.

No major drainage channels exists within the proposed GSS site and surrounding area within 2 km except one natural water body which is present at a distance of 100m in the west direction. Reportedly, water from this water body is utilized by the community for domestic purposes such as bathing and washing of clothes.

#### 3.3.2 Site Vicinity

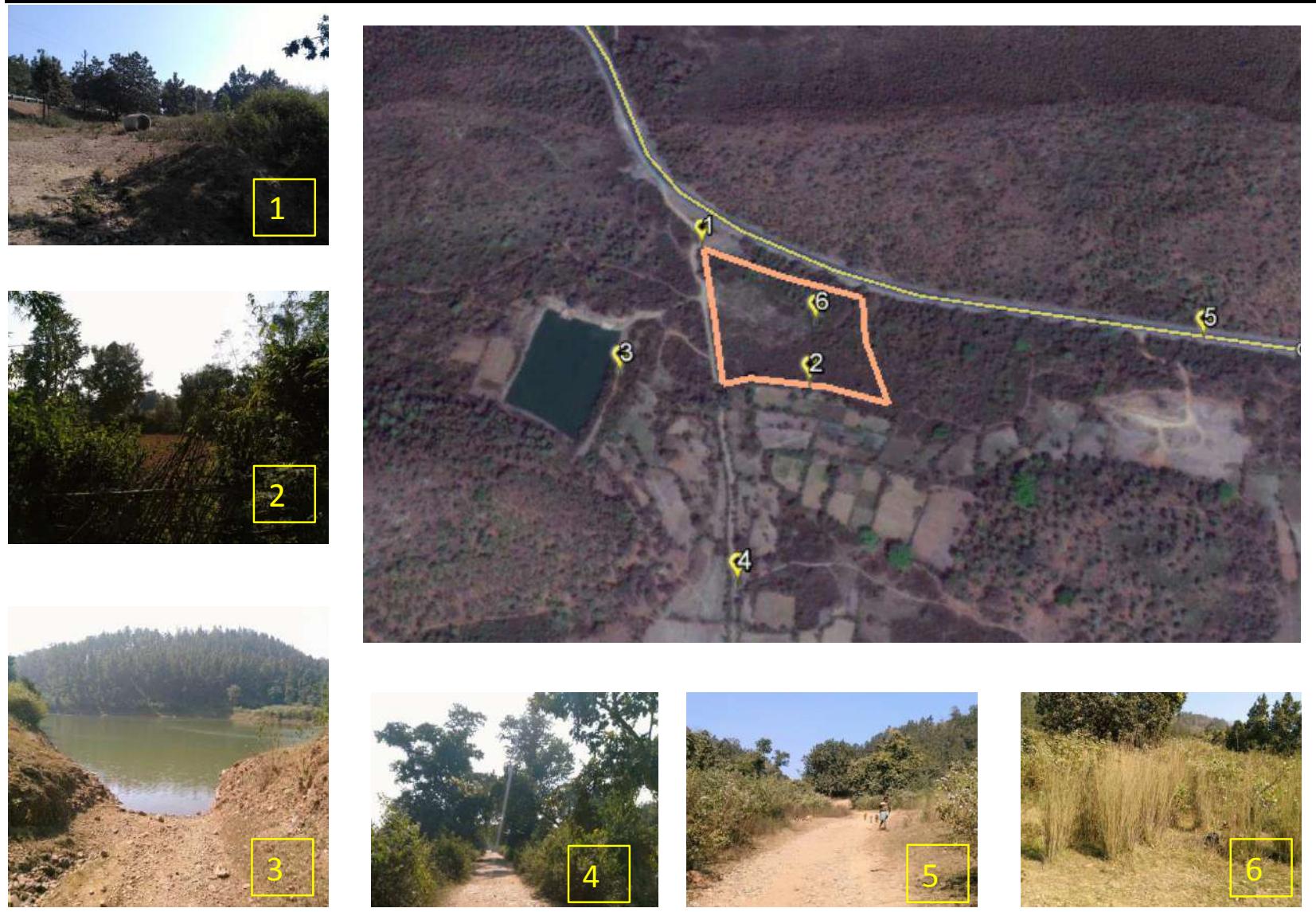
The physical features, built structures (habitations, roads) and other environmental sensitivities around the site is presented below.

**Table 3.2 Description of the Surroundings**

Direction	Features
North	The north direction of the site is bounded by Chowka-Kandra Road, which connects Chawlibasa village to Raipur. Land parcels beyond the highway on the other side comprises of unclassed forests and agricultural lands. Khunti Village is also located in north direction at an aerial distance of 1.2km. Steel plant (Narsinh Ispat Limited) and stone crusher is located at an aerial distance of approx. 700m towards north-west direction from the project site.
East	In east direction, parcels of private land are located with sparse vegetation it. Beyond the private land parcel, there are agriculture land parcels. Tulgram village is located at a distance of 5km in east direction.
South	The southern boundary of the site adjoins a series of single crop private agricultural land A katcha road also traverses which joins the active agriculture patches located in east direction. Ghat Dulmi village located at an aerial distance of 550m is scattered into hamlets. The area between site and Ghat Dulmi village comprise of agricultural lands.
West	In west of the site, the village road is located (site approach road) which travels towards the north up to connecting village Ghat Dulmi to the Chowka-Kandra Road. A water body is present at a distance of 100m from the site. Reportedly, land parcel beyond the water body in west direction are forest lands.

Photograph of the features surrounding the substation site is presented in *Figure 3.2*.

Figure 3.2    *Photographs of Site Surrounding*



3.4

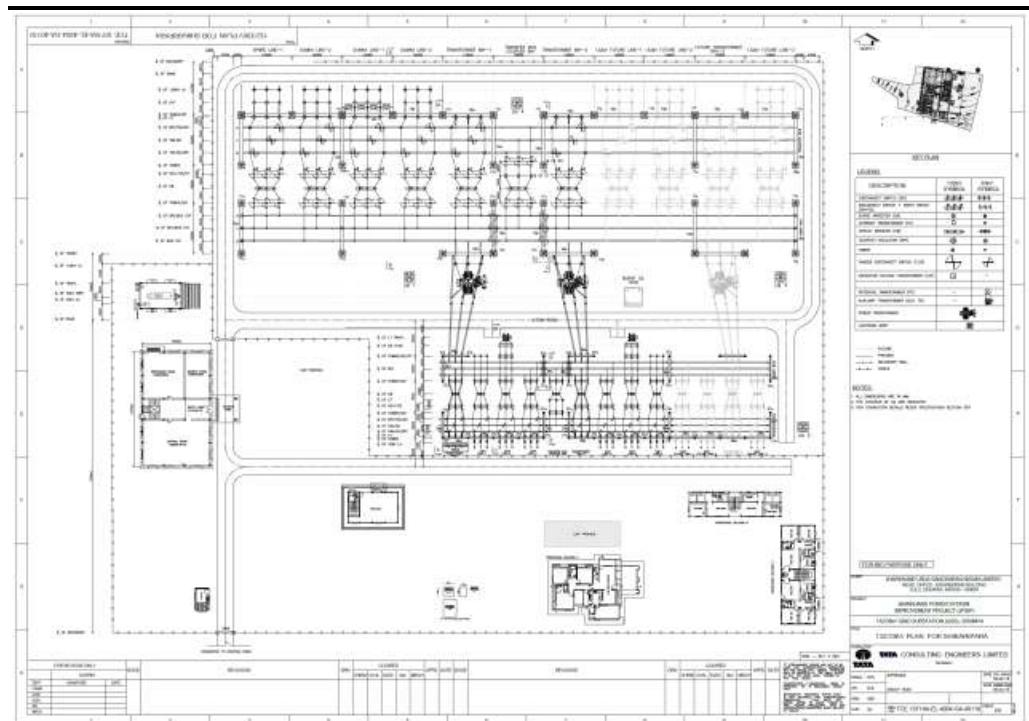
## PROJECT COMPONENT

The project components which have been planned in the project are presented in the *Table 3.3* and the substation layout is presented in *Figure 3.3*.

**Table 3.3 Project Components in the 132/33 KV Substation at Chouka**

Sl. No	Component	Description
1.	Transformer	2 nos 50 MVA Oil Cooled Transformer
2a.	Bays (incoming)	11 nos of 132 KV line bays (4 nos for future Expansion)
2b.	Bays (outgoing)	15 Nos of 33 KV line bays (4 nos for future Expansion)
3	Transformer Oil	Would be as per the Regulation of Polychlorinated Biphenyls Order, 2016
<b>Associated Infrastructure</b>		
4	Control Room	One number with control panel
5	Residential Quarters	8 nos of 1 bedroom flats- Type III 8 nos of 2 bedroom flat-Type II 1 three room Type I accommodation
6	Pump House	2 nos of submersible pump (1 working and 1 standby)

Figure 3.3 Typical Layout of a 132/33 KV substation Planned in the JPSIP



---

Source: DPR

3.5

## **PROJECT TIMELINE AND PROJECT COST**

The estimated cost for construction of the 132/33 KV Chouka substation is around INR 52.96 crores. This includes the cost of civil works the cost of procurement, installation and commissioning of electrical equipment and associated structure. It is estimated the construction would be completed

within 18 months. Civil works of the substation is expected to be completed in less than a year from the beginning of construction activity.

### 3.6 RESOURCE

The resources required during the construction and operation phases are presented in the *Table 3.4*.

**Table 3.4** *Resource Requirement in Construction and Operation of 132/33 KV Grid Substation at Chouka*

Sl. No	Description	Resource Requirement
1.	Land (Total)	7.43 acres
2a.	Manpower (Construction Phase)	The peak manpower requirement is expected to be 50 persons
2b.	Manpower (Operation Phase)	The Peak manpower is expected to be 16-20 persons
31.	Water (Construction Phase)	10-13 KLD (peak water demand)
3b.	Water (Operation Phase)	8.4 KLD (for domestic purpose)
4.	Construction Material	Steel, cement, aggregate and sand

### 3.7 DISCHARGES AND WASTE

The solid and liquid waste and air emissions expected to be generated during the lifecycle of the substation (i.e. construction and operation), is presented in *Table 3.5*.

**Table 3.5** *Emission and Discharges form 132/33 KV Grid Substation at Chouka*

Sl. No	Description	Quantity
1a.	Waste Water (Construction)	Peak generation of 2.5 KLD
1b.	Waste Water (Operation)	6.7 KLD
2a.	Solid Waste (Construction)	The municipal solid waste would be around 22-25 kg per day. In addition, construction waste would be generated.
2b.	Solid Waste (Operation)	The municipal solid waste generated during the operational stage would be around 8-10 kg/day
3.	Used transformer oil	The used transformer oil would be produced at an interval of 15 years.
4.	e-waste	The e-waste generated from the panels at the end of the life
5.	Air Emission (construction)	Dust will be generated at places where earthwork, cutting and filling operations.
		Particulates, CO, SO <sub>x</sub> , NO <sub>x</sub> and unburnt hydrocarbons (VOCs) will be emitted by vehicles, batching plants (if used), heavy equipment and DG sets associated with site clearing and construction activities.

A project level Environmental and Social Impact Assessment (ESIA) is a method of systematic identification and evaluation of the potential impacts (effects) of the proposed substation relative to the physical, biological and socioeconomic components of the environment. The ESIA study can be considered as an important project management tool that can assist in collecting and analyzing information on the environmental and social / impacts effects of a project and ultimately identify actions which can ensure that the projects benefits outweigh the impact on the bio-physical and social environment. The activities which have been undertaken in each of these steps/stages are presented in the subsection below.

#### 4.1

#### *SCREENING & SCOPING*

An initial reconnaissance visit was conducted to the site to understand the extent of the site and prevailing environment and social setting in its immediate vicinity and use it as a basis of screening and scoping exercise for the ESIA.

An effort was also made to understand the decision making process that led to the selection of the site and how environmental and social issues were factored into the selection process. Discussions with the Jamshedpur Zone and Division of JUSNL revealed selection of Chouka GSS site based on the following technical, environmental and social considerations:

- A total of about 8 acres of land was available;
- The site had good road access;
- The site did not comprise of prime agricultural land and did not have any residential premises within it; and
- There were no major settlements in the immediate vicinity.

As per the ESMF, an initial environmental and social examination (IESE) was conducted to determine whether or not there would be key environmental and social impacts from the construction and operation of Chouka GSS at the allocated site. The results of the IESE has been recorded in an Environmental and Social Impact Identification Matrix presented in the IA Section (Chapter 6) and was used as a tool for scoping the ESIA to identify potential environmental and social issues of concern. The IESE also helps in determining the requirement for other specialized studies e.g. Resettlement Plan, Biodiversity Action Plan and Tribal People Plan.

Establishing baseline helps in understanding the prevailing environmental and socio economic status of the study area. It provides the background environmental and social conditions for prediction of the future environmental and social characteristics of the area due to the operation of the proposed project during its life cycle.

Considering the project activities described in **Chapter 3** it is anticipated that scale and magnitude of project induced impacts are likely to be perceived within 2 km radius of the GSS site location and has been considered as study area for the ESIA. Site surveys were conducted in the study area to understand the environmental setting of the site and the study area, understanding of the drainage patterns, presence of physiographic features e.g. hillocks, rocky outcrops, location of the habitations with respect to the site, condition of the approach road to the site etc. Ecological surveys and community consultations were also conducted to collect the information related to the local community and biological environmental conditions of the study area. Secondary baseline data collection involved identifying and collecting available published material and documents on relevant environmental and social aspects (like soil quality, hydrogeology, hydrology, drainage pattern, ecology, meteorology and socio-economic conditions) from veritable sources including Govt. Departments, Research papers, etc.

The key aim of the impact assessment process was to characterize and evaluate potential environmental and social impacts arising out of the project and prioritize them so that they can be effectively addressed through Environment & Social Management Plans (ESMPs). The potential impacts have been identified through a systematic process wherein the activities (both planned and unplanned) associated with the project, across the construction and operational phases have been considered with respect to their potential to interact with environmental and social resources or receptors. Thereafter, sequential impact assessment steps involving impact prediction, evaluation, mitigation and enhancement and evaluation of residual impacts have been followed in a phased manner.

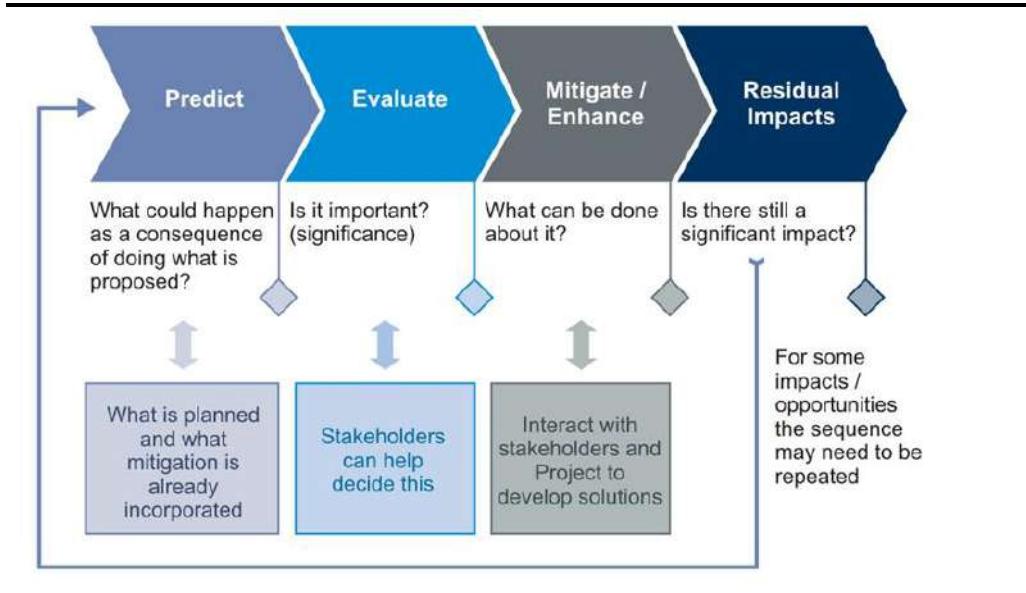
Prediction of impacts was undertaken as an objective exercise to determine what could potentially happen to the environmental and social receptors as a consequence of the project and its associated activities and took into account baseline conditions at site, stakeholder's opinion and expert judgement. The evaluation of impacts was done using a semi-quantitative, based on the delineation of a set of criteria as follows:

- *Scale*: Degree of damage that may be caused to the environmental and social components concerned.
- *Extent*: The extent refers to spatial or geographical extent of impact due to proposed project and related activities.

- *Duration:* The temporal scale of the impact in terms of how long it is expected to last.
- *Magnitude:* Degree of change caused by a project activity is a function of Scale, Extent and Duration, as applicable.
- *Vulnerability of Receptor:* Represents the sensitivity of the receptor based on the relationship between the project and present baseline environment (the receptor).

Once magnitude of impact and sensitivity/ vulnerability/ importance of resource/ receptor have been characterized, the significance was assigned for each impact using an impact score for each criteria, following a systematic rating method, leading to the qualification of significance of impact as Negligible, Minor, Moderate and Major. The overall impact assessment methodology is presented *Figure 4.1* below:

**Figure 4.1 Impact Assessment Process**



#### 4.4

#### ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN PREPARATION

The Environmental & Social Management Plan along with a Monitoring Plan has been prepared as a site specific document for construction and operation of the GSS. The ESMP would act as a guidance document for JPSIP to ensure that they can implement the project in an environmentally sound manner where project planners and design agencies, contractors, relevant government departments and stakeholders of concern understand the potential impacts arising out of the proposed project and take appropriate actions to properly manage them.

**5.1****INTRODUCTION**

This section establishes the baseline environmental and socio economic status of the project site and surrounding area to provide a context within which the impacts of the Project are to be assessed.

**5.2****LAND USE/LAND COVER**

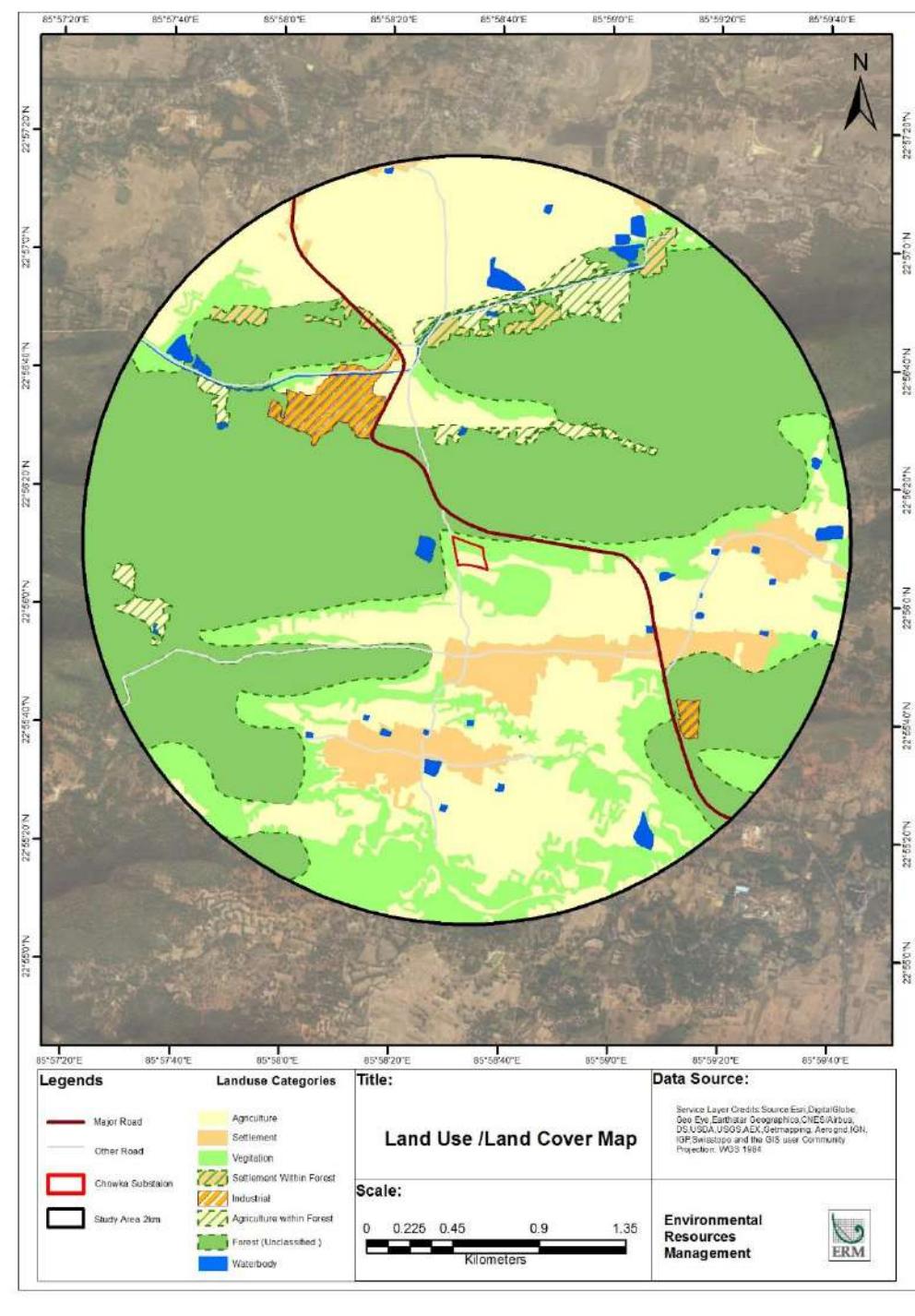
Total land under the proposed GSS site is 7.43 acre, out of which 7.16 acre is rayati land (private land) and 0.27 acre is GM land (governemnt land). The current land cover of the site is scrub land and no agriculture land exist within the proposed site.

Unclassified forest (~ 46%) is the most predominant land use within the study area followed by agriculture that occupy about 28% of the land area. Remaining land use within the study area is comprises of vegetation (~ 15), vacant land (~ 15 %), settlement (~ 5%), agriculture within forest (~ 2%), industry (~ 1) etc. Existing land cover pattern in and around the study area is presented in *Table 5.1* and the land use map of the study area is shown in *Figure 5.1*.

**Table 5.1** *Existing Land Cover Pattern of the Study Area*

<b>Name</b>	<b>Area in Sq. m.</b>	<b>Area in Sq. Km.</b>	<b>Percentage (%)</b>
Settlement	658389.22	0.66	5.24
Vegetation	1869117.71	1.87	14.88
Unclassified Forest	5718040.11	5.72	45.53
Agriculture	3550179.80	3.55	28.27
Settlement Within Forest	106819.20	0.11	0.85
Agriculture within Forest	244538.99	0.24	1.95
Industrial	159994.51	0.16	1.27
Canal	20946.73	0.02	0.17
Waterbody	122614.00	0.12	0.98
Minor Road	70758.46	0.07	0.56
Major Road	36705.00	0.04	0.29
<b>Total</b>	<b>12558103.71</b>	<b>12.56</b>	<b>100.00</b>

**Figure 5.1 Land Use/Land Cover Map of the Study Area**



### 5.3

### SOIL

Soil pH in the district ranges from 4.5 to 6.6 which indicate acidic nature. The available iron content in the surface soils ranges between 14.9 and 96.8 mg/kg. Sulphur content in soils of half of the district is less than 10 mg/kg. Majority soils (80.2 % of Thermogravimetric Analysis-TGA) of the district have medium availability of nitrogen (280-560 kg/ha) and soils of 12.4% area have low available nitrogen content (<280 kg/ha). The soils are characterized by red color lateritic soil which has a low pH, poor in organic carbon and well drained<sup>1</sup>.

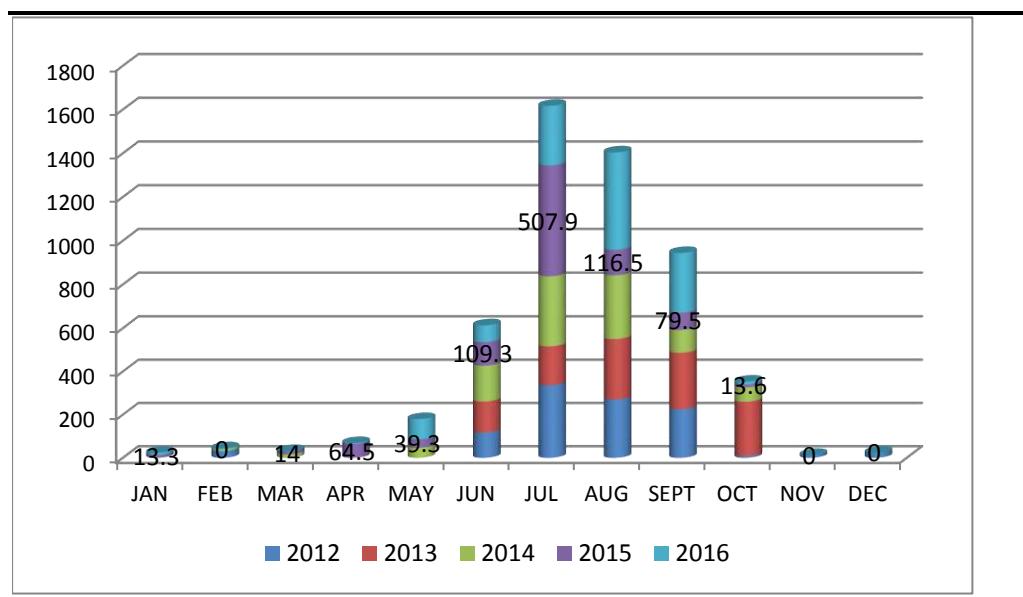
### 5.4

### CLIMATE AND METEOROLOGY

The climate of Saraikela Kharsawan district is characterized as temperate, with hot dry summer, moderately cold winter and well distributed rains in monsoon. Summer is usually from the month of March up to the third week of June. Thereafter the monsoon season starts and continues up to end of September. Winter season stretches from December to February.

*Figure 5.2* depicts monthly rainfall distribution in Saraikela Kharsawan district. As it can be seen from the figure, July month experiences highest rainfall. The mean annual temperature in this district remains at about 26<sup>0</sup> C. The temperature ranges from 16<sup>0</sup> C (in winter months) to 44<sup>0</sup> C (in summer months).

*Figure 5.2 Rainfall Pattern of the District (2012-2016)*



Source: [http://hydro.imd.gov.in/hydrometweb/\(S\(0tsl2vavncb0b45th3rxryt\)\)/DistrictRaifall.aspx](http://hydro.imd.gov.in/hydrometweb/(S(0tsl2vavncb0b45th3rxryt))/DistrictRaifall.aspx)

<sup>1</sup> Assessment And Mapping Of Some Important Soil Parameters Including Soil Acidity For The State Of Jharkhand (1:50,000 Scale) Towards Rational Land Use Plan Icar Saraikela District- Undertaken by National Bureau of Soil Survey and Land Use Planning (ICAR) Regional Centre, Kolkata

## 5.5

### **NATURAL HAZARD**

District Disaster Management Plan has not yet been prepared by Saraikela Kharsawan district administration. However review of disaster related data at state level indicates that the district is vulnerable to flash flooding. The district has experienced flash floods during the years 2000-2004 <sup>1</sup>. Discussions with local community residing in nearby areas reveal that risk of flooding in GSS site and surrounding areas is also low and there has not been any flooding situation in the past.

Further, Saraikela Kharsawan district is situated in Zone -II and not prone to earthquake. Zone - II is liable to MSK VI or less and is classified as the Low Damage Risk Zone according to seismic zoning of India.

## 5.6

### **AIR & NOISE ENVIRONMENT**

Steel plant (*Narsingh Ispat Limited*) and stone crusher is located at an aerial distance of approx. 700m towards north-west direction from the project site. Operation at these industrial units have potential to emit air pollutants. Further, vehicle plying on Chowka-Kandra road is another significant source of fugitive emission in this area. Considering this context, the ambient air quality is representative of industrial set-up and expected to be close to or higher than the National Ambient Air Quality Standards.

Steel plant (*Narsingh Ispat Limited*) and stone crusher are the primary source of noise pollution in the study area. Further, vehicle plying through adjoining Chawlibasa - Kandra road would also generate noise pollution. However, movement of heavy vehicle was not observed on Chowka-Kandra road, during site visits. Further, presence of vegetation between industrial units and GSS site is expected to attenuate noise level.

## 5.7

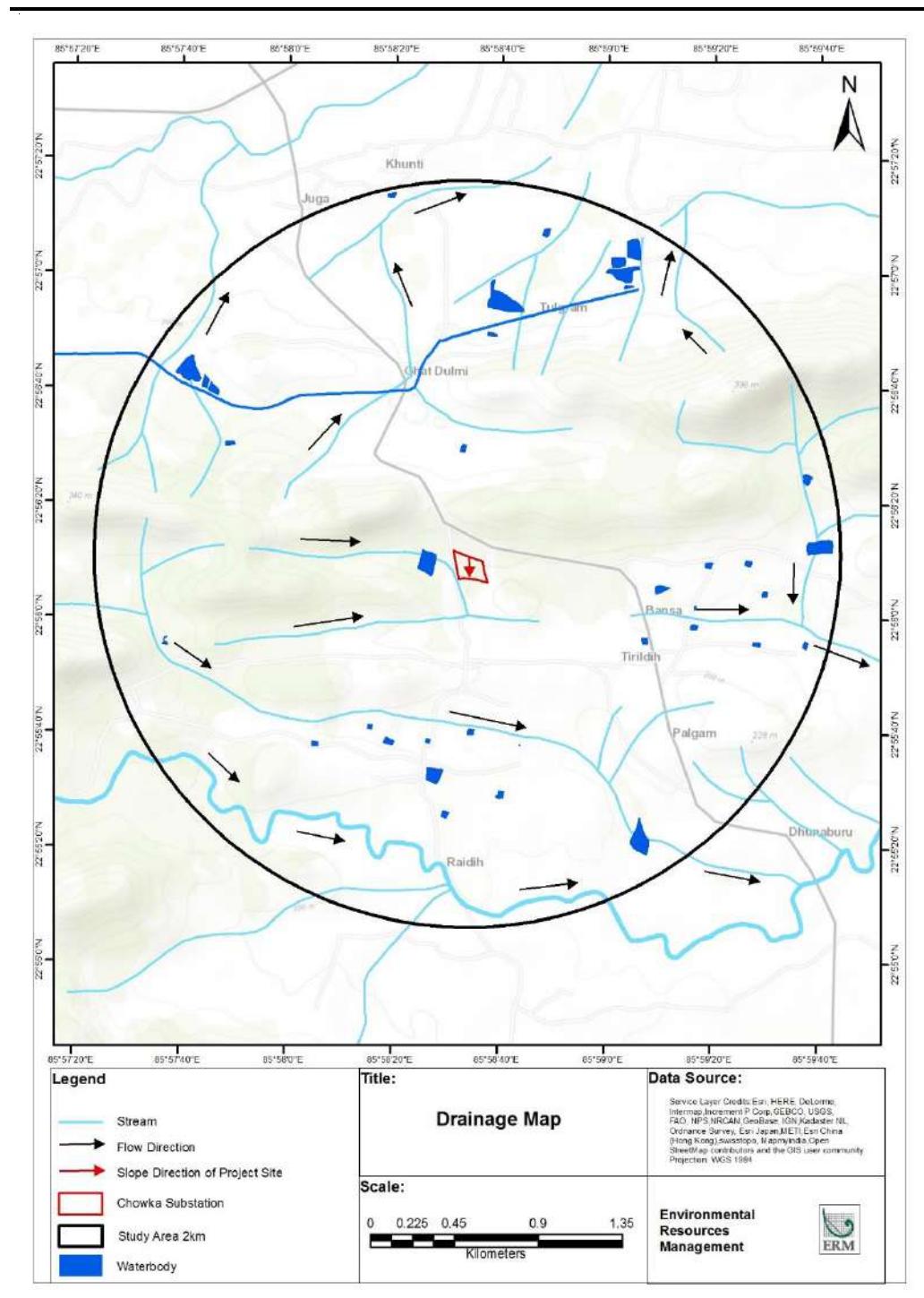
### **DRAINAGE**

The study area has a dendritic drainage pattern that is representative of the drainage characteristics of the micro-watershed adjacent to site and is shown in *Figure 5.3*. The study area falls within the Subarnarekha River basin. Subarnarekha River flows about 3.5 kms to the north of the site and in a north-eastern direction. There are no prominent other drainage channel present in the immediate vicinity of the proposed GSS site. Only a few minor drainage channels are present within the site and its' immediate surrounding areas. Drainage map of the study area is presented in *Figure 5.3*.

<sup>1)</sup>

<http://www.jharkhand.gov.in/documents/10179/5675644/A%20Draft%20on%20Jharkhand%20State%20Disaster%20Management%20Plan%202011>

**Figure 5.3 Drainage Map of the Study Area**



## 5.8 GROUND WATER

As per the Ground Water Information Booklet by the CGWB (2013), geological formations of Saraikela Kharsawan district have been grouped under three main categories viz., a) gneissic complex in the southern and the central part b) Rajmahal traps in the eastern and southeastern part, and c) Gondwanas overlain by thin mantle of alluvial cover in the northern and central part. As of 2009, the gross ground water draft for all uses in the Chandil block was 266.16 ha-m and the stage of ground water development was about 11.17 percent.

From the aquifer characteristic and water resourcing angle, the depth to water table in the Chandil block is reported to vary from 5-10 m bgl to 2-5 m bgl during pre-monsoon and post-monsoon season respectively (as per CGWB Groundwater Information Booklet for Saraikela Kharswan District, 2013). The dug wells generally tap the initial shallow aquifer and many of such wells dry up during summer months. The hand pumps generally tap the first fracture zones (20-60m bgl).

Consultations with villagers in the study area revealed that ground water is predominantly used for drinking and domestic purposes and is sourced through dug wells or tube wells. As per the Ground Water Information Booklet by the CGWB (2013), level of Fluoride and Nitrate in the ground water was reported to be above permissible limit of drinking water standard (IS 10500) in some areas on the district. However, consultation with local community did not reveal any exceedance of Fluoride and Nitrate.

## 5.9 SURFACE WATER

A natural water body (100m X 80m) exist at a distance of 100m south-west of the project site. Reportedly, water from this water body is utilized by the community for domestic purposes such as bathing and washing of clothes. Chandil reservoir is located at a distance of 5km north. Palna reservoir is located at a distance of 3km west.

## 5.10 ECOLOGICAL ENVIRONMENT

The proposed GSS site in Saraikela Kharsawan district of Jharkhand State falls in 6B Deccan Peninsula – Chota-Nagpur plateau bio-geographic province.

### *Terrestrial Ecosystem*

In Saraikela-Kharsawan district, about 585.72 area sq. km of forest area is present, which is about 21.50% of the total geographic area of the district.

Natural vegetation in the region can be broadly classified into **C3 Moist Mix Deciduous Forests and 5B Northern Tropical Dry Deciduous Forests**.

**C3 Moist Mixed Deciduous Forests** – This forest can be mainly found in some patches of narrow valley. Sal (*Shorea robusta*) is the dominant species. Other species that are associated with sal, in this type of forest are *Terminalia tomentosa*, *Diospyros melanoxylon*, *Buchanania latifolia*, *Anogeissus latifolia*, *Haldina cordifolia*, *Lannea grandis*, *Boswellia serrata* etc.

**5B Northern Tropical Dry Deciduous Forests** – Dominant species is sal (*Shorea robusta*). Other species that are associated with sal are *Terminalia belerica*, *Terminalia chebula*, *Haldina cordifolia*, *Madhuca latifolia*, *Butea*

*monosperma, Buchanania latifolia, Diospyros melanoxylon, Ailanthus excelsa, Cassia fistula* etc.

#### 5.10.1

#### **Vegetation within the Study area**

The GSS site has few matured trees primarily Sal and Palas.

Vegetation within the study area is presented below:

##### *Forest Vegetation*

Sal (*Shorea robusta*) is the most dominant tree of the forest areas. Other common tree species recorded are Palas (*Butea monosperma*), Kend (*Diospyros melanoxylon*), Mohua (*Madhuca latifolia*), Sagwan (*Tectona grandis*), Neem (*Azadirachta indica*), Sema (*Bombax ceiba*), Charoli (*Buchanania lanza*), Dhawra (*Anogeissus latifolia*), Babool (*Acacia nilotica*), Date palm (*Phoenix dactylifera*), Wad (*Ficus benghalensis*), Peepal (*Ficus religiosa*), Shisham (*Dalbergia sissoo*), Kadam (*Haldina cordifolia*), Aam (*Mangifera indica*), Sugar Palm (*Borassus flabellifer*) etc.

##### *Homestead plantation*

During the primary survey trees like Aam (*Mangifera indica*), Wad (*Ficus benghalensis*), Peepal (*Ficus religiosa*), Sugar palm (*Borassus flabellifer*), Neem (*Azadirachta indica*), Gulmohar (*Delonix regia*), Kend (*Diospyros melanoxylon*), Sema (*Bombax ceiba*), Charoli (*Buchanania lanza*), Dhawra (*Anogeissus latifolia*), Bael (*Aegle marmelos*), Imli (*Tamarindus indica*), Radhachura (*Peltophorum pterocarpum*), Shisham (*Dalbergia sissoo*), Kadam (*Haldina cordifolia*), etc. were found to occur in and around human settlements.

##### *Roadside plantation*

Trees like Neem (*Azadirachta indica*), Wad (*Ficus benghalensis*), Peepal (*Ficus religiosa*), Rain tree (*Samanea saman*), Shisham (*Dalbergia sissoo*), Sema (*Bombax ceiba*), Sagwan (*Tectona grandis*) were recorded along the side of the roads within the study area.

##### *Riparian Vegetation*

Riparian vegetation is observed on the sides of streams and waterbodies. Major tree species observed is Jamun (*Syzygium cumini*), Gulmohar (*Delonix regia*), Sugar palm (*Borassus flabellifer*), Sema (*Bombax ceiba*), Siris (*Albizzia lebbek*), Wad (*Ficus benghalensis*), *Eucalyptus* sp. etc.

##### *Invasive Alien species*

Major invasive species recorded during the study are: *Eucalyptus* sp., *Lantana camara*, *Parthenium hysterophorus* etc.

*Wild Life Habitat*

National Park, Wild Life Sanctuary, Tiger Reserve is not located within the study area of the proposed site. The GSS is located within the Singhbhum Elephant Reserve<sup>1</sup>.

*Faunal Diversity***Herpetofauna**

Three species of amphibians *viz.* Common Indian Toad (*Duttaphrynus melanostictus*), Indian Bullfrog (*Hoplobatrachus tigerinus*) and Skittering Frog (*Euphlyctis cyanophlyctis*) etc. are observed/reported from the study area. All the species are listed Least Concern as per IUCN Classification (IUCN Version 2017-3).

Eight (8) species of reptiles were observed/reported from the study area. The list includes Indian Rat Snake (*Ptyas mucosus*), Indian Cobra (*Naja naja*), Common Krait (*Bungarus caeruleus*), Checkered Keelback (*Xenochrophis piscator*), Russel's Viper (*Daboia russellii*), Fan-Throated Lizard (*Sitana ponticeriana*), Indian Monitor (*Varanus bengalensis*) and Oriental Garden Lizard (*Calotes versicolor*). The list includes one Schedule I species as per Indian Wildlife Protection Act (IWPA) *viz.* Indian Monitor and four Schedule II species *viz.* Russel's Viper, Indian Cobra, Indian Rat Snake and Checkered Keelback.

**Avifauna**

A total of 42 species of avifauna were recorded from the study area. The species list includes terrestrial and aquatic birds. Terrestrial and aquatic birds recorded are presented below.

**Terrestrial birds-** Asian Pied Starling (*Gracupica contra*), Shikra (*Accipiter badius*), Spotted Owlet (*Athene brama*), Plain Prinia (*Prinia inornata*), Ashy Prinia (*Prinia socialis*), Greater Coucal (*Centropus sinensis*) Asian Palm Swift (*Cypsiurus balasiensis*), Indian Tree Pie (*Dendrocitta vagabunda*), Common Iora (*Aegithina tiphia*), Indian roller (*Coracias benghalensis*), Long tailed Shrike (*Lanius schach*), Spotted Dove (*Spilopelia chinensis*), Eurasian Collared Dove (*Streptopelia decaocto*), Common Myna (*Acridotheres tristis*), Paddyfield Pipit (*Anthus rufulus*), House Swift (*Apus nipalensis*), Common Pigeon (*Columba livia*), House Crow (*Corvus splendens*), Black Drongo (*Dicrurus macrocercus*), Asian Koel (*Eudynamys scolopaceus*), Coppersmith Barbet (*Psilopogon haemacephalus*), Black Kite (*Milvus migrans*), House sparrow (*Passer domesticus*),

<sup>1</sup> The Singhbhum Elephant Reserve was created in 2001 under the Project Elephant, comprising an area of 13,440 Sq. Km. in East Singhbhum, West Singhbhum and Saraikela-Kharsawan Districts (old Singhbhum District) for scientific and planned management aimed at conservation of habitats and viable population of wild Asiatic Elephants in Jharkhand, ecological restoration of their existing natural habitats & migratory routes, mitigating Human-Elephant conflicts in problem areas, moderating pressure of human and their live-stock on crucial Elephant habitats, protection from poachers, etc

Baya weaver (*Ploceus philippinus*), Rose-ringed Parakeet (*Psittacula krameri*), Red-vented Bulbul (*Pycnonotus cafer*), Indian Robin (*Copsychus fulicatus*), Oriental magpie-robin (*Copsychus saularis*), Jungle babbler (*Turdoides striata*) etc.

**Aquatic birds-** White-breasted Waterhen (*Amaurornis phoenicurus*), Bronze Winged Jacana (*Metopidius indicus*), White Wagtail (*Motacilla alba*), Common Moorhen (*Gallinula chloropus*), Black Headed Ibis (*Threskiornis melanocephalus*), Cattle Egret (*Bubulcus ibis*), Intermediate Egret (*Ardea intermedia*), Grey Heron (*Ardea cinerea*), Indian Pond Heron (*Ardeola grayii*), White-throated Kingfisher (*Halcyon smyrnensis*), Little Cormorant (*Microcarbo niger*), Purple Swamphen (*Porphyrio porphyrio*), Red-wattled Lapwing (*Vanellus indicus*) etc.

Shikra (*Accipiter badius*) and Black Kite (*Milvus migrans*) are listed as Schedule I as per Wildlife Protection Act, 1972. Black Headed Ibis (*Threskiornis melanocephalus*) is listed as Near Threatened as per IUCN Classification (IUCN version 2017-3).

### **Mammals**

Total 10 species of mammals are reported/recorded from the study area. The mammals observed/reported in the study area are Five-striped Palm Squirrel (*Funambulus pennantii*), Common Grey Mongoose (*Herpestes edwardsii*), Northern Plains Langur (*Semnopithecus entellus*), Rhesus macaque (*Macaca mulatta*), Wild Pig (*Sus scrofa*), Golden Jackal (*Canis aureus*), House Rat (*Rattus rattus*), Lesser Bandicoot Rat (*Bandicota bengalensis*), Spotted Deer (*Axis axis*), Indian Elephant (*Elephas maximus*) etc.

The list of mammals includes one Schedule I species Indian Elephant and four Schedule II species viz. Golden Jackal, Common Grey Mongoose, Indian Northern Plains Langur and Rhesus macaque. Indian Elephant is listed as Endangered as per IUCN Classification (IUCN version 2017-3).

The GSS site is located within Singhbhum Elephant Reserve. Villagers rarely sighted any elephant in proximity to the project site within 3-5 years; however, elephant movement is reported at the forest areas at the north and west of the GSS site, at approximately 10-15 km in north direction. The Dalm-Chandil Elephant corridor is located 4 km west of the GSS site.

#### **5.10.3**

#### ***Critical Habitat Assessment***

IFC Guidance Notes (GN57) for PS-6 defines that internationally and/or nationally recognized areas of high biodiversity value will likely qualify as Critical Habitat (CH), which includes Protected Areas, Important Bird Areas (IBA). The study area is not located in proximity to any protected areas and IBAs.

### *Critical Habitat Triggers*

Critical habitat is defined under IFC PS6. Critical habitats are areas with: high biodiversity value, including;

- (i) habitat of significant importance to Critically Endangered and/or Endangered species;
- (ii) habitat of significant importance to endemic and/or restricted range species;
- (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species;
- (iv) highly threatened and/or unique ecosystems; and/or
- (v) areas associated with key evolutionary processes "

IUCN Endangered species, Indian Elephant movement is reported at the forest areas at the north and west of the GSS site. Hence, assessment for Critical Habitat is undertaken as a screening process against the criteria defined within the IFC PS 6 Guidance Note. Criterion relevant for triggering the CHA as per IFC PS-6 is presented in *Annexure 9* and Candidate Critical Habitat Species Assessment is presented in *Annexure 10<sup>1</sup>*.

## **5.11 SOCIO ECONOMIC ENVIRONMENT**

The proposed Chouka substation is located in Saraikela Kharsawan district. Saraikela Kharsawan district has been created on 1<sup>st</sup> April 2001; previously it was part of East Singhbhum district. The population of Saraikela Kharsawan district according to the 2011 census is 10, 65,056. The analysis reveals that this district accounts for 3 percent of total population of Jharkhand State. The literacy rate in the district is 75.49 percent as against the state figure of 66.41 percent.

According to the 2011 census data, the sex ratio is 958, which is better than the state average of 948. The district ST population constitutes 35.18% as against the state figure of 26.21%. However the SC population of the district is 5.28%, which is significantly lower than the state figure of 12.08%.

Total number of households in Chandil block, where the proposed project site is located, is reported to be 32088, with average household size of 4.92. Total population of Chandil Block is 157,949 as per Census Report 2011. The literacy rate is 56.03% and the sex ratio is reported to be 949.

<sup>1</sup> Though Indian Elephant movement is reported in the study area, no designated elephant corridor is located within the study area. The habitat could not be designated as habitat containing regionally- important concentrations of Elephant and hence do not represent as Critical Habitat.

### *Demographic Profile of the Study area Villages*

The GSS site is located in Ghat Dulmi village. Other than that four (4) villages are located with the 2 km study area. The project influenced villages within the study are provided in table below:

**Table 5.2** *Location of Study Area Villages*

Village Name	Distance	Direction	Block	District
Ghat Dulmi	530m	S	Chandil	Saraikela
Juga	1.1km	SW		Kharsawan
Tirildih	1.1km	S		
Tulgram	1.5km	E		
Khunti	1.2km	NE		

As per the 2011 Census records, the total population within the study area (comprising 5 villages) is 5860, residing in 1344 households. Demographic profile of the study area village is presented in *Table 5.3*.

**Table 5.3** *Demographic profiles of villages located within study area*

Village	Total Household	Total Population	Average Household Size	Male	Female	SC Population (%)	ST Population (%)	Literacy Rate (%)	Male Literary rate (%)	Female Literary rate (%)
Ghat Dulmi	113	573	5.07	300	273	1.05%	84.47%	54.45%	35.78%	18.67%
Juga	122	613	5.02	290	323	3.92%	55.95%	45.19%	26.59%	18.60%
Tirildih	10	41	4.10	26	15	0.00%	90.24%	24.39%	19.51%	4.88%
Tulgram	224	966	4.31	492	474	2.17%	18.01%	56.00%	32.82%	23.19%
Khunti	833	3487	4.19	1789	1698	8.09%	13.99%	55.23%	32.84%	22.40%

Source: Census 2011 Data

Highest and lowest population is observed in Khunti village while lowest population is noted in Tirildih village. The average household size ranges from 4.10 to 5.07.

### *Demographic Profile of Surveyed Population (Ghat Dulmi Village)*

A general socio economic survey of 23 households was conducted during the month of July, 2018 as a part of the ESIA study to validate the present socio-economic scenario of Ghat Dulmi village. The questionnaire template used for administering the survey is presented in *Annexure 8*. Community consultations were also conducted to supplement the survey findings.

Total number of surveyed population is about 89, residing in 23 households and average household size is 3.87 which is slightly less than the household size in the area which ranges between 4.10 to 5.07, as recorded in the 2011 Census data. Among the 89 surveyed population, total male and female population is 53.93 % and 46.07 % respectively and the sex ratio is 854.

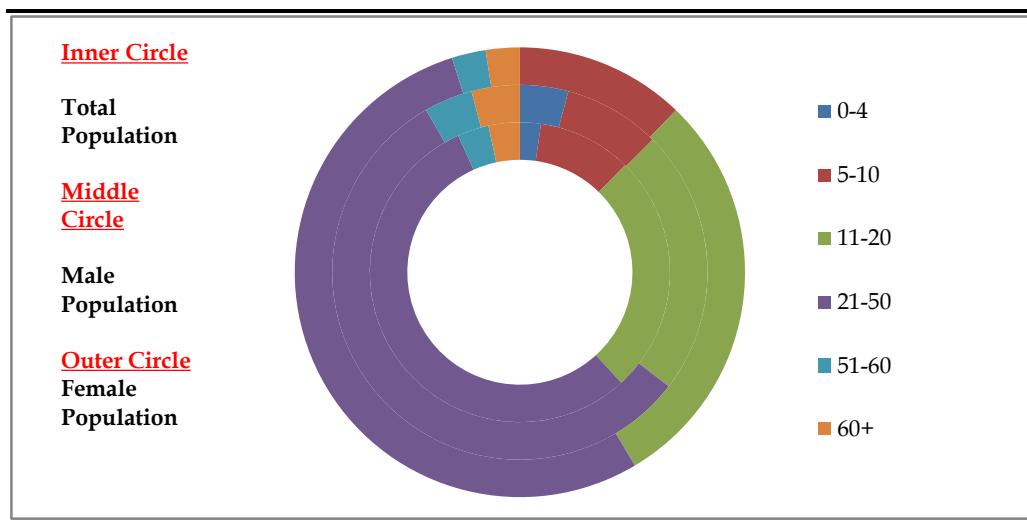
**Table 5.4 Demographic profiles of the Surveyed Population**

Village	Total Household	Total Population	Average Household Size	Male	Female	SC Population	ST Population	Literacy Rate (%)	Male Literacy rate (%)	Female Literary rate (%)
Ghat Dulmi	23	89	3.87	53.93	46.07	3.37	96.63	60.92	63.04	58.54

Source: ERM Socio Economic Survey

Age group distribution of the surveyed population show that maximum number of population belongs to the working age group of 21 to 50 followed by the young age group (11 to 20) which potentially will become the working age group in the future. *Figure 5.4* represents the age group distribution of the surveyed population.

**Figure 5.4 Age Group Distribution of the Surveyed Population**



Source: ERM Socio Economic Survey

#### SC/ST Population

The total scheduled caste (SC) and scheduled tribe (ST) population in study area is 333 and 1526 respectively, which is 5.86% and 26.87% of the total population of the study area.

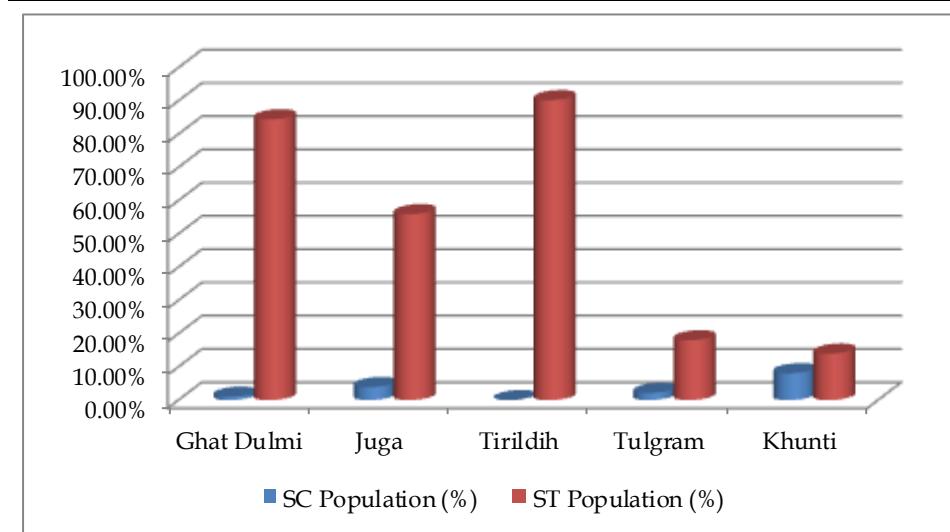
The scheduled tribe population in study area (26.87 %) is lower than the district figure of 46.93% as per Census 2011. Highest and lowest scheduled tribe population is observed in Tirildih (90.24 %) and Khunti (13.99 %) village respectively. Predominant Scheduled Tribes in study area villages are *Munda* and *Santhal* Tribes.

Highest and lowest scheduled caste population was observed in Khunti (8.09 %) and Ghat Dulmi (1.05 %) village respectively. Scheduled caste population is completely absent in Tirildih village falling within study area.

Proportion of SC and ST Population in the study area is captured in *Figure 5.5*.

Remaining population are further classified into three major groups; General caste and OBC (Other Backward Caste) that is not accounted for in the Census survey of India. Considering the project activities no impacts are envisaged on the SC and ST Population of the area.

**Figure 5.5 Proportion of SC/ST Population in the Study Area Villages**

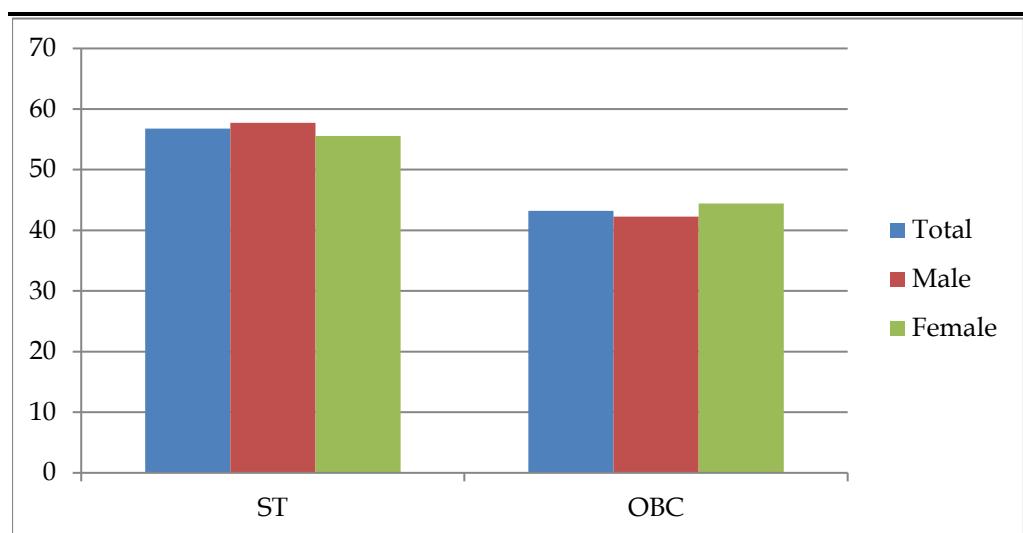


Source: Census 2011 Data

#### *SC & ST Population of Surveyed Village (Ghat Dulmi Village)*

Among the 89 surveyed populations, ST population is 86 which is 96.63% of the total surveyed population, and they reside in 22 households which is 95.65% of total surveyed households. Male and female ST population surveyed is 57.75% and 55.56% respectively. Apart from that SC population in Ghat Dulmi Village which constitute 3.37% of population. *Figure 5.6* depicted the caste wise distribution of the surveyed population.

**Figure 5.6 Caste Distribution of the Surveyed Population of Ghat Dulmi Village**



Source: ERM Socio Economic Survey

As per Social Impact Assessment conducted by Sharda Agricultural Research and Development Agency for the private land parcel, as directed by District Collector Office, Saraikele Kharsawan district, there are four (4) land owners belonging to Ghat dulmi Village whose private land will be procured for construction of GSS. Details of the owners of the private land which would be procured for the Chouka Substation are as presented below:

**Table 5.5** *Details of the owners of Private Land*

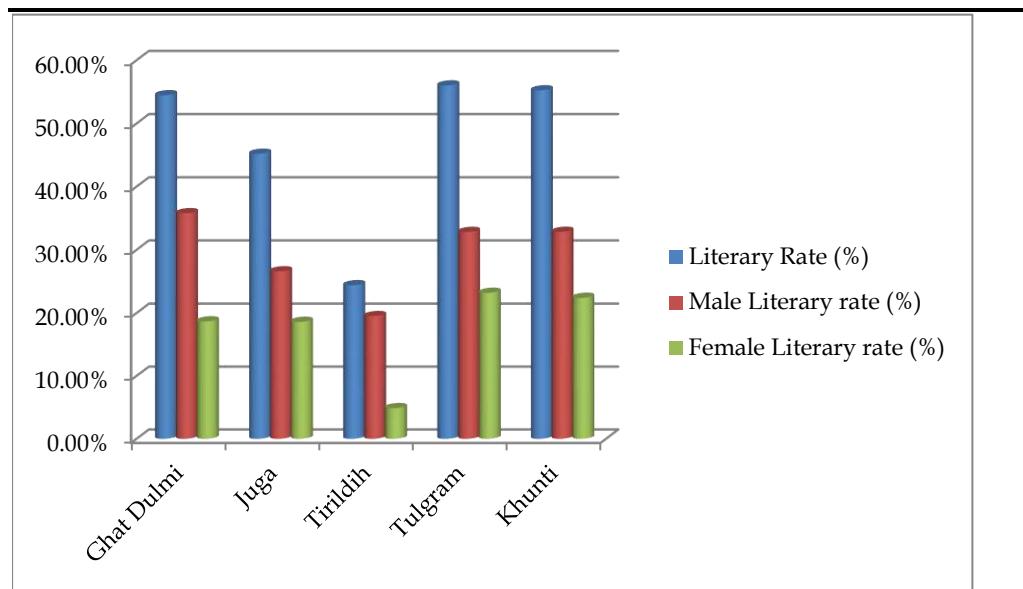
S. No	Land Owner as per records	Current land owner	Village	Survey No	Plot No	Area	No of Current land owners
1.	Dinu Sardar S/o of Gurucharan Sardar	Dinu Sardar	Ghat dulmi	16	212	2.02	1
2.	Mochi Ram Patar, Gulab Patar S/o Budhu Patar	Mochi Ram Patar, Gulab Patar	Ghat dulmi	42	213	3.65	2
3.	Suchan Singh Munda S/o Dhan Singh Munda	Suchan Singh Munda	Ghat dulmi	69	209	1.49	1
<b>Total Private Land</b>							<b>7.16</b>

### **5.11.2** *Education profile*

#### *Literacy Profile*

Literacy status of the study area villages is presented in *Figure 5.7* and it suggests that the average literacy rate in study area villages (47.05 %) is lower than that observed at the District level (75.49%). Highest and lowest literacy rates are observed in Tulgram (56.00%) and Tirildih (24.39 %) village respectively. The average female literacy rate (17.55%) is also quite low in study area villages than average male literacy rate, which is 29.51%. Literacy rate suggests that 50% of the total population is literate as it was reported during consultations that mostly teenagers drop out after secondary school and key reasons against this higher drop-out rate were economic conditions.

**Figure 5.7 Literacy profile of the study area villages**



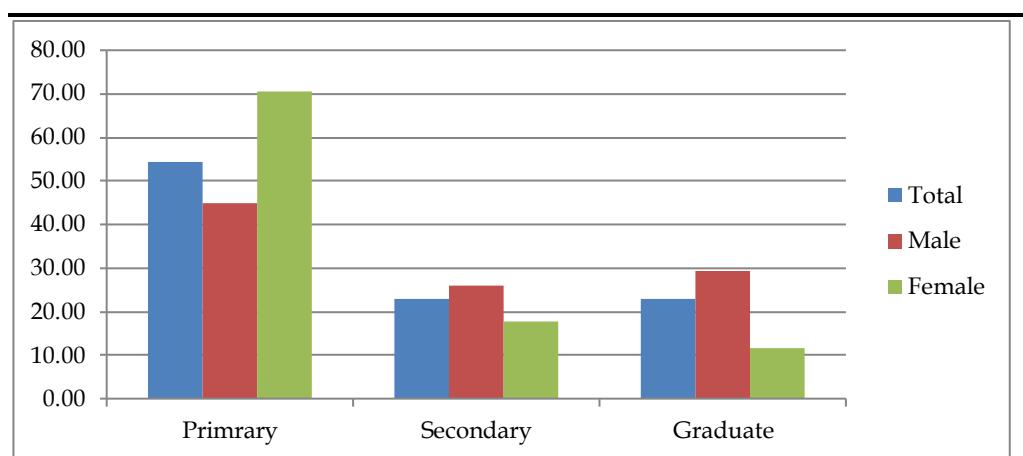
Source: Census 2011 Data

#### *Educational profile of Surveyed Population (Ghat Dulmi Village)*

Out of total 89 surveyed population, 61 % are literate and 39 % are illiterate. Male and female literacy rate is 63.04 % and 58.54 % respectively. Illiteracy rate is higher amongst the female population (41.46%) in comparison of male population (36.96%).

Educational status of the surveyed population presented in *Figure 5.8*.

**Figure 5.8 Educational Status of the Surveyed Population**



Source: ERM Socio Economic Survey

#### *Educational Infrastructure*

The assessment of education facilities and education promotion programs provided by the government in study area indicates that available education infrastructure is limited to only primary schools and villagers travel to nearby villages for higher education located within distance of 5km. Number of schools and colleges existing in study area village is shown in *Table 5.6*. The information is compiled from Village Directory, 2011. It indicates that all the

villages in the study area have primary schools. The study area however does not have facilities for higher education (secondary school) except a Senior Secondary School in Tirildih Village. The nearest college is located in Chandil, located at a distance of 10km from the project site.

**Table 5.6** *Educational facilities in study area*

Study Area Villages	Pre-primary school	Primary school	Middle school	Secondary school	Senior secondary school	Degree college
Ghat Dulmi	N	Y	Y	N	N	N
Juga	N	Y	Y	N	N	N
Tirildih	Y	Y	Y	Y	Y	N
Tulgram	N	Y	N	N	N	N
Khunti	Y	Y	Y	Y	N	N

Source: Village Directory, Census 2011 (Y - Yes; N - No)

#### *Educational Infrastructure (Ghat Dulmi Village)*

All respondents informed that a Primary School is present in Ghat Dulmi village. Secondary school is present within 1 to 1.5 km of the Ghat Dulmi village. In case of higher educational infrastructures, Higher Secondary school and college is present in Chandil.

#### **5.11.3**

#### *Occupational Pattern*

The most important factor, which governs the occupational pattern of an economy, is the availability of the total work force in an economy. The analysis of workers' profile reflects that 21.46% of population of Saraikela Kharswan district is main workers, 18.91% are marginal workers and 59.6% are non -workers, who depend for their livelihood on the toils of the main workforce. The non-workers comprise of old, diseased, disabled and most of them are children of non-working age group beside housewives.

In case of Chandil block, 36.77% of the total population comprises the total worker population. Of the total working population, 61.08% are main workers whereas 63.72% comprises the marginal worker population. The employment pattern in this area suggests that 28.79% of local people are employed in agricultural sector category as cultivators and agricultural labour whereas 71.21% workers are engaged in other sector.

#### *Occupational Pattern of the Study area Villages*

Agriculture is the mainstay of the local economy of the study area. Majority of local people are primarily dependent on agricultural activities and also work as labourers in nearby for earning their livelihood. Classification of working population of the study area as per Census 2011 data is presented in the *Table 5.7*.

Table 5.7 *Occupational pattern of villages in the study area*

Name of the village	WPR	Main Workers	Marginal Workers	Cultivator	Agricultural Labour	Household Industry	Other Workers
Ghat Dulmi	33.68%	7.16%	26.53%	2.44%	2.44%	0.00%	95.12%
Juga	28.55%	45.71%	54.29%	32.50%	22.50%	0.00%	45.00%
Tirildih	53.66%	0.00%	100.00%	0	0	0	0
Tulgram	52.69%	33.60%	66.40%	36.26%	24.56%	25.73%	13.45%
Khunti	31.92%	71.61%	28.39%	47.93%	12.30%	2.13%	37.64%

Source: Census 2011 Data; Note: WPR – Work Participation Ratio

Other noticeable aspects as evident in the above table is that percentage of marginal workers are high in the study area who had not worked for the major part of the reference period i.e. less than 6 months. Proportion of Cultivators (CL) is relatively high in all the study area villages which indicates number of farmers having sufficient land holding for their livelihood is on higher side in study area. Community consultation also reveals that landowners have land holdings apart from the land identified for the project. Census data also reveals that above 90% of the main workers in Ghat Dulmi village are involved in other works such as labourers for earning the livelihood apart from agriculture.

Work Participation ratio (WPR)<sup>(1)</sup>, defined as percentage of total workers including main and marginal workers out of the total population of the study area, is 35.42% which suggests the study area villages have relatively higher unemployment rate as most of people are involved in agriculture.

#### *Economic Status of the Surveyed Population (Ghat Dulmi Village)*

The survey conducted by the ERM team revealed that 100% of household is below poverty level <sup>(2)</sup> and no household is above poverty level.

#### *Employment Status of the Surveyed Population (Ghat Dulmi Village)*

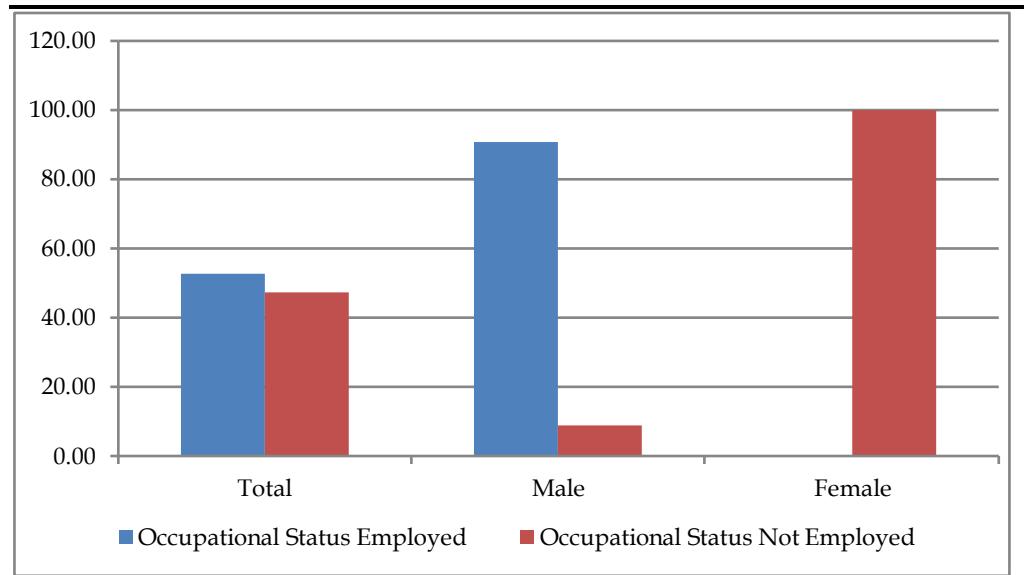
It can be seen from the primary survey data that 64.4% of the surveyed population above the age of 20 are employed while 35.96% population are not employed. The male employment rate among surveyed households is found to be 90.91 %. There are no females employed found in surveyed population. It can also deducted from figure below that unemployment rate is higher amongst female population than the male population. This is because most of the women in the village were mainly involved in household work.

Employment status of surveyed population is presented in *Figure 5.9*.

(1) Work Participation ratio (WPR) is defined as percentage of total workers including main and marginal workers out of the total population of the study area

(2) In 2011-12, the average Monthly Per Capita Expenditure (MPCE) of Jharkhand in urban and rural areas was INR 1894 and INR 920, respectively. – Report of Task Force on Poverty Elimination in Jharkhand, Rural Development Department, Govt. of Jharkhand (The monthly per capita consumption expenditure is treated as the poverty line at all India level as per the Tendolkar Commission Report.

**Figure 5.9 Employment Status of the Surveyed Population**



Source: ERM Socio Economic Survey

#### *Occupational Pattern of the Surveyed Population (Ghat Dulmi Village)*

It can be seen from the figure below that involvement of female population is any of the occupation is nil. Main reason behind that is that the female members of the family are only involved in house hold activities and male members have the responsibility to earn livelihood from different agricultural and non- agricultural activities like nonagricultural labor, business, service etc. The reason can be attributed to lesser earning from agricultural activity sustain the economic needs of the family. **Figure 5.10** represents the occupational pattern of the surveyed population.

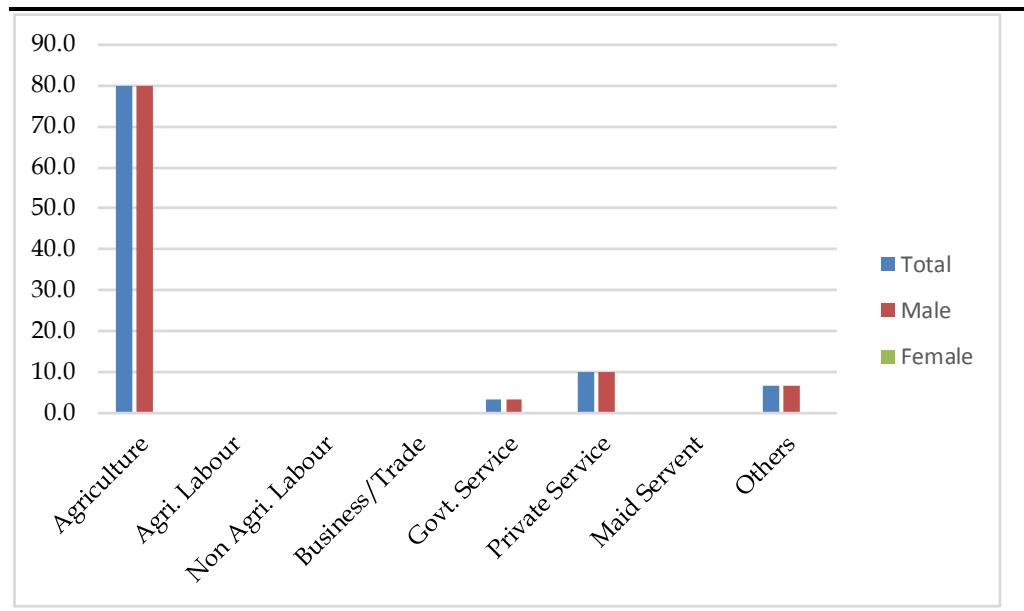
Among the surveyed population majority, (80%) number of people is involved in agricultural activity on their own land. During the consultations with land owners, it was informed that most of agricultural land are mono cropped (paddy, vegetables) and agricultural activity is totally dependent on rain water. Land owners during the consultations also revealed that they have land holdings apart from the land identified for the project. The current land use of the project site is scrub land and there is no agriculture being practiced from last 10-15 years.

#### *Occupational Pattern of the Project Affected Persons (PAPs)*

Social Impact Assessment (SIA) for the land parcel was carried out by Sharda Agricultural Research and Development Agency, which has been empaneled by District Collector Office, Saraikela Kharsawan in 2018. As per the consultations conducted with PAPs, the proposed private land for the GSS is not being used for agriculture purpose for a long time due to lack of irrigation facilities. Most of agriculture in the area are dependent on the rain water. PAPs informed that the private land identified for the project is not being used for any purpose (agricultural/non -agricultural) at present and is vacant plot of land. It was also reported that they work as labourers also in nearby areas

to earn their livelihood. PAPs have revealed that none of them were dependent on the land parcels identified for the substation for their livelihood.

**Figure 5.10 Occupational Pattern of the Surveyed Population**



Source: ERM Socio Economic Survey

#### *Skill of the Surveyed Population*

Survey data show that the residents of this village are not having significant indigenous skills. During consultations conducted Sharda Agricultural Research and Development Agency, as part of the SIA study, PAPs reported that they also work as labourers in nearby areas for their livelihood and do not any dependency on the private land which is proposed for GSS.

#### **5.11.4 Gender Profile**

##### *Sex Ratio*

Sex ratio is one of the most important indicators defining gender equality. This indicates improvement in one of the Human Development indicators that can enhance gender equality influencing progress in productivity, improve development outcomes and make institutions more representative.

The average sex ratio in the study area villages as per the Census 2011 is 961, which is higher than the State average (948). Within the study area villages, Juga (1114) records the highest and Tirildih (577) records the lowest sex ratios respectively.

##### *Education*

Improving female educational levels has been demonstrated to have clear impacts on the health and economic future of young women, which in turn improves the prospects of their family and entire community.

Average literacy rate in study area villages (64.68%) is lower than that observed at the State level (77.13%), as per the Census 2011. According to 2011 census data, the average male and female literacy rate in the study area was recorded as 76.14% and 52.79% respectively, which indicates that the female literacy rate is low when compared to the male literacy in this area. Among the study area villages, the highest and lowest female literacy rate was recorded at Tulgram (57.29%) and Tirildih (16.67%), whereas highest and lowest male literacy rate was recorded at Ghat Dulmi (78.85%) and Tirildih (38.10%). One interesting fact has also come out that both male and female literacy rates are lowest in Tirildih, indicating backwardness, and exclusion from formal education system due to unavailability of proper education infrastructure.

#### *Female Workforce Participation*

Female labour force participation is a driver of growth and therefore participation rates indicate the potential for a state to grow more rapidly. The participation of women in the labour is driven by a wide variety of economic and social factors including economic growth, increasing educational attainment, social norms, etc.

In the study area, male work participation rate (52.02%) is higher than the female work participation rate (18.15%), as per Census 2011. Main work force<sup>(1)</sup> for male and female workers was recorded to be 61.45% and 32.28% respectively. This figure indicates male workers constitute a dominant part of the main work force. However, in case of marginal work force<sup>(2)</sup>, the trend was reversed in terms of contribution of male workers (38.55%) and female workers (67.72%). It's observed that female marginal workers outnumbered the male marginal workers, indicating that more number of females are possibly involved in cultivation, as agricultural labourers, and also as workers in household industries. The low literacy rate amongst the female population can also be attributed as one of prime reason for their increased involvement as marginal workers.

#### **5.11.5**

#### *Drinking Water & Sanitation Facilities*

The social organization and settlement pattern in the study area is predominantly arranged around the available agricultural land and water resources in the area. Land based livelihood being the key feature of the community, proximity and availability of water is often linked to the economic status of the family/ household. Also typically in a village, water for drinking and other purposes defines the household hygiene/ sanitation and ultimately the standard of living of the community. For drinking purpose, availability of water is mostly in the form of:

- Ground water, sourced through hand pump (and dug wells that serve mostly to the needs of household drinking water consumption however no filtration facility is available for drinking water);

(1) Workers who worked for more than 6 months (180 days) in the reference period are termed as Main Workers.

(2) Workers who worked for less than six months (180 days)

- Piped water supply is not available in study area villages.

As per community consultation very few household in the village have access to individual sanitation facility which are constructed under 'Swachh Bharat Mission' and majority of the community reportedly resort to open defecation.

Primary surveys revealed that 100% of the households in Ghat Dulmi Village are dependent on tube wells for fulfilling their drinking water and domestic use water requirement, which are a shared resource.

#### 5.11.6

#### *Irrigation*

Community consultation reveals that irrigation facilities in study area seem to be extremely poor as farmers reported to be entirely dependent upon rain water for irrigating their field. Though use of water drawn from wells was reported, the same was confirmed to be rare.

#### 5.12

#### *HEALTH INFRASTRUCTURE*

Health care infrastructure of the study region is captured in the table below. Khunti village has one health sub-centre while the nearest hospital is also located in Khunti village, about 2 km from GSS site.

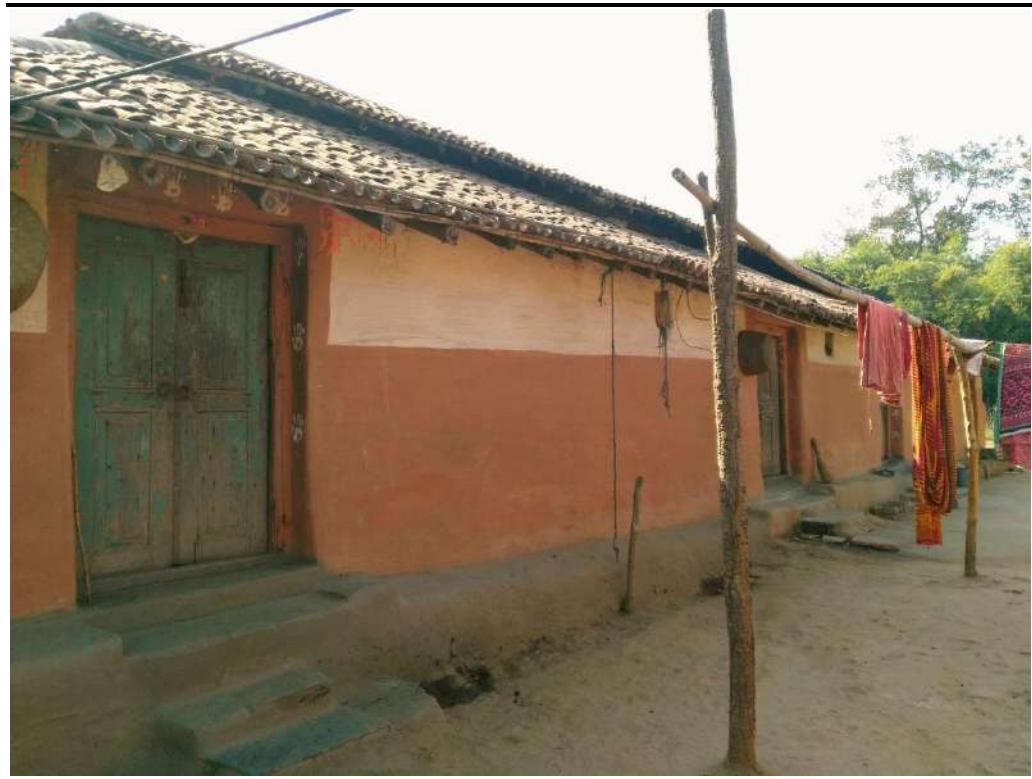
*Table 5.8*

*Health care facilities in study area*

<b>Study villages</b>	<b>Hospitals</b>	<b>PHC</b>	<b>Sub-Centre</b>
Ghat Dulmi	N	N	N
Juga	N	N	N
Tirildih	N	N	N
Tulgram	N	N	N
Khunti	Y	N	Y

*Source:* Village Directory, Census 2011 (Y - Yes, N - No)

*Figure 5.11 Household Structure in Ghat dulmi Village*



Source: ERM Socio Economic Survey

*Figure 5.12 Prevailing hand pump in Ghat dulmi Village for water extraction*



Source: ERM Socio Economic Survey

*Road & Transportation*

All the study area villages are connected with Chouka through Chowka-Kandra Road. For local transportation, use of bus and auto are common in the study area.

*Electricity*

All study area villages have access to electricity supply and most of the households were reported to be connected with the existing electricity supply, though low voltage electricity was reported to be prevalent.

*Postal Service, Bank, Telecommunication*

As per 2011 census data, only Ghat Dulmi and Khunti village in the study area has a post office in its peripheral boundary. However, none of the villages in the study area have operational branches of banks. There is only one (1) cooperative bank available in Khunti Village.

This section identifies and assesses the potential impacts to the physical, biological and socioeconomic environment that can be expected from the proposed grid substation project at Chouka. The impacts due to the Project activities across different phases have been identified and assessed. Impacts are identified and predicted based on the analysis of the information collected from the following:

- Project information (as outlined in *Section 3*);
- Baseline information (as outlined in *Section 4*).

## 6.1

### **POTENTIAL IMPACT**

The identification of likely impacts during construction and operation phases has been carried out based on understanding of activities and their consequent impacts on various environmental and socio-economic resources or receptors. The impact identification matrix in *Table 8.1* captures the likely interactions between the activities on one axis and the resources / receptors on the other axis.

Table 6.1 Scoping Matrix for Chouka Substation

Project Activity/ Hazards	Environmental Resources					Ecological Resource			Social-Economic Resources														
	Aesthetic & Visual Impact	Land Use	Soil Quality	Air Quality	Noise & Vibration	Topography & Drainage	Surface water resource	Surface water quality	Ground water resource	Ground water quality	Traffic (Road)	Terrestrial Flora	Aquatic Flora & Fauna	Protected/Migratory Species	Migratory Path/Corridor	Job & economic opportunity	Economy & Livelihoods	Common Property Resources	Land Use (Economic Displacement)	Infrastructure & Services	Cultural Resources	Community Health & Safety	Occupational health & safety
<b>Construction Phase</b>																							
Land Procurement																							
Clearance (Vegetation & other structure)																							
Site Development (cutting & filling)																							
Construction of Site approach road																							
Transportation of construction materials, equipment & machineries																							
Storage & handling of construction materials																							
Construction of switch yard and Other building																							
Storage, handling and disposal of construction waste																							
Generation of sewage and discharge																							
Sourcing of construction water & domestic water																							
Surface Runoff from construction site																							
<b>Operation Phase</b>																							
Physical presence of sub-station																							
Maintenance of Substation & generation of transformer oil and e-waste																							
Sourcing of water for earthling pit & residential units																							
Storm water runoff																							
Generation of MSW & Disposal																							

Project Activity/ Hazards	Environmental Resources				Ecological Resource		Social-Economic Resources																	
	Aesthetic & Visual Impact	Land Use	Soil Quality	Air Quality	Noise & Vibration	Topography & Drainage	Surface water resource	Surface water quality	Ground water resource	Ground water quality	Traffic (Road)	Terrestrial Flora	Terrestrial Fauna	Aquatic Flora & Fauna	Protected /Migratory Species	Migratory Path/Corridor	Job & economic opportunity	Economy & Livelihoods	Common Property Resources	Land Use (Economic Displacement)	Infrastructure & Services	Cultural Resources	Community Health & Safety	Occupational health & safety
Generation of sewage & discharge																								
	= Represents "no" interactions is reasonably expected																							
	= Represents interactions reasonably possible but none of the outcomes will lead to significant impact																							
	= Represents interactions reasonably possible where any of the outcomes may lead to potential significant impact																							

## 6.1.1

### *Impacts on Aesthetics & Visual Quality*

Potential impacts to aesthetics and visual quality because of the setting up and operation of the Chouka GSS may arise because of two key factors – disruption and degradation of visual quality in the surrounding landscape; and, use of nighttime lighting for construction and security purposes. Visual impacts of GSS projects along with associated transmission lines (in and outgoing) are highly variable and depends on several factors like location of the project, lines of sight, scenic vistas and most importantly the perception of the people. Degradation of views from setting up of the GSS in the identified plot of land may result from cutting of trees and vegetation clearance, handling of construction and domestic wastes, and setting up of physical infrastructure (including some transmission towers, which are to be constructed on the boundary of the site) associated with the GSS. After the GSS is commissioned, night-time security lighting would be operational and would lead to addition of strong artificial lights in what is at present is a predominantly rural area with no street or external lighting. With the study area, not being recognized as a place of natural scenic beauty or a touristic destination, these factors are unlikely to lead to any significant adverse visual and aesthetic impacts in the area and it can be rated as **negligible**.

## 6.1.2

### *Air & Noise Quality*

The GSS is not planned to house any point or area source of air emissions (particulate matter, pollutant gases, etc.). Steel plant (*Narsingh Ispat Limited*) and stone crusher is located at an aerial distance of approx. 700m towards north-west direction from the project site boundary. Operation at these industrial units have potential to emit air pollutants. Further, vehicle plying on Chowka-Kandra road is another significant source of fugitive emission in this area. Considering this context, the ambient air quality is representative of industrial set-up and expected to be close to or higher than the National Ambient Air Quality Standards (NAAQS)<sup>1</sup>.

During site preparation and construction, the project is likely to generate dust (as particulates) in spite of best efforts to control it and there will be times during the construction phase when elevated dust concentrations may occur. Higher amounts of dust will be generated at places where earthwork, cutting and filling operations take place or in material handling and storage areas. A large percentage of such dust emissions from construction sites have been found to comprise of particles which are coarse in size ( $>10$  microns) and has a tendency to settle down within a few hundred meters of the source of emissions. The smaller fractions ( $PM_{10}$ ) can however be carried over longer distances in a dust cloud, in the case wind velocity is higher and depending on prevailing wind direction maybe deposited in the adjoining receptor which is Ghat Dulmi village, located at a distance of 550m in South direction with a potential to cause soiling of residential premises, deposition on agricultural

<sup>1</sup> During the site visit, ERM did not encounter any fugitive emissions near the Steel Plant. However, environment compliance or environment monitoring reports of Steel plant (*Narsingh Ispat Limited*) were not available for review.

crops, etc. However, this will be a short-term impact lasting for a few months. Particulates, CO, SO<sub>x</sub>, NO<sub>x</sub> and unburnt hydrocarbons (VOCs) will be emitted by vehicles, batching plants (if used), heavy equipment and DG sets associated with site clearing and construction activities.

The operational GSS site at Chouka will not have any specific source contributing to air emissions. However, the site will house transformers, switches and associated cables which may contain insulating gases such as Fluorocarbons and Sulfur hexafluoride (SF<sub>6</sub>) during operation of GSS. Such gases which are categorized as greenhouse gases and having significantly higher global warming potential (GWP) than CO<sub>2</sub> can get accidentally released during maintenance work or equipment overhauling. The frequency of such non-routine incidents is predicted to be low in the entire lifecycle of the operation of the GSS. Overall, the impact on air quality during the construction and operational phase of the project can be rated as **negligible to minor**.

Noise and vibration at the Chouka GSS site is expected to be primarily generated during the site preparation and construction phases of the project. Such noise may be generated from blasting (if required), operation of heavy construction equipment and machineries, DG sets and the transportation of equipment and materials. During operational phase, the transformers and switches to be installed within the GSS would also emit typical humming noise caused because of magnetostriction (involving the expansion and contraction of the iron core due to the magnetic effect of alternation current flowing through the transformer coils). Though the emitted noise may vary in characteristics depending on the rating of the transformer, typically the intensity and amplitude transformer emitted noise is about 120 Hz and 55 dB (A). As the transformers and other sound emitting equipment would be located well within the boundary of the site, any incremental contribution to the ambient noise quality at the boundary of the site would be negligible.

Steel plant (*Narsingh Ispat Limited*) and stone crusher are the primary source of noise pollution in the study area. Further, vehicle plying through adjoining Chawlibasa – Kandra road would also generate noise pollution. However, movement of heavy vehicle was not observed on Chowka-Kandra road, during site visits. Presence of vegetation between industrial units and GSS site is also expected to attenuate noise level.

The noise generated from the construction phase activities is likely to be attenuated to acceptable levels as per the ambient noise standards within 200 m of the site. Such noise may however, cause discomfort to the construction workers at site and nearby receptors of Ghat Dulmi village located at distance of 550m. The construction activities, especially those with a potential to generate high noise levels would be temporary in nature and are not expected to last more than 6 months. The spatial scale of impact will be limited to a few hundred meters. The overall significance of the noise related impacts is rated as **minor**.

The proposed substation will be constructed over 7.43 acres of land (7.16 acre of private land and 0.27 acre of revenue land). The land use study reveals that the proposed land is an uncultivated scrub land on which agriculture has not been practiced from last 10-15 years. The GSS site has few matured trees including primarily Sal and Palas. The study area has other plantation forest as well as natural forests. Sal (*Shorea robusta*) is the most dominant tree of the forest. Other common tree species recorded are Palas (*Butea monosperma*), and Kend (*Diaspyros melanoxylon*). Setting up of the GSS may result in cutting of the mature trees present on the proposed site. JSUNL will divert the land use of the tract of land to industrial use and this would result in a permanent change of land use. During operation Phase because of the nature of the project and low level of anthropogenic activity to be associated with the site during operational phase, it is unlikely that the GSS project would induce any significant change of land use in other land parcels in the immediate vicinity.

As the site is located on a flat land with a gentle slope, the preparation of land for the construction activities at site would involve soil stripping and limited cutting, filling and levelling activities in order to make the site topography suitable for setting up of the GSS. As the site as lateritic soil which is loose in nature, removal of top soil can increase the potential for soil erosion during a short period of time till the site is levelled and then stabilized with fill materials like gravel, sand and fly ash. If proper soil erosion control measures are implemented, these impacts will be in the short term and unlikely to be severe in terms of scale and magnitude.

Disposal of solid waste and spills of lubricants, fuels and chemicals during land clearing, terrain sloping, levelling and construction activities creates the potential for soil and water contamination. The specific type of solid wastes likely to be generated during the construction of the Chouka GSS sites would include defective or compromised building materials, waste concrete, wastes from on-site machineries and repair of machineries and equipment, packaging pallets and crates and wastes associated with onsite activities of workers (in relation to the number of workers present) like domestic solid wastes.

During the operational phase, hazardous wastes generated from the GSS would include small quantities of used oil, contaminated absorbent material, burned out bulbs or tube lights, used parts, scrap and debris. The transformer oil is expected to be changed every 15 years and the waste oil is planned to be reused through authorized recyclers. E-waste (electrical parts, panels, etc. which will need replacement) and used lead acid batteries would also be collected and disposed off or recycled through authorized agencies. In addition, as all hazardous waste will be stored in covered areas which have a lined floor and with appropriate physical barriers for containment of spills, it is very unlikely to contaminate soil or underlying groundwater at site. Overall, the impact on drainage and soils is expected to be **minor**.

#### 6.1.4

#### *Impact on Water Resource*

Water resourcing requirements for a GSS project are minimal, as there is no process or activities that require a steady supply of water. In the operational phase, water would need to be sourced on the long term to meet the domestic needs of about 16 – 20 people and the daily requirement would be about 8.4 KLD. The water requirement during the construction phase is expected to be more intense – an estimated amount of 10-12 KLD (including provision for domestic water supply to labourers of approx. 2 KLD) and about 3-4 KLD during the rest of the construction period. It is estimated that the civil works would be completed within 1 year and the construction phase would last 2 years.

The project would depend on extraction of ground water resources, using a bore well, to be dug at site and will not extract water from water body located at a distance of 100m from the site in west direction. Reportedly, water from this water body is utilized by the community for domestic purposes such as bathing and washing of clothes. The bore well would be planned to extract water from the deeper aquifers, the level of ground water development in the Chandil block is 11.17% (with net Annual Ground Water Availability of 2382.79 ham) should be sufficient to meet the water requirement of the Chouka GSS during the short to medium term.

The neighboring settlements source water using dug wells and tube wells and both of them utilize the shallow, near shallow aquifers; so, there is expected to be no conflicting demands on ground water resources. Considering the amount of water planned to be sourced, the limited spatial extent which would be impacted and the sensitivity of the resource, the significance of the project's impact on water resources can be considered to be minimal.

#### 6.1.5

#### *Impact on Biological Environment*

As discussed earlier, The GSS has few Sal and Palas trees. Site preparation will involve removal of the trees, shrubs present at site which will cause change in the modified habitat within the site leading to a loss of floral biodiversity at local level. However, none of the floral or faunal species present within the site is threatened as per IUCN Classification (Version 2017-3). The loss of floral species from the site will not create any habitat degradation or fragmentation in the area. JUSNL is required to obtain Permission for trees felling and transit permit for Non-Forest land as per Jharkhand Timber and others Forest Produce (Regulation of Transit Rules-2004)- Notification dated 3rd March, 2016 from Divisional Forest Officer (DFO).

Faunal species that have high probability of occurrence within the site include amphibians (Common toad), reptiles (lizards and snakes), birds (House crow, Common sparrow, Common myna, drongo, doves, parakeets, kites etc.) and mammals (Indian Grey mongoose, squirrel, rat etc.). None of the faunal species expected to be present within the site is threatened as per IUCN Classification (Version 2017-3). Removal of vegetation from the site can have adverse impact on residential burrowing faunal species *viz.* reptiles (lizards

and snakes), ground roosting birds (sparrows, pigeon, doves etc.) and mammals (mongoose, rat etc.). However, there are similar habitats in the vicinity and the species can easily relocate to those areas.

Construction activities will include excavation, movement of machineries, increased anthropogenic movement (men and transport) and may lead to minor disturbances to floral and faunal habitats in the vicinity of the site because of deposition of dust, noise and light generated during construction activities may affect feeding, breeding and movement of animals. The scale of impact will be medium as it causes irreversible damage to a modified habitat. Duration of the impact will be long term as vegetation clearance would create a permanent impact within the site area. Extent of the impact would be only within the project site and immediate vicinity. However, the site and study area has bird and mammalian species protected under Schedule I of the IWPA. Moreover, it is reported that Elephant Corridor is located at a distance of 15km from site in Chandil-Gamharia forest range. Locals have rarely sighted any elephant in last 3-5 years around the project area. As the site is located near to the Elephant Corridor, the site has been deemed to have high sensitivity.

During the operation phase, several species of birds identified during the ecological study which can perch (*viz.* doves, pigeon, mynas, kites etc.) or make nests within the GSS area (*viz.* sparrows, pigeons, doves etc.) with a possibility for electrocution. The same could occur to small mammalian species like mongoose, macaques etc. may get electrocuted within the GSS area. However, the chances of birds and mammalian species getting electrocuted within the GSS site are rare; moreover the species having the potential to get electrocuted are common in the area.

Shikra (*Accipiter badius*) and Black Kite (*Milvus migrans*) are listed as Schedule I as per Wildlife Protection Act, 1972. Black Headed Ibis (*Threskiornis melanocephalus*) is listed as Near Threatened as per IUCN Classification (IUCN version 2017-3), are also recorded from study area. Hence, the site has been deemed to have medium sensitivity.

Overall the significance of impact on biological environment can be rated to be **moderate**.

#### **6.1.6 Impact on Socio-economic Conditions**

The proposed substation will be constructed over 7.43 acres of land (7.16 acre of private land and 0.27 acre of revenue land). The private land will be acquired from four (4) land owners belonging to Ghat dulmi village as per the procedure laid in The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013).

Compensation would be paid as per the Resettlement Action Plan.

Compensation at market value of wood/timber or firewood depending on the

kind of tree to be determined by the Forest Department and will be paid accordingly.

In addition, no encroachments or encumbrances within the land parcel either in form of agricultural or residential uses was noted within the demarcated site and as a result no displacement or adverse impact on livelihoods (of people) are expected because of the uptake of land to build the GSS. There was no dependency of the local people and land owners on the proposed land recorded during consultations with the community. One water body is located outside the western boundary of the site, at a distance of 100m. Local people are dependent on the water body for their domestic purposes (washing clothes) and any contamination/disturbance may lead to local agitation. Land Owners during the consultations revealed that they have land holdings apart from the land identified for the project. The land owners have provided their consent for the construction of the project as the current land use of the project site is scrub land and there is no agriculture being practiced from last 10-15 years.

Social Impact Assessment (SIA) carried out by Sharda Agricultural Research and Development Agency in 2018 has recorded the consultations conducted with land owners of the private land (PAPs). The responses given are presented in table below.

**Table 6.2** *Responses gathered during consultations with land owners / Project Affected Persons*

S. No	Question Assessed	Response recorded
1.	Where the proposed private land is located which is to be acquired?	The proposed private land is located at Ghat dulmi village, Chandil Block, Saraikela Kharsawan District
2.	Is this proposed land purchased or considered for any other government scheme?	The proposed private land is considered for the acquisition for the first time under a government scheme.
3.	What is the current land use of the proposed private land?	The current land use of the project site is scrub land and there is no agriculture being practiced from last 10-15 years.
4.	Are there any type of encroachments on the proposed land?	There are no structures present on the proposed land at present. There are no other encroachments on the proposed land.
5.	Are there any forest dwellers or any villagers whose common rights are affected?	There are no forest dwellers associated with the proposed land.
6.	Are land owners dependent for their livelihood on the private land which is to be acquired?	The private land is not being used for any purpose (agricultural/non -agricultural) at present and is a vacant plot of land. It was also reported that villagers work as labourers in nearby areas to earn their livelihood.
7.	Is there any effect on the current income levels of the land owners due to private land acquisition?	The land owners are not dependent upon the private land which will be acquired. The land owners work in nearby areas as labourers to earn their livelihood.

S. No	Question Assessed	Response recorded
8.	Expectation from the project?	<p>The land owners expect improvement in prevailing electricity conditions of the area. Generation in employment opportunities due to upcoming of GSS is also anticipated.</p> <p>The land owners also expects improvement in their livelihood as they intent to start their own business from compensation received in lieu of private land which is not being used for any purpose.</p>

*Source: Social Impact Assessment undertaken by Sharda Agricultural Research and Development Agency*

A public meeting was also conducted on 23<sup>rd</sup> March, 2018 at 11 am by District Collector, Circle Officer and officials from Electricity Board. Various queries raised by villagers were addressed in the meeting. The responses are presented in table below:

**Table 6.3** *Responses against queries raised during public meeting*

S.No	Name of the villager	Query asked	Response provided
1.	Motiram Patar	Employment should be given priority	District Collector informed that priority will be given to the employment during construction and operation of GSS.
2.	Gulab Singh Patar	Compensation to be paid	It was informed that compensation to be paid for private land will be four times of the prevailing market rate of the land in the area. Compensation for trees present on private land will be given separately. Compensation for affected household (if any) will be given double the prevailing amount.
3.	Hemant Singh Munda	Are there any provisions of rehabilitations	There is no resettlement or rehabilitation associated with the construction of GSS. Hence, no provisions for the same will be provided.

*Source: Public meeting conducted on 23<sup>rd</sup> March, 2018, conducted by District Collector*

Several nominally positive socio-economic impacts can result from the project. There is scope for generation of indirect employment opportunities generated during the site preparation and construction phases of the project. It is anticipated that about 50 workers would be employed during the construction phase and it is expected that part of these workers, especially need for unskilled workers, would be met from local villages. There would also be a scope for some small contracts to be provided to local contractors for supply of construction materials, vehicles, tractors, etc. In addition, the presence of workers, contractors, engineers during the construction period is expected to stimulate a demand for economic activities (shops, restaurants, etc.) and increased purchase from local businesses. It should be noted that these opportunities would be in the short-term, as the operational phase of the project would involve the deployment a small number (about 8 – 10) of technical skilled workmen (mostly engineers). Both the beneficial and adverse socio-economic impacts can be rated to be **medium** in terms of significance.

Further recommendations given by Sharda Agricultural Research and Development Agency are described below:

- Compensation should be directly paid from District Collector Office;
- There should be no involvement of any other third party for disbursement of payment;
- It is to be ensured that compensation is only paid to the legal title holders of the private land after careful inspection which will be conducted by District Collector Office; and
- Every land owner should be informed clearly about the purpose of the land acquisition with the timelines of disbursement of the payment and acquisition of the land.

#### **6.1.7 *Influx of Labour***

It is envisaged that during construction phase of the project, labourers for various jobs such as civil, mechanical and electrical works will be hired through authorized manpower agencies. Even though unskilled labour force can be sourced locally, for skilled labour required for the project would be primarily migrant labour.

The influx of migrant labour will have both negative and positive impacts on the nearby community and local environment. The labour will be accommodated in temporary campsite within the project boundary which can have some interface with the nearby community. However, the influx of migrant workers would lead to a transient increase of population in the immediate vicinity of the project area for a limited time. This may put some pressure on the local resources such as roads, fuel wood, water etc. Some of the significant issues related with migrant labour would include:

- Conflict amongst workers, and between workers and local community, based on cultural, religious or behavioral practices;
- Discontent amongst local community on engagement of outsiders;
- Outbreaks of certain infectious diseases;

- Security issues to local women from migrant workforce;
- Use of community facilities such as health centres, temples, transport facility etc. by migrant labour may lead to discontent with local community; and
- In case contractors bring in unskilled migrant labour, there stands the risk of exploitation of a labourer. This can happen in the form of hiring underage labourers, low and unequal wage payments, forced labour and discrimination on basis of the basis of caste, religion or ethnicity.

The impacts described above may primarily extend to the settlements in the immediate vicinity, therefore localize in nature. From the context of project site setting, it would be noted that, no vulnerable community like women headed family etc. was recorded from community consultation and from socioeconomic survey.

The socioeconomic survey in Ghat Dulmi village, indicates that there is approximately 64.4% of the population are employed while 35.96% population are not employed. The finding indicates that there is a pool of labour-resource who can be engaged in the project as unskilled labour. The project would source unskilled workers from surrounding villages (e.g., Ghat Dulmi, Juga, Tirildih, Tulgram, Khunti etc.). Also a planned labour camp for skilled workers within the GSS site may further reduce the assessed potential impacts related to labour influx. Therefore, impact from labour influx is evaluated to be of **minor** significance.

#### 6.1.8

#### *Impact on Community Health and Safety*

Experience shows that because of its nature and scale, project like GSS's can be expected to have a limited interface with the local community and as a result will have minimal impact on the safety and health of local communities.

During the construction stage of the project, there will be an influx of workmen and labours, with some of them being from different socio-cultural settings as compared to the villages around site. In the case that hygienic conditions are not maintained at the construction site, there may be a vector borne and other ailments in the immediate vicinity. Unless proper sensitisation of neighbouring communities is undertaken and appropriate safeguards are adopted, there is a possibility for increase in sexually transmitted diseases, though the possibility appears quite remote.

The site clearing activities and construction activities (involving fill materials, brick and concreting work) would result in emissions of dust and noise, discharge of sanitary waste water and potential littering from labour quarters during a short phase of around six (6) months and has a potential to contribute to additional nuisance levels for the local community. However, there is no people living close to the site and the habitation of Ghat Dulmi village being located at a distance of 550 m, no significant health related impacts are expected to the communities in the area. Also, there are no habitations near to the water body located at a distance of 100m in west direction. However, runoff during construction phase can reach the

agricultural fields located in south of the site due to gradient difference. The increase in vehicular movements as a result of plying of construction vehicles on the adjoining site access road would add to the risk of accidents in which local villagers may be involved. In addition, the GSS project would have incoming and outgoing transmission lines (132KV), house transformers and associated equipment which has the potential to create electro-magnetic fields (EMF). Although there is a public concern over the potential health effects associated with the exposure to EMF, empirical data is insufficient to demonstrate adverse health impacts from typical EMF levels originating from high voltage power lines and substation equipment. Considering good construction practices and planned embedded measures for mitigating these impacts, the overall significance of community health and safety impacts can be rated to be **minor**.

#### 6.1.9

#### *Occupational, Health and Safety*

During the construction phase of the project, about 50 workers would be involved in construction related activities, some of which are inherently unsafe, unless adequate precautions and safeguards are adopted by the workers and construction site contractors. Safety issues related to construction of the GSS at Chouka may involve physical hazards like working at height, exposure to heat, particulate matter, noise and vibration, collision with vehicles/moving equipment; exposure to electrical hazards; exposure to chemicals hazards (both inhalation and physical contact) like organic solvent vapours, reactive and toxic chemicals (acids's, bases, insecticides, etc.). Such occupation hazards would vary with the nature of work undertaken by the workmen, as they may employed by different contractors responsible for doing a particular component of the work.

The construction work would involve several contractors who in turn would engage different labourers having varied skillsets. The duration and extent for most workmen is expected to extend for a few months and the occurrence of any accidents and consequent injuries/fatalities will lead to adverse impacts that could range from loss of productive time to loss of livelihoods (of workmen). If local workers are hired, they may not have appropriate training for adopting a safety culture expected at an industrial construction site – so receptor sensitivity may be anticipated to be high. There is also a possibility of legal non-compliance which may lead to temporary stoppage of work affecting construction schedules. Hence the receptor sensitivity is high. Overall, the impact significance for occupational health and safety can be considered to be **moderate**.

**7.1****INTRODUCTION**

A stakeholder is defined as “an individual, group, or organization, who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project”. “Stakeholder Analysis” is the process of sorting identified stakeholder groups according to their impact on the project and the impact the project will have on them. This information is then used to assess the manner in which the interests of the stakeholders or projects impact on them should be addressed in the project development plan or its operation.

The importance of stakeholder analysis lies in the assessment and understanding of the socio-political environment surrounding the project. It allows for:

- Identification of the interests, concerns and societal risks surrounding the stakeholders, as well as conflicts of interests (if any);
- Identification of relations between stakeholders that may enable “coalitions” of project sponsorship, ownership and co-operation as well as the mechanisms which may influence other stakeholders;
- Key groups/ individuals to be identified who need to be informed about the project during the execution phase;
- Identifying stakeholders (those who might have an adverse impact on the project) and taking appropriate measures to mitigate their influence; and;
- Development of a framework for participatory planning and implementation of various project activities including interventions for community development.

The identification of stakeholders and their inclusion in the decision-making process is thus essential in the process of prioritizing, analyzing and addressing issues; and in creating management systems and strategies to address the concerns/ expectations of various stakeholders.

The following sub-sections provide a profile of the various stakeholders in the project as well as their concerns and relative influence with regards to the project.

**7.2****IDENTIFICATION OF STAKEHOLDERS**

The stakeholders who would directly impact or are directly impacted by the project are known as Primary Stakeholders, those who have an indirect impact or are indirectly impacted are known as Secondary Stakeholders. Keeping in mind the nature of the project and its setting, the stakeholders have been identified and listed in the table below;

**Table 7.1 List of key stakeholders**

Stakeholder Category/ Group	Key Stakeholders
<b>Primary Stakeholders</b>	
Local Community	<ul style="list-style-type: none"> <li>• Local Community of Ghat Dulmi village</li> </ul>
Land Owners	<ul style="list-style-type: none"> <li>• Four (4) land owners belonging to Ghat Dulmi Village</li> </ul>
Other Primary Stakeholders	<ul style="list-style-type: none"> <li>• Jharkhand Urja Sancharan Nigam Limited</li> <li>• World Bank</li> </ul>
<b>Secondary Stakeholder</b>	
Institutional Stakeholders	<ul style="list-style-type: none"> <li>• District Administration</li> <li>• Chandil Circle</li> </ul>

### ***Consultations with District Administration***

The ERM team held meetings with District Administration at District Collector Office of Saraikela Kharsawan in Chandil, details of which are as follows:

- Consultation was held with Head Clerk at Assistant District Collector Office on 18<sup>th</sup> December, 2017. The person was briefed on the background of the project and the objective and scope of the ESIA Study.

### ***Consultations with Circle Inspector***

ERM team also held meetings with Circle Inspector of Chandil Block on 18<sup>th</sup> December, 2017.

### ***Consultations with Land Owner and Local Communities***

Community consultation is central to every impact assessment study because it helps to gather the opinion of the public on the proposed project and assess its potential effect on the public especially vulnerable groups. Consultations were carried out with land owner to understand the status of their consent for acquisition of private land required for the project. Consultations were also held with community people residing adjacent to the proposed Substation site to assess the extent of impact on common people.

### ***Women Respondents***

Women of the study area villages were also consulted to understand the status of the women in various aspects like access to education facilities, health care facilities and their main occupation, etc.

*Figure 7.1 Consultations with Land Owner in Ghat Dulmi village*



*Consultation with Land Owner*

*Figure 7.2 Consultations with Local Communities*



*Consultation at Ghat Dulmi village*

**Figure 7.3 Consultations with Head Clerk, Assistant District Collector Office**



Consultation at District Collector Office, Saraikela District

The brief outcome of the consultations with the key stakeholder groups are listed below.

### 7.3

#### **SUMMARY OF STAKEHOLDER CONSULTATIONS**

ERM undertook consultations/ meetings with identified stakeholders during the course of the site visit. The intensive deliberations provided a platform for two-way communication between the team of consultants and the stakeholder groups. This in turn helped in developing an understanding of the perceptions of stakeholders with regards to the project and also allowed for a means of recording their feedback. The key points discussed with each of these stakeholders are provided in the table below:

**Table 7.2 Stakeholders and Key Points Discussed**

S. No.	Stakeholder Category	Key Points Discussed	Outcomes in brief
<b>Local Community</b>			
1.1	Land Owner of the identified Private land parcel belonging to Ghat Dulmi village. (Date-18 <sup>th</sup> December, 2017, No of Participants- 2)	<ul style="list-style-type: none"> <li>Details of land parcel for which land owner has provided their consent;</li> <li>Current land use of the land identified for the project;</li> <li>Welfare status of the landowner families</li> </ul>	<ul style="list-style-type: none"> <li>All three (3) land owners belongs to Munda Scheduled Tribe of Ghat Dulmi Village;</li> <li>The Scheduled Tribes (ST) prevalent in the villages are Munda and Santhal Tribes;</li> <li>The land owners have provided their consent for the construction of the project as the current land use of the project site is scrub land and there is no agriculture being practiced from last 10-15 years.</li> <li>There is no involuntary resettlement and economic displacement associated with the project land parcel as the land is free from any encumbrances.</li> <li>All the landowners have land holdings apart from the land identified for the project.</li> <li>During the monsoon, land owners do cultivation on the land parcels owned by them, and for rest period of the year they work as agricultural laborers.</li> </ul>
1.2	Local Community from Ghat Dulmi (Date-18 <sup>th</sup> December, 2017, No of Participants- 5) Khunti Village (Date-18 <sup>th</sup> December, 2017, No of Participants- 7)	<ul style="list-style-type: none"> <li>Current engagement scenario -livelihood options;</li> <li>Basic amenities in the village - electricity, drinking water, etc.;</li> <li>Health scenario in the village and distances of Hospitals/ Clinics;</li> <li>Status of the women in the study area;</li> <li>Perception of local community towards the project.</li> </ul>	<ul style="list-style-type: none"> <li>Most of the people in Ghat Dulmi and Khunti village are involved in agriculture;</li> <li>Most of agricultural land are mono cropped (paddy, vegetables) and agricultural activity is totally dependent on rain water;</li> <li>Ground water is the main source of drinking water. Hand pump (locally termed as '<i>Chappakal</i>') is mainly used for abstracting ground water. Other than that one open well is also present at village level in both the villages;</li> <li>Toilets present only in few household built under 'Swachh Bharat Mission'. Community mainly practice open defecation.</li> <li>Health facility is the main problem area for the local community. There no health facility present in nearby villages. Community has to depend on health facility present in nearby area.</li> <li>There is no such cultural and religious site is present in and around the site.</li> <li>Women of the study area engage themselves in household activities and also practice agriculture on their own land;</li> <li>Malaria is the primary health concern in the area and medicines free of cost is provided through Anganwadi.</li> </ul>

S. No.	Stakeholder Category	Key Points Discussed	Outcomes in brief
1.3	Circle Inspector, Chandil Block (Date-18 <sup>th</sup> December, 2017, No of Participants- 1)	<ul style="list-style-type: none"> <li>Procedure for identification of private land;</li> <li>Association between JUSNL and Circle Inspector;</li> <li>Rate Evaluation in Chandil Circle.</li> </ul>	<ul style="list-style-type: none"> <li>The water body near to the site is utilized for washing clothes as reported by the locals. The local have not expressed any concerns about the possibility of runoff from the construction site may reach the water body;</li> <li>Local people are very positive about the proposed project. They expect some work during construction activity and overall development of the area with generation of local employment for the people;</li> <li>Locals of the village are aware about the coming of the GSS project in their vicinity. It was reported that migrant labour residing in vicinity to the site can create problems for locals;</li> </ul>
1.4	Head Clerk of Assistant District Collector Office, Saraikela Kharsawan District	<ul style="list-style-type: none"> <li>Social Impact Assessment to be undertaken (agency name and inclusions of the report);</li> <li>Categorization of land in the district;</li> <li>Land Evaluation rates for various category of land as per rates in FY 2016-2017;</li> </ul>	<ul style="list-style-type: none"> <li>Process of 'Raiti land' identification in Chandil circle started in July, 2017 after receiving confirmation from MD of JUSNL that private land can also be acquired for Chouka SS if GM land is not available;</li> <li>The Raiti land will be procured as per the procedure laid in The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013);</li> <li>Raiti land parcels in different villages were surveyed considering access to the land, free of encumbrances and no active agriculture (so to avoid any economic displacement);</li> <li>After initial survey and identification of land; land records were checked and land owners were consulted and apprised them about the requirement and purpose of the project;</li> <li>The land identified is mapped and demarcated after taking informal consent from the land owners;</li> <li>As per the current status of land procurement process, Social Impact Assessment for the land is completed and report is issued. Further, Expert Group is formed vide Letter dated 8<sup>th</sup> May 2018 to apprise the SIA report (including social management plan);</li> <li>Rate of the private land will be decided by District Collector officer and registry of any other land parcel for public use in Saraikela district will be checked to evaluate the prevailing market rates.</li> </ul> <ul style="list-style-type: none"> <li>JUSNL has submitted the fees and request for undertaking SIA of the identified Raiti Land parcel on 15<sup>th</sup> December, 2017;</li> <li>Shradha Agricultural Research Development Centre' will undertake the SIA for the proposed land parcel;</li> <li>Generally, land is categorized into four (4) categories; namely residential land, agricultural land, commercial and industrial land;</li> </ul>

S. No.	Stakeholder Category	Key Points Discussed	Outcomes in brief
(Date-18 <sup>th</sup> December, 2017, No of Participants- 1)		<ul style="list-style-type: none"> <li>• Timelines for Completion of Land Acquisition process for the Raiti Land.</li> </ul>	<ul style="list-style-type: none"> <li>• The private land identified for the proposed project will fall under agricultural land for which circle rate is INR 5427 per decimal;</li> <li>• After SIA, 15 days' notice will be sent to Gram Sabha of Ghat Dulmi Village for summarizing findings of SIA in-front of local community and address their concerns if any;</li> <li>• Subsequent to this, finalization of SIA will take place after incorporation of comments and a notification will be issued from District Collector Office for acquiring of land.</li> </ul>

The ESIA for the Chouka GSS site has been undertaken to assess and report the environmental and social impacts of this component of the JPSIP project. In course of the project's planning and the ESIA, project design decision have been made taking into account the need to avoid, minimize and reduce adverse impacts. Further, this Environmental and Social Management Plan (ESMP) provides project and site specific mitigation measures to minimize damage to the local environment and disruption to local communities.

The ESMP comprises of site and activity specific mitigation measures in the form of an *Impact Mitigation Matrix (IMM)* as detailed in *Table 8.1*, structured according to the sequential flow of activities in the project life cycle and accounting for a choice of design criteria, construction methods, practices and logistics, pollution prevention and reduction measures, labour and community related safeguards. In addition, the IMM is supported by several complementary *Environment & Social Action Plans (ESAP)*, which provide customized best practice recommendations to ensure that the impacts of the GSS projects are managed in accordance to national and international best practices and benchmarks.

## 8.1

### MITIGATION MEASURES

The Impact Mitigation Matrix (IMM) is detailed in *Table 8.1*. In order to ensure that the ESMP is being adhered to by Contractors, who will be responsible for implementing the project, provisions with respect to specific mitigation measures have been incorporated as a part of General and Special Conditions of Contract. The General and Special Conditions of Contract are presented in *Annexure 2* and *Annexure 3* respectively.

**Table 8.1 Impact Mitigation Matrix**

Sl. No	Project Phase/Activity	Potential Impacts	Proposed Mitigation Measures	Responsibility
<b>Planning/Preconstruction</b>				
1	Felling of trees on the land	Permission of trees felling and transit permit for Non-Forest land as per Jharkhand Timber and others Forest Produce(Regulation of Transit Rules-2004)- Notification dated 3 <sup>rd</sup> March, 2016.	Permission for felling of trees to be obtained before tree felling.	JUSNL Circle/Divisional Office/External Consultant
2	Substation location and design	Conflict with community	Careful design of site and location of labor camp to avoid any run off to water body located in west of proposed site at a distance of 100m.	Design Consultant/Contractor
3	Design of residential quarter and office at substation	Water/soil pollution	Septic Tank with soak pit to be designed as per IS: 2470 (Part-1) - 1985 (Code of Practice for Installation of Septic Tank).	Design Consultant/Contractor
4	Construction of GSS on Private land	Purchase of private land	<ul style="list-style-type: none"> <li>• Private (Raiti) land will be acquired as per the procedure laid in The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013);</li> <li>• Compensation would be provided as per the Resettlement Action Plan (RAP) prepared for land acquisition;</li> <li>• Compensation should be directly paid from District Collector Office;</li> <li>• There should be no involvement of any other third party for disbursement of payment;</li> <li>• It is to be ensured that compensation is only paid to the legal title holders of the private land after careful inspection which will be conducted by District Collector Office; and</li> <li>• Every land owner should be informed clearly about the purpose of the land acquisition with the timelines of</li> </ul>	JUSNL

Sl. No	Project Phase/Activity	Potential Impacts	Proposed Mitigation Measures	Responsibility
disbursement of the payment and acquisition of the land;				
<b>Construction</b>				
3	Site preparation and construction work	Loss of topsoil	<ul style="list-style-type: none"> <li>Top soil from the construction site will be stripped before commencement of construction work;</li> <li>Top soil will be stored in a dedicated top soil storage site, having adequate mitigation measures for preventing erosion due to runoff;</li> <li>Activities will be scheduled (as far as possible) to avoid extreme weather events, such as heavy rainfall;</li> <li>Top soil will be used for landscaping within the GSS site.</li> </ul>	Contractor
3.1		Noise and vibrations	All equipment/machineries to be regularly maintained to ensure efficient operation	Contractor
3.2			DG sets with acoustic enclosure should be used	Contractor
3.3			Construction work during night time (10 pm to 6 am) to be prohibited. In case of emergency work at night approval of JUSNL Division/ Circle is mandatory	Contractor
3.4		Air Pollution	<p>Water sprinkling to be carried out twice a day during dry season on exposed surface area.</p> <p>Construction work during night time (10 pm to 6 am) to be prohibited to avoid any generation of dust.</p>	Contractor
3.5			Vehicles transporting loose construction/ excavated materials shall be covered with tarpaulin sheets.	Contractor
3.6			Loose construction material/ excavated material shall be stored against any structure or would be kept covered with tarpaulin sheet at the construction site.	Contractor

Sl. No	Project Phase/Activity	Potential Impacts	Proposed Mitigation Measures	Responsibility
3.7			All vehicles utilized in transportation of raw materials and personnel, will have valid Pollution under Control Certificate (PUCC)	Contractor
3.8			Regular maintenance of machines, equipment and vehicles that will be used for construction activities of substation/tower construction	Contractor
3.9		Water/Soil Pollution	Septic tanks and soak pits/modular bio-toilets would be provided at the construction site and labour camp;	Contractor
3.10			<ul style="list-style-type: none"> <li>• A peripheral site drainage channel would be constructed at the beginning of the construction work. The peripheral site drainage channel would be provided with a sedimentation tank to prevent sediments to be carried away by the runoff towards the water body located in west of the site;</li> <li>• Storm water drainage should not be discharged to into any agricultural field (located in south of the site) or the nearby water body (located in west of the site).</li> <li>• The ditches or channels laid outside the substation should be connected to the drain running along Chowka-Kandra Road if any;</li> <li>• It is to be ensured that discharge into storm water channels must not contain any human waste, sullage water or other substances that may cause a nuisance or injury to health.</li> </ul>	Contractor
3.11		Depletion of water resource	<ul style="list-style-type: none"> <li>• Consumption of water would be reduced to the extent possible through the application of water conservation measures and through reuse/recycling of water, wherever possible.</li> <li>• Water requirement for labor consumption will not be met from nearby water body located in west of the site.</li> </ul>	Contractor
4	Community Health and Safety	Injury and sickness of local people	<ul style="list-style-type: none"> <li>• Coordination with local communities for construction schedules;</li> </ul>	Contractor

Sl. No	Project Phase/Activity	Potential Impacts	Proposed Mitigation Measures	Responsibility
4.1		Local Woman Community	<ul style="list-style-type: none"> <li>Access restriction for local people at the construction site.</li> <li>Undertaking regular health check-ups of the work-force and reporting any major illnesses at the earliest to Block health officer for disease control and surveillance.</li> <li>Creating mass and labour awareness on HIV and STDs;</li> <li>Labour Camp should be located away from the village and water body and it should have controlled access for local people.</li> <li>Awareness should be created among the migratory labour that they should not be entered in the village without prior information to the villagers.</li> <li>Local resource like hand pump, bathing ghat (located at 100m of the Site) should not be used by the labours.</li> </ul>	Contractor
5	Occupational health and safety	Injury and sickness of workers	<ul style="list-style-type: none"> <li>Provide safety equipment's (PPEs) for construction workers;</li> <li>Prevent entry of unauthorized person at construction site;</li> <li>Provide training on health and safety to all the workers.</li> </ul>	Contractor
6	Blasting (in case of hard rock formation)	Noise and Vibration	<ul style="list-style-type: none"> <li>Adopt appropriate engineering safeguards to meet the regulatory standard [DGMS Prescribed Permissible Limit of Ground Vibration (refer Annex 6)] for blasting operation.</li> </ul>	Contractor
6.1		Damage to Structure	<ul style="list-style-type: none"> <li>In case there are any damages to the structures due to blasting, the same will be assessed and would be repaired.</li> </ul>	Contractor
6.2		Occupational health and safety	<ul style="list-style-type: none"> <li>Implement mitigation measures to control fly rock;</li> <li>Secure and limit access to blasting areas to qualified personnel involved in, and necessary for, blasting operations;</li> </ul>	Contractor

Sl. No	Project Phase/Activity	Potential Impacts	Proposed Mitigation Measures	Responsibility
7	Health, Hygiene, Safety and Security of Workers in Labour Camp	Labour camp related EHS and Hygiene Issues	<ul style="list-style-type: none"> <li>Arrange for adequate safety measures (as per Explosives Rules, 2008) for transport and storage of explosives;</li> <li>Provide protective equipment to all the personnel engaged in blasting activity.</li> </ul> <p>Facilities would be provided at the labour camp as per provisions of IFC Guidance Note on Worker's Accommodation 2009. Some of the relevant provisions to be complied are as follows:</p> <ol style="list-style-type: none"> <li>1. Worker's accommodation;</li> <li>2. Provision of safe drinking water;</li> <li>3. Appropriate arrangement for cooking;</li> <li>4. Management of waste water and solid waste from the camp site;</li> <li>5. Availability of medical facility (first aid)</li> <li>6. Security arrangement of the camp site.</li> <li>7. Arrangement to register and redress grievance of workers.</li> </ol>	Contractor
7.1		Conflict with local population due to disturbance of water body.	<ul style="list-style-type: none"> <li>Boundary wall or fencing should be constructed before commencement of construction work</li> <li>Labour camp should be located away from the water body;</li> <li>Any kind of waste should not be dumped on the drainage line towards the water body;</li> <li>Collection of storm water in a sedimentation tank.</li> </ul>	Contractor
<b>Operation and Maintenance</b>				
8	Drainage of storm water	Water/Soil Pollution	<ul style="list-style-type: none"> <li>All internal drainage channels from the substation site would be connected to a peripheral site drainage channel.</li> <li>The peripheral site drainage channel would be provided with a sedimentation tank and oil-water separator to prevent sediments and oil &amp; grease to be carried away by the runoff.</li> </ul>	Contractor

Sl. No	Project Phase/Activity	Potential Impacts	Proposed Mitigation Measures	Responsibility
9	Handling and disposal of waste	Water/Soil Pollution	<ul style="list-style-type: none"> <li>• Storm water drainage should not be discharged to into any agricultural field (located in south of the site) and water body (located in west of the site).</li> </ul> <p>The municipal solid waste would be composted in composting pits</p> <ul style="list-style-type: none"> <li>• Authorization for hazardous waste generation (used transformer oil) should be obtained from the Jharkhand State Pollution Control Board <sup>(1)</sup>;</li> <li>• Hazardous waste need to be disposed through CPCB/PCB authorised recyclers;</li> <li>• Annual return [Form 4 Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016] to be submitted to JSPCB.</li> </ul>	JUSNL Subdivision Office JUSNL Subdivision Office
10	Storage and handling of SF6	Emission of most potent GHG causing climate change	<p>Procedure would be put in place for storage, handling and refilling of SF6 gas cylinders. Every refill would be documented and any unusual variation in gas volume would be reported to JPSIP for review and rectification. Each and every leakage will be promptly detected, addressed and documented and reported to the JUSNL Management.</p>	JUSNL Subdivision Office
11	Occupational health and safety of staff	Injury/ mortality to staff during O&M work	<p>During the testing and charging of electrical lines and substation, electricity insulating protective equipment like footwear (ISO 20345: 2004 Part-2), rubber gloves (IS 4770: 1991) would be provided to workers. In addition, provisions of the "Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations 2010" would be adhered to.</p>	JUSNL Subdivision Office

(1) As per recommendation made by the Jharkhand Pollution Control Board

Sl. No	Project Phase/Activity	Potential Impacts	Proposed Mitigation Measures	Responsibility
11.1			Induction training to all the new employee and six monthly refresher training for substation O&M staff would be organised.	JUSNL Subdivision Office
11.2		Injury/ mortality from emergency situation	Preparation of fire emergency action plan and training given to staff on implementing emergency action plan	JUSNL Subdivision Office
12	Community health and safety	Injury/ mortality to public	Integrity of compound wall would be maintained all time	JUSNL Subdivision Office

The supporting ESAP's are as follows:

- Labour Management Plan;
- Occupational Health and Safety Management Plan;
- Gender Action Plan; and
- Citizen Engagement Action Plan.

In addition, Contractors/JSUNL would be expected to work upon customised and site specific Action Plans (e.g., waste management plan, pollution prevention and management plan, top soil management plan etc.), as a part of this ESMP, to demonstrate that the requirements specified therein would be followed during the construction and operational phases of the JSPIP project.

### 8.2.1

#### *Labour Management Action Plan*

It is envisaged that during construction phase of the project, labourers for various jobs such as civil, mechanical and electrical works will be hired through authorised manpower agencies. It is anticipated that the peak labour requirement during construction phase of the project will be approx. 50 persons involving unskilled, semi-skilled and skilled labourers. Unskilled labourers is likely to be recruited from local villages, while semi-skilled and skilled labourers (approx. 10 to 15) may come from outside area. For labourer, who will spend the night onsite, accommodation will be provided.

The influx of construction labourer will have both negative and positive impacts on the nearby community and local environment. The labourer will be accommodated in temporary campsite within the project boundary, which can have significant interface with the nearby communities. This might also put pressure on the local resources such as roads, fuel wood, water etc.

Labour Management Plan has been prepared to minimize potential health, safety and social impacts associated with influx of project workers on the host population and ensure provision of safe and healthy working conditions, for such workers in consistent with IFC PS 2 and 4 requirements and national labour laws. This labour management plan (refer *Annexure 7*) has covered following aspects:

- HR Policy and Employment Contract
- Working Hours
- Non-Discrimination and Equal Opportunity
- Child Labour
- Worker Health & Hygiene
- Wage Payment & Benefits
- Worker Accommodation
- Emergency Preparedness & Response
- Worker Grievance Management
- Inspection & Reporting

## 8.2.2

### *Gender Action Plan*

As discussed in Section 5.12 of this report, there is imbalance in socio-economic profile of men and women in the study area related to sex ratio, literacy rate and workforce participation.

Following measures are suggested during project implementation to improve gender equality:

- Prioritize temporary employment of women in the project construction work, in keeping with the required skill set;
- Ensure equal pay for equal work for women and men workers;
- Provide basic amenities (such as separate toilets for male and female workers, clean water, drinking water facilities, resting place etc.) for male and female workforce at construction site and labour camp;
- Implement provisions of the Sexual Harassment of Women at Workplace Act, 2013;
- Address gender based violence risk through (i) community engagement throughout project lifecycle, (ii) labour management plan, and (iii) grievance redressal mechanism.

#### **Gender Monitoring Indicators:**

Following indicators are proposed to monitor implementation of the gender action plan:

- Number of women employed as a percentage of total persons employed in construction activities;
- Number of women workers earning same wage as men workers, as a percentage of total women workers employed in construction activities;
- Availability of basic amenities and separate toilet at campsite; and
- Constitution of “Internal Compliant Committee” in JUSNL to register sexual harassment case.

## 8.2.3

### *Occupational Health and Safety Management Action Plan*

There may be potential safety hazards for workers or labourers involved during the construction phase of the project. IFC PS2 requires providing the workers with a safe and healthy work environment, taking into account inherent risks and hazards specific to the work.

In view of the above, the construction Contractor shall develop a site specific Health & Safety Management Plan (HSMP) in consistent with all applicable health and safety regulations. The same shall be submitted to JUSNL for approval with progress on the implementation of the plan to be shared with JUSNL on a monthly basis. Template for HSMP, which would be prepared by the contractor is provided in *Annexure 8*.

This plan aims at allowing the engagement of citizens in a systematic manner, which will allow the various stakeholder groups and citizens, to express their individual views, opinions and concerns, while allowing for the project to appropriately respond to them. The plan is aimed at enabling active meaningful engagement with the stakeholder groups, one of the most important mechanisms of which is grievance redressal.

### *Information Disclosure*

Information disclosure is a critical component of the engagement activities to be undertaken for the project. The information disclosure will be undertaken primarily through two means; *preparation and dissemination of briefing material* and *organization of community consultations or group meetings*. Key goal of the disclosure process will be to make information accessible and available to all in a simple and easy to understand manner. The briefing material shall be prepared in local language, i.e. Hindi. Following communication tools shall be designed for effective dissemination of relevant information:

- **Executive Summary of ESIA and ESMP Reports:** This will be kept at the offices of local gram panchayats and also at the project office.
- **Non-technical Summary/Brochures in Hindi:** Sufficient number of the brochures will be circulated during subsequent public meetings/individual consultations during project implementation.
- **Posters on Grievance Mechanism along with contact details:** To be made available at the Gram Panchayat office and other government offices where local people gather frequently.

All documents shall be made available to the public in accordance with relevant provisions of the RTI Act, except when otherwise warranted by legal requirements. Information shall be provided in a timely and regular manner to all stakeholders, affected parties and the general public. The following table provides an understanding of the specific information to be disclosed.

Table 8.2

### *Information Disclosure Plan*

Project Phase/Activity	Disclosed document	Place & Mode for disclosure	Responsible Agency	Target Stakeholder
Planning/ Preparation of DPR, ESIA & EMP	Environmental and Social Impact Assessment Report; Environmental and Social Management Plan	1. JUSNL website 2. World Bank's Infoshop <i>Online, through Project website.</i>	JSUNL Project Office	All citizens

Project Phase/Activity	Disclosed document	Place & Mode for disclosure	Responsible Agency	Target Stakeholder
Construction / Commencement of Construction	Executive Summary of ESIA and ESMP Reports	1. Local Gram Panchayat office 2. Site Office of the EPC Contractor	Contractor along with the JUSNL Circle/Divisional Office	Community People especially the land owners adjacent to the site, Village Panchayat
Construction / Ongoing construction work	Posters on Grievance Mechanism along with contact details	1. Gram Panchayat office and other government offices where local people gather frequently. 2. Construction site and labour campsite	Contractor along with the JUSNL Circle/Divisional Office	People especially the land owners adjacent to the site, people residing near site, Village Panchayat
Construction / Ongoing construction work	Non-technical Summary of Project/ Brochures in Hindi	1. Site Office of the EPC Contractor 2. Places of public meetings/individual consultations	Contractor along with the JUSNL Circle/Divisional Office	Local community
Operation / Commencement of operation	Information about date of start of operation and charging of substation and associated transmission line	1. Gram Panchayat office and other government offices where local people gather frequently. 2. Site Office of the EPC Contractor 3. Places of public meetings/individual consultations	JUSNL Circle/Divisional Office	People especially the land owners adjacent to the site, people residing near site, Village Panchayat
<i>Public Announcement &amp; leaflets</i>				

As part of the information disclosure process, the stakeholders shall be provided with an opportunity to provide feedback and inputs related to the project using the grievance mechanism as defined in *Section 8.6.3*. The feedback should be recorded and documented. This information disclosure process will thus facilitate the transparency, accountability, and legitimacy as well as operations overseen by it.

### ***Consultation Mechanism***

A consultation mechanism has been prepared to ensure involvement of stakeholders' at each stage of project planning and implementation. The mechanism for JPSIP GSS projects is proposed in *Table 8.3*.

**Table 8.3      Summary of Consultation Mechanism**

<b>Project Phase</b>	<b>Activity</b>	<b>Details</b>	<b>Responsible Agency</b>	<b>Target Stakeholders</b>
Planning	Securing of Land for substation Site	Consult to identify sensitivities around the site and common property and agree to mitigations.	Contractor along with the JUSNL Circle/Divisional Office	Community,, especially the land owners adjacent to the site, people residing near site, Revenue Officer, Village Panchayat, Civil Society
Construction	Commencement of Construction	Consult on proposed activity and period of activity- e.g., location of project site, construction and labour camp and associated impacts, ESMP implementation, benefit from the project, procedure for grievance redressal	Contractor along with the site-in-charge (JUSNL)	Do
	Ongoing construction work	Communicate about the progress of construction activity, impact and benefit from the project, record community grievance and redress the same	Contractor along with the site-in-charge (JUSNL)	Do
Operation	Commencement of operation	Communicate about the date of start of operation and charging of substation and associated transmission line	JUSNL Circle/Divisional Office	Do

### 8.2.5

#### *Grievance Mechanism*

A three tier Grievance Mechanism would be used for handling any grievances of the local community related to the project. The Three Tier grievances redressal process is presented in **Box 8.1**.

**Tier1: Circle Level:** The aggrieved stakeholder can file a complaint with the respective Junior Engineer in charge of the site or at the Divisional/Sub-Divisional Offices of JUSNL. The complaints would be attended to by the Electrical Superintending Engineer of the Jamshedpur Circle and all the Executive Engineers and Assistant Engineers in the Chandil Division within 21 days of the filing of Compliant. In case the aggrieved is not satisfied with the solution provided at Tier 1, he may escalate it to Tier 2: Zone Level.

**Tier 2: Zone Level:** The Chief Engineer cum GM of Jamshedpur Zone and the Superintending Engineers of the Jamshedpur Circle would be the members of Tier 2 level. They would hear the aggrieved and also review the proceedings of the Jamshedpur Zone and provide relief to the aggrieved. The entire process would be completed within 45 days of the compliant being referred to Tier II. Unsatisfied with the solution the Complainant can approach the Tier III: GRC Level.

**Tier 3: Grievance Redresses Cell (GRC):** The GRC for JPSIP would be housed at the JPSIP-PIU. The cell would be headed by the Managing Director, JUSNL or his representative not below the rank of Director (Projects). It would have the Director Projects, JUSNL Chief Engineer (Transmission, World Bank Funded Projects), Superintendent Engineer, JPSIP-PIU, Executive Engineer (JPSIP-PIU) as members. The Chief Engineer of Jamshedpur Zone would be an invited member. Hearing the compliant the GRC would provide its decision. The process at the GRC would be completed with 60 days of the complaint being registered in Tier 3.

**Court of Law:** If the grievance/ complaint is not resolved through the GRC mechanism or if the complainant is not satisfied with the resolution provided by GRC, the person may approach the Court of Law.

*Mechanism for Registering and Communicating grievances:* The Junior Engineer responsible for overseeing the activities of the project would be the first point of contact for registering the grievance. He shall be responsible for registering all grievances in the Grievance Form. The Grievance Form (*Annexure 5*) would be placed at the Office of the Junior Engineer of the respective sub-division and would also be available with the Supervisor of the Contractor. The contact number of the Junior Engineer shall also be displayed prominently at the site of the construction activity. The aggrieved person can either fill the Grievance Redress form and submit it at the nearest sub-division office of JUSNL or call up the Junior Engineer and register the grievance. The Junior Engineer in the latter case will complete the grievances Redress Form and pass it to the Tier 1 for redressal. The outcome of the grievances redressal process shall be sent to the person registering the grievance by Registered Post.

## Nodal officer for Grievance Redressal for Chouka GSS

<b>Jamshedpur Circle (Tire 1)</b>	Name: Sri Arun Kumar (Electrical Superintending Engineer) Number: 7070816390
<b>Jamshedpur Zone (Tire 2)</b>	Name: Sri Ashish Kumar (GM-cum-CE) Number: 9431153726
<b>Project Implementation Unit (PIU) (Tire 3)</b>	Name: Sri C S Jha Chief Engineer (Transmission, World Bank Funded Projects) Number: 9431780254
<b>Chandil Division</b>	Name: Sri Sandip Tirkey (Electrical Executive Engineer) Number: 9006117921

### 8.3

#### ***ENVIRONMENTAL MONITORING AND REPORTING***

The monitoring indicators, frequency for measurement and the responsibility for monitoring for each of the mitigations proposed in the management plan are described alongside the mitigation measures proposed in *Table 8.4*. The monitoring of the EMP provisions would be carried out by the respective agencies at a frequency mentioned in the Environmental and Social Management Plan.

For ensuring effective implementation and evaluation of the performance of the environmental mitigation measure a reporting mechanism has been drawn up and presented in *Section 5.3* of the Environmental and Social Management Framework. The reporting of the implementation of the ESMP for this project is presented *Annexure 4*.

**Table 8.4 Monitoring Plan**

Sl. No	Project Phase /Activity	Potential Impacts	Parameter to be monitored/indicator	Monitoring frequency	Responsibility
<b>Planning/Preconstruction</b>					
1	Substation location and design	Conflict with community	Design consideration to avoid interference with water body access which is located in west of the site.	Once- during the detailed design	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
2	Design of residential quarter and office at substation	Water/soil pollution	Provisioning of septic tank with soak pit in substation design to avoid any run off to water body	Once- during the detailed design	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3	Procurement of Private land	Disbursement of Compensation.	Acquisition of land The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013); Disbursement of compensation in timely manner.	Once- before construction	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
<b>Construction</b>					
4	Site preparation and construction work	Loss of topsoil	Practice adopted to store and reuse topsoil which is removed from the construction site	Every week	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.1		Noise and vibrations	Maintenance log book of vehicle/machinery , Number of equipment /vehicle undergoing regular maintenance	Every week	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.2			Presence of acoustic enclosure in DG set	Every week	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.3			How many night time approval was taken	Every week	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.4		Air Pollution	Water sprinkling at dust generating area	Every week	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.5			Tarpaulin cover on vehicle carrying loose construction/excavated materials	Every week	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.6			Tarpaulin cover on loose construction/excavated materials	Every week	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.7			Number of vehicle not having valid PUCC certificate	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU

Sl. No	Project Phase /Activity	Potential Impacts	Parameter to be monitored/indicator	Monitoring frequency	Responsibility
3.8			Maintenance log book of vehicle/machinery, Number of equipment /vehicle undergoing regular maintenance.	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.9		Water/Soil Pollution	Availability of Septic tanks and soak pits/modular bio-toilets	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.10			Availability of peripheral site drainage channel, sedimentation tank	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.11		Depletion of water resource	Water conservation measures adopted at construction and labour camp	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
3.12		Alteration / diversion of natural drainage channel	No usage of water from water body	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
4	Community Health and Safety	Injury and sickness of local people	Diversion of natural drainage channel passing through the GSS Site	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
			Number of accidents of local people (if any) at construction site, number of grievance recorded	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
4.1		Local Woman Community	Review of document related to regular health check-up of the work force		
			Review of document related to awareness camp organized periodically		
			Awareness camp to be conducted	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
5	Occupational health and safety	Injury and sickness of workers	Information on migrant labor visiting the village		
			Awareness of workers, use of PPE by workers	Every 15 days	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
6	Blasting (in case of hard rock formation)	Noise and Vibration	Measures adopted to control noise and vibration at blasting site	Every 15 days	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
6.1		Damage to Structure	Record of any damaged and repaired structure	Every one month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
6.2		Occupational health and safety	Measures adopted to control fly rock, safety measures adopted for transport and storage of explosives, use of	Weekly during blasting work	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU

Sl. No	Project Phase /Activity	Potential Impacts	Parameter to be monitored/indicator	Monitoring frequency	Responsibility
7	Health, Hygiene, Safety and Security of Workers in Labour Camp	Labour camp related EHS and Hygiene Issues	protective equipment, measures adopted for access restriction at blasting site Condition of labour camp, awareness of workers, complainant register	Every 15 days	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
7.1		Conflict with local population due to disturbance on religious/cultural site	Any registered community grievance regarding the disturbance of cremation ground	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
<b>Operation and Maintenance</b>					
8	Drainage of storm water	Water/Soil Pollution	Availability of internal and peripheral site drainage channel, sedimentation tank and oil-water separator at outfall of peripheral site drainage channel	Every Month	JUSNL Subdivision/Division/Circle Office/ JPSIP PIU
9	Handling and disposal of waste	Water/Soil Pollution	Municipal disposal arrangement for GSS, Availability of composting pit		JUSNL Division/Circle/ JPSIP PIU
10	Storage and handling of SF6	Emission of most potent GHG causing climate change	Availability of authorization letter, Annual return (Form 4)	Annually	JUSNL Division/Circle/ JPSIP PIU
11	Occupational health and safety of staff	Injury/ mortality to staff during O&M work	Leakage and gas density/level Accident-Incident register	Monthly	JUSNL Division/Circle/ JPSIP PIU
11.1			Document pertaining to training/awareness programs and mock drills/awareness level of staff engaged in O&M work of substation	Monthly	JUSNL Division/Circle/ JPSIP PIU
11.2		Injury/ mortality from emergency situation	Accident-Incident list	Monthly	JUSNL Division/Circle Office/ JUSNL PIU
12	Community health and safety	Injury/ mortality to public	Accident-Incident list	Monthly	JUSNL Division/Circle/ Head Office

For the implementation of the Jharkhand Power System Improvement Project JUSNL has developed a Project Implementation Unit (JPSIP PIU). The JPSIP PIU is located at the JUSNL headquarters in Ranchi and is headed by the Chief Engineer (Transmission, World Bank Funded Projects). Presently it includes four other members. The JPSIP PIU would also be responsible for driving the implementation of the E&S safeguards in JPSIP.

At the field level the Divisional/ Circle offices of JUSNL, who would be responsible for implementing the technical aspects of the JPSIP; he would also be responsible for the implementation of the E&S safeguards. The Junior Engineer of the respective division of JUSNL responsible for overseeing the project would also be responsible for overseeing that the provisions of the ESMP is being implemented by the Contractor. The Chief Engineer cum GM of the Jamshedpur Zone however has the ultimate responsibility of ensuring that the project is implemented successfully and also ensuring the project's desired environmental and social outcomes are attained. In addition the Environmental Officer and the Social Officer at the Project Implementation Unit of JPSIP would also undertake periodic site visits to oversee the operations and suggest corrective actions in case it is warranted.

In addition, the Contractor implementing the subprojects would also have an Environment and Social personnel to actually carry out the E&S safeguards on the ground.

The roles and responsibilities of various officials of JUNSL for carrying out activities related implementation of ESMP, Forest Clearance, Land/ Rehabilitation & Resettlement (R&R) and obtaining ROW are detailed in below table.

**Table 8.5** *Responsibility Matrix*

Sl. No.	Designated Official	Role
1.	Electrical Superintending Engineer (ESE) of Jamshedpur Transmission Circle	<ul style="list-style-type: none"> <li>Overall responsibility for implementation of ESIA and ESMP.</li> <li>ESE shall be responsible for obtaining Forest Clearance, undertaking Land/ R&amp;R and ROW clearance and shall carry out activities such as submitting proposals, coordinating with concerned authorities, responding to clarifications, making payments etc.</li> <li>ESE shall be supported by EEE, AEE and JEE. In addition, there shall be a Nodal Officer (EEE rank) in each Circle for environmental and social activities.</li> </ul>
2.	Chief Engineer (Transmission WB Projects) in HQ	<ul style="list-style-type: none"> <li>Monitoring implementation of ESMP.</li> <li>Obtaining approvals for release of payments for forest, land, compensation etc. to ESE's Office</li> </ul>
3.	Project Monitoring Consultant (PMC)	<ul style="list-style-type: none"> <li>Support monitoring of implementation of ESMP.</li> <li>Coordinate with concerned ESE's Office to obtain progress and status reports.</li> </ul>

It is understood from the ESIA study that the Project activities related to the development of the substation may create some impacts on air quality, community health and safety due to construction of labour camp and increased run off during the construction phase. However all these impacts are temporary and can be mitigated with proper mitigation measures. Further, the development of the 132/33 KV substation would improve the availability of quality power in the region.

The Environmental and Social Management Plan (ESMP) describes mitigation measures for impacts specific to the Project activities and also discusses implementation mechanisms. The implementation of the mitigation measures suggested can help in managing the negative impacts on air quality, ground water etc. whereas the economic opportunities in terms of local employment are assessed as positive.

Key mitigation measures proposed for addressing impacts include:

- Acquisition of Private (Raiti) land as per the procedure laid in The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013);
- Permission of trees felling and transit permit for Non-Forest land to be obtained as per Jharkhand Timber and others Forest Produce(Regulation of Transit Rules-2004)- Notification dated 3rd March, 2016;
- Design considerations to avoid interference with water body located in west direction of the proposed site;
- Dust emissions control measures during construction phase such as water sprinkling in the village road;
- Provision of peripheral site drainage channels to prevent erosion and protect the pond located just outside the western boundary of the proposed site;
- Coordination with local communities for construction schedules;
- prior information about incoming vehicles carrying construction materials;
- Deployment of traffic marshals and access restriction for local people at the construction site; and
- Development of grievance redressal mechanism to receive and address any issues or concerns that might be reported by the neighboring community.

To conclude, implementation of ESMP will help the Project to comply with national/state regulatory framework as well as to meet World Bank's requirement of the environmental and social performance.

## Annexure 1

### List of Sub Projects in JPSIP

## PHASE-I

Sl. No	Name of GSS / Transmission Line	Capacity	Length of TL
<b>Scheme - D</b>			
1	132/33 Kv GSS Irba (2x50 MVA)	100 MVA	
2	132 KV D/C 3 ph Irba- Kanke Transmission Line		23.598 km
3	132 kV D/C 3 Ph. Irba - Ratu Transmission line		42.678 km
<b>Scheme - E</b>			
1	132/33 kV GSS at Shikaripara (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Dumka - Shikaripara Transmission line		51.30 km
<b>Scheme - H</b>			
1	132/33 kV GSS at Silli (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Silli - Chouka Transmission line		52.185 km
<b>Scheme - O</b>			
1	132/33 kV GSS at Mahuadandr (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Latehar- Mahuadandr Transmission line		86.72 km
<b>Scheme - P</b>			
1	132/33 kV GSS at Angada (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Silli – Angada Transmission line		39.048 km
3	132 kV D/C 3 Ph. Angada – Irba Transmission line		34.529 km
<b>Scheme - S</b>			
1	132/33 kV GSS at Jarmundi (2x50 MVA)	100	
2	LILO of 132 kV D/C 3 Ph. Dumka-Deoghar Transmission line at GSS Jarmundi		3.69 km
<b>Scheme - X</b>			
1	132/33 kV GSS at Chakuliya (2x50 MVA)	100	
2	LILO of both 132kV Bahragora - Dhalbhumgarh Transmission line at GSS Chakuliya		21.64 km
<b>Scheme - Q</b>			
1	132/33 kV GSS at Hansdiha (2x50 MVA)	100	
2	LILO of 132 kV Lalmatia - Dumka Transmission line at GSS Hansdiha		3.36 km
3	132 kV D/C Hansdiha - Jasidih Transmission line		43 km
<b>Scheme - T</b>			
1	132/33 kV GSS at Amarapara (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Amarapara – Godda Transmission line		67.45 km
3	132 kV D/C 3 Ph. Amarapara - Pakur Trans. line		24.75 km

## PHASE-II

Sl. No	Name of GSS / Transmission Line	Capacity	Length of TL
<b>Scheme-A</b>			
1	132/33 kV GSS at Chainpur (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Chainpur - Mahuandanr Tran. line		53.63 km
3	LILO of 132 kV Gumla - Simdega Transmission line at GSS Chainpur		10 km
<b>Scheme - G</b>			
1	132/33 KV GSS Sundarnagar (2x50 MVA)	100	
2	LILO of 132 kV Ramchandrapur - Jadugoda Old Transmission line at GSS Sundarnagar		17.50 km
<b>Scheme - K</b>			
1	132/33 kV GSS at Ramkanda (2 x 50 MVA)	100	
2	32 kV D/C 3 Ph. Ramkanda - Garhwa (220KV GSS) Transmission line		60 km
<b>Scheme - N</b>			
1	132/33 kV GSS at Chhatarpur (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Chhatarpur - Daltonganj (220 kV GSS) Transmission line		41.53 km
3	132 kV D/C 3 Ph. Chhatarpur - Japla Transmission line		29.09 km
<b>Scheme - W</b>			
1	132/33 kV GSS at Kolebira (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Kolebira-Kamdara Transmission line		38.63 km
3	132 kV D/C 3 Ph. Kolebira - Simdega Transmission line		16.44 km
<b>Scheme - AA</b>			
1	132/33 kV GSS at Chouka(2x50 MVA)	100	
2	132 kV D/C 3 Ph. Chouka - Tamar Transmission line		27.60 km
<b>Scheme - R</b>			
1	LILO of one Ckt of 132 KV D/C 3 ph Chaibasa-Manoharpur Transmission Line at 132/33 KV GS/S at Goelkera including with 2 nos. of 132 kV bay		14 km

## PHASE-III

Sl. No	Name of GSS / Transmission Line	Capacity	Length of TL
<b>Scheme - F</b>			
1	132/33 kV GSS at Meral ( 2 x 50 MVA)	100	
<b>Scheme - I</b>			
1	132/33 kV GSS at Panki (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Chhatarpur - Panki Transmission line		50 km
<b>Scheme - J</b>			
1	132/33 kV GSS at Nagar Untari (2 x 50 MVA)	100	
2	132 kV D/C 3 Ph. Nagar Untari - Garhwa Trans. line		15.85 km
<b>Scheme - V</b>			
1	132/33 kV GSS at Kandra (2x50 MVA)	100	
2	LILO of 132 kV D/C 3 Ph. Chandil - Rajkharsawan Transmission line at Kandra		10 km
<b>Scheme - Y</b>			
1	132/33 kV GSS at Kurdeg (2x50 MVA)	100	
2	132 kV D/C 3 Ph. Kurdeg - 220/132 kV Simdega GSS Transmission line		45 km
<b>Scheme - Z</b>			
1	132 kV GSS at Chandwa (2x50 MVA)	100	
2	132 kV D/C Chandwa - Latehar Transmission Line		30 km
<b>Additional Scheme-1</b>			
1	132/33kV GSS at Sarath (2 x 50 MVA)	100	
2	132k DC Sarath - Palojori TL		20.10 km
4	132k DC Sarath - Chitra TL		15.14 km
<b>Additional Scheme-2</b>			
1	132/33kV GSS at Surda (2 x 50 MVA)	100	
2	132 kV D/C Surda - Jadugoda Transmission line		20.81 km
3	132 kV D/C Surda - Musabani (DVC) Transmission line		4.6 km
4	132 kV D/C Surda - Bharagora Transmission line		43.04 km
<b>Additional Scheme-3</b>			
1	132/33kV GSS at Naudiha (Palamu) (2 50 MVA)	100	
3	132k DC Naudiha - Chhatarpur TL		18.49 km
<b>Additional Scheme-4</b>			
1	132/33kV GSS at Narayanpur (Devipur) (2 x 50 MVA)	100	
2	LILO of 132kV DC Jamtara - Madhupur TL at Narayanpur (Devipur)		27 km

Annexure 2

## General Conditions of Contract

## 1.1 GENERAL EHS CONDITIONS

GCC 1.1

- i. The contractor shall take all necessary measures and precautions, otherwise ensure that the execution of the works and all associated operations on-site or of-site are carried out in conformity with statutory and regulatory environmental health safety requirements including those prescribed elsewhere in the Environmental and Social Management Framework and the Environmental and Social Management Plans attached to the report
- ii. The Contractor shall ensure that the construction site will be secured by means of fencing to prevent unauthorized entry into the site. The Contractor shall also ensure that the access to the construction site is restricted to public at all times.
- iii. The Contractor shall take all the measures and precautions to avoid any nuisance or disturbance arising from execution of the work. This shall, wherever possible, be achieved by suppression of the nuisance at source rather than abatement of the nuisance once generated. The provisions of the Environmental, Social Health Safety Management Plan would be implemented for the suppression of nuisance, but it shall not be limited to these provisions of the ESMP. The provisions of this sub-clause shall however, be disregarded in respect of emergency work required for saving life or the safety of the works.
- iv. In event of any spoil or debris or silt from the sites being deposited on adjacent land, the Contractor shall immediately remove such spoils, debris or silt and restore the affected area to its original state to the satisfaction of the JUSNL. No debris should be dumped on the community land like Gochars, thans etc. In case the extra excavated earth is placed for levelling the playground the same should be done with the written consent of the community. Such materials should be spread in such a manner as to limit subsequent erosion and shall be re-vegetated as existing ground cover dictates. JUSNL should be absolved of any liabilities arising such works which are undertaken
- v. Surplus excavated material from the tower footing shall be carried out to the substation for the purpose of filling in case the tower is located within 15 kms of the substation area. The cost of hauling the material shall be considered within the cost for the earthwork for the substation. Additional borrow pits shall only be allowed by the Junior Engineer, only after the excavated material has been exhausted. In case this is not feasible the contractor shall remove the excess excavated material from the area of the construction of tower footing before the completion of the tower erection. All other provisions specified in the EMP shall be implemented.
- vi. The Contractor should contain requisite quantity and type of spill kits to control the spills of fuel and other oils e.g. transformer oil to prevent the pollutant from spreading either outside the area of the spill or into the ground.

GCC 1.2

- a) All fuel and chemical storage shall be sited on an impervious base within an embanked area and secured by fencing. The storage area shall be located away from any watercourse or wetland. The base and walls of the embankment shall be impermeable and of sufficient capacity to contain 110% of the volume of tanks/ containers taken together.

In case of filling/ refuelling of fuel or oil, filling and refuelling shall be strictly controlled and subjected to formal procedures. The contents of any

tank or drum shall be clearly marked. Measures shall be taken to ensure that no contamination happens or discharges enter any drain or watercourses. All discharge from the Oil storage areas shall be passed through a Oil Water Separator (OWS) before it being discharged outside.

b) All internal drainage channels from the site would be connected to a peripheral site drainage channel. The peripheral site drainage channel would be provided with a sedimentation tank and oil-water separator to prevent sediments and oil & grease to be carried away by the runoff.

GCC 1.3

- (i) All water and liquid waste products arising on the sites shall be collected and disposed off at location onsite or offsite and in a manner that shall not cause nuisance or pollution.
- (ii) The Contractor shall not discharge or deposit any matter arising from the execution of the works into any place except at the designated places without the permission of the Environmental and Social Officer and the regulatory authorities concerned.

GCC 1.4

- (i) The Contractor shall carry out dust suppression by sprinkling of water or methods of working to minimise dust, gaseous or other air born emissions and carry out the works in such a manner as to minimise adverse impacts on air quality. Sprinkling of water shall be carried out twice a day on exposed surface area during dry season.
- (ii) Stockpiles of materials should be sited in sheltered areas or within hoarding, away from sensitive areas. Stockpiles of friable materials shall be covered with clean tarpaulins with application of sprayed water during dry and windy weather. Stockpiles of debris shall be dampened prior to their movement, except where this is contrary to the specifications.
- (iii) Any vehicle with an open load carrying area used for transport of potentially dust producing materials shall have properly fitting side and tailboards. Materials having potential to produce dust shall not be loaded to a level higher than the side and tail boards and shall be covered with clean tarpaulin in good condition. The tarpaulin should be properly secured and extended to at least 300 mm over the edges of the sideboard and tailboard.
- (iv) During high wind, no dust generating operations shall be permitted within 200m of residential areas having regard to the prevailing direction of the wind.
- (v) Construction vehicles and machinery shall be kept in good working order and engines turned off when not in use. Appropriate measures shall be taken to limit exhaust emissions from construction vehicles, machinery and plant and the contractor shall include details of such proposed measures in the mitigation and monitoring plan to be submitted to the Employer or his representative.
- (vi) All vehicle employed in the project shall have valid Pollution under Control (PUC) Certificate. The Contractor should maintain PUC Certificate log book on a regular basis and shall provide it to the Employer or his representation for inspection when asked for.

GCC 1.5 (i) The Contractor shall consider noise as an environmental concern in his planning and during execution of the works.

(ii) The Contractor shall use plant and equipment conforming to National and International standards and directives on noise, vibrations and emissions.

(iii) The Contractor shall take all necessary measures to ensure that operation of all mechanical equipment and construction processes on and off the site shall not cause any unnecessary or excessive noise, taking into account all applicable environmental requirements. The Contractor shall use all necessary measures and shall maintain all plant and silencing equipment in good condition so as to minimise the noise emissions during construction works.

(iv) The operations of the Contractor which is likely to generate noise shall be restricted during the night time (22.00 hrs to 6.00 hrs) especially if it is near residential areas.

GCC 1.6 (i) The Contractor shall take all necessary measures to protect any archaeological finds or antiquities as required.

(ii) Where antiquities are shown on the drawing or otherwise identified during the course of the works, these shall be protected by means of suitable fencing and barriers to the satisfaction of the EHS Engineer of JUSNL. The Contractor shall abide by the provisions of the Indian Treasure Trove Act, 1878, Jharkhand Ancient Monuments and Archaeological Sites, Remains and Art Treasures Act, 2016.

GCC 1.7 On completion of the works, the Contractor shall reinstate all areas with natural vegetation to the satisfaction of the Environmental Officer of JPSIP PIU. Where directed by the Environment Officer the Contractor shall improve and reinstate the land on which informal roadside service area have been established by removing all debris and contaminated soils, re-grading to natural ground levels and re-establishing the natural vegetation where appropriate. All debris and contaminated materials shall be disposed off site as approved by the Environment Officer at the PIU.

GCC 1.8 The Contractor shall ensure that the labour accommodation within the site /fly camp/ laydown area is provided with toilets/ modular bio-toilets, septic tank and soak pits. The municipal solid waste generated shall be composted in pits located within the site.

GCC 1.9 The Contractor shall adopt all possible means to ensure that groundwater usage is minimised during the construction activities. The bore well/s used for extraction of water for construction purpose shall be provided with water metres to monitor the ground water abstraction. The Contractor should maintain a daily water abstraction log book of water extracted from the bore well. Daily water abstraction log book should be produced to the employer or his representative on demand.

## 1.2 COMPLIANCE WITH LABOUR REGULATIONS

GCC 2.1 During continuance of the contract, the Contractor and his sub-contractors shall abide at all times by all applicable existing labour enactments and rules made thereunder, regulations notifications and byelaws of the State or Central Government or local authority and any other labour law (including rules), regulations byelaws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. The employees of the Contractor and the Sub-contractor in no case shall be treated as the employees of the Employer at any point of time.

GCC 2.2 The Contractor shall keep JUSNL indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments.

GCC 2.3 If the Employer is caused to pay under any law as principal employer such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications / byelaws/Acts / Rules/regulations including amendments, if any, on the part of the Contractor, the Employer shall have the right to deduct any money due to the Contractor under this contract or any other contract with the employer including his amount of performance security for adjusting the aforesaid payment. The Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

GCC 2.4 The contractor shall abide by the provision of the following acts:

- a) Workmen Compensation Act 1923
- b) Payment of Gratuity Act 1972
- c) Employee P.F. and Miscellaneous Revision Act 1952
- d) Maternity Benefit Act 1951:
- e) Contract Labour (Regulation & Abolition) Act 1070
- f) Minimum Wages Act 1948
- g) Payment of Wages Act 1936
- h) Equal Remuneration Art 1970
- i) Payment of Bonus Act 1965
- j) Industrial Dispute Act 1947
- k) Industrial Employment (Standing Orders) Act 1946
- l) Trade Unions Act 1926
- m) Child Labour (Prohibition & Regulation) Act 1986
- n) Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service Act 1979
- o) The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996
- p) Factories Act 1948

GCC 2.5 During continuance of the contract, the Contractor and his sub-contractors shall abide at all times by all applicable existing World Bank Group labour requirements (refer **Annex11** Management of Labour Influx of the Environmental and Social Management Framework)

## COMPLIANCE TO ENVIRONMENTAL & SOCIAL REGULATIONS

GCC 3.1 If the employer is caused to pay under any law as proponent such amounts as may be necessary to cause or observe, or for non-compliance of the provisions or negligence of the Contractor for any provision stipulated in the notifications / byelaws/ Acts / Rules/regulations including amendments and Orders of the Hon'ble National Green Tribunal/ Hon'rble Court of Law, if any, on the part of the Contractor, the Employer shall have the right to deduct any money due to the Contractor under this contract or any other contract with the employer including his amount of performance security for adjusting the aforesaid payment.

The Contractor shall ensure to adhered provisions of the following acts;

- a) The Water (Prevention and Control of Pollution) Act, 1974
- b) The Air (Prevention and Control of Pollution) Act, 1981
- c) The Environment (Protection) Act 1986
- d) The Public Liability Insurance Act, 1991
- e) Wild Life Protection Act, 1972, as amended
- f) Forest Conservation Act, 1980 & Forest Conservation Rules, 2003 (as amended) & corresponding orders and judgements
- g) Jharkhand Biological Diversity Rules 2007
- h) Ancient Monuments & Archaeological Sites and Remains Act, 1958
- i) Indian Treasure Trove Act, 1878
- j) Jharkhand Ancient Monuments and Archaeological Sites, Remains and Art Treasures Act, 2016
- k) Jharkhand Timber and Other Forest Produce (Transit and Regulation) Rules, 2004
- l) Ozone Depleting Substances (Regulation and Control) Rules, 2000
- m) Chota- Nagpur Tenancy Act, 1908
- n) Santal Pargana Tenancy Act, 1949
- o) Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
- p) E-Waste (Management) Rules, 2016
- q) Battery (Management & Handling) Rules 2001
- r) Ozone Depleting Substances (Regulation and Control) Rules, 2000
- s) Central Ground Water Authority (CGWA) Public Notice dated 4th January 2017
- t) Regulation of Polychlorinated Biphenyls Order, 2016

GCC 3.2

- (i) If the Employer is caused to pay under any law as principal employer such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications / byelaws/ Acts / Rules/regulations including amendments, if any, on the part of the Contractor, the Employer shall have the right to deduct any money due to the Contractor under this contract or any other contract with the employer including his amount of performance security for adjusting the aforesaid payment. The Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.
- (ii) The Contractor shall (a) abide by the Environmental Management Plan (b) carry out all the monitoring and mitigation measures set forth in the environmental management plan and (c) allocate the budget required to ensure that such measures are carried out. The Contractor

shall submit to the Employer Monthly Reports on the carrying out of such measures.

- (iii) The Contractor shall adequately record the conditions of roads, agricultural land and other infrastructure prior to transport of material and construction commencement before start of the construction activity. In case of deterioration during the construction activity the Contractor shall fully reinstate pathways, other local infrastructure and agricultural land to at-least their pre-project condition upon construction completion. In case of any grievance of the community regarding damage to any common property e.g. roads/ walkways/ pathways, bridges, wells or any place of worship due to any construction activity; it shall be the responsibility of the Contractor to reinstate the same to its original condition (before the start of construction) unless other he can prove that the same was not constructed due to his activities.
- (iv) The Contractor shall undertake detailed survey of the affected persons during transmission line alignment finalization under the Project, where applicable. The Contractor shall provide the information to the employer for records and use wherever required. Any compensation due to the damage of property shall be commensurate to the provisions in the entitlement matrix.
- (v) The Contractor shall include a Social Officer in his team. The Social Officer shall explain to the land owners the process of the procurement of land through a negotiated settlement process.
- (vi) The Contractor shall conduct health and safety programme for workers employed under the Contract and shall include information on the risk of sexually transmitted diseases, including HIV/ AIDS in such programs.

- GCC 3.3 The procurement or deployment of any machinery by the Contractor for the project should be in accordance to the environmental rules and regulations in place at the time of implementation. All DG sets should conform to the CPCB standards for noise and emission mentioned under the Environment (Protection) Act, 1986.
- GCC 3.4 The Contractor shall procure transformer oil in conformance to the Regulation of Polychlorinated Biphenyls Order, 2016.
- GCC 3.5 The Contractor shall procure CFC free equipment in conformance to the Government of India Guidelines

GCC4.1 The Contractor shall observe all applicable regulations regarding safety on the Site.  
 Unless otherwise agreed, the Contractor shall, from the commencement of work on Site until handing over, provide:  
 a) fencing, lighting, guarding, putting up reflective strips and watching of the Works wherever required, and  
 b) temporary roadways, footways, guards and fences which may be necessary for the accommodation and protection of Employer / his representatives and occupiers of adjacent property, the public and others.

GCC 4.2 The Contractor shall ensure proper safety of all the workmen, materials, plant and equipment belonging to him or to the employer or to others, working at the Site. The Contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislations or as may be directed by the Engineer of JUSNL or as he may deem necessary.

GCC 4.3 The Contractor will notify well in advance to the JUSNL Division / JPSIP PIU of his intention to bring to the site any container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals which may involve hazards. The JUSNL Division / JPSIP PIU shall have the right to prescribe the conditions, under which such container is to be stored, handled and used during the performance of the works and the Contractor shall strictly adhere to and comply with such instructions. The JUSNL Division / JPSIP PIU shall have the right at his sole discretion to inspect any such container or such construction plant/equipment for which material in the container is required to be used and if in his opinion, its use is not safe, he may forbid its use. No claim due to such prohibition shall be entertained by JUSNL. JUSNL shall not entertain any claim of the Contractor towards additional safety provisions/conditions to be provided for/constructed as per the JUSNL Division / JUSNL PIU Instructions. Further, any such decision of the JUSNL Division / JUSNL PIU shall not, in any way, absolve the Contractor of his responsibilities and in case use of such a container or entry thereof into the Site area is forbidden by the JUSNL Division / JUSNL PIU, the Contractor shall use alternative methods with the approval of the JUSNL Division / JUSNL PIU without any cost implication to the Employer or extension of work schedule.

GCC 4.4 All equipment used in construction and erection by Contractor shall meet Indian/International Standards and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipment shall be strictly operated and maintained by the Contractor in accordance with manufacturer's Operation Manual.

GCC 4.5 Periodical examinations and all tests for all lifting/hoisting equipment & tackles shall be carried-out. In accordance with the relevant provisions of Factories Act 1948, Indian Electricity Act 1910 and associated Laws/Rules in force from time to time. A register of such examinations and tests shall be properly maintained by the Contractor and will be promptly produced as and when desired by the JUSNL Division / JUSNL PIU or by the person authorised by him.

GCC 4.6 The Contractor shall provide suitable personal safety equipment of prescribed standard to all employees and workmen according to the Job Safety Analysis carried out by the Contractor, or as may be directed by the Employer. The Employer or his representative will also have right to examine these safety equipment to determine their suitability, reliability, acceptability and adaptability. The Contractor shall arrange biannual safety training for all workers.

GCC 4.7 The Contractor shall provide safe working conditions to all workmen and employees at the Site including safe means of access, railings, stairs, ladders, scaffoldings etc. The scaffoldings shall be erected under the control and supervision of an experienced and competent person. For erection, good and standard quality of material only shall be used by the Contractor.

GCC 4.8 The Contractor shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to the Owner or other Contractors under any circumstances, whatsoever, unless expressly permitted in writing by the Employer to handle such fuses, wiring or electrical equipment.

GCC 4.9 Before the Contractor connects any electrical appliances to any plug or socket belonging to the other Contractor or the Employer , he shall:

- Satisfy the JUSNL Division /JUSNL PIU that the appliance is in good working condition;
- Inform the JUSNL Division /JUSNL PIU of the maximum current rating, voltage and phases of the appliances;
- Obtain permission of the JUSNL Division /JUSNL PIU detailing the sockets to which the appliances may be connected.

GCC 4.10 The JUSNL Division /JUSNL PIU will not grant permission to connect until he is satisfied that:

- The appliance is in good condition and is fitted with suitable plug;
- The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.

GCC 4.11 No electric cable in use by the Contractor/Owner will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.

GCC 4.12 No repair work shall be carried out on any live equipment. The equipment must be declared safe by the JUSNL Division /JUSNL PIU and a permit to work shall be issued by the JUSNL Division /JUSNL PIU before any repair work is carried out by the contractor. While working on electric lines/equipment, whether live or dead, suitable type and sufficient quantity of tools will have to be provided by the Contractor to electricians/workmen/officers.

GCC 4.13 The Contractors shall employ necessary number of qualified, full time electricians/electrical supervisors to maintain his temporary electrical installation.

GCC 4.14 The Contractor employing more than 100 workmen whether temporary, casual, probationer, regular or permanent or on contract, either directly or through the Contractor shall employ at least one full time officer exclusively as EHS Officer (who shall have a Bachelors degree in Environmental Management/ Environmental Engineering /Environmental Science with additional qualification in safety) to supervise safety aspects of the equipment and workmen, who will coordinate with the Environmental Officer and Social Officer . In case of work being carried out through Sub-Contractors, the Sub-Contractor's workmen/employees will also be considered as the Contractor's employees/workmen for the above purpose. Contractor shall employ a social team as it may deem fit. The Social Team would be led by the Social Officer (who shall have degree Sociology/Anthropology/Economics or any other Social Science with experience in handling resettlement of multilateral funded projects) and would assist the Contractor to carry out negotiation with the land owners. The name and address of such EHS Officer and Social Officer of the Contractor will be promptly informed in writing to JUSNL with a copy to JUSNL Division /JUSNL PIU before he starts work or immediately after any change of the incumbent is made during currency of the Contract.

GCC 4.15 In case any accident occurs during the construction/ erection or other associated activities undertaken by the Contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever. It shall be the responsibility of the Contractor to promptly inform the same to the JUSNL Division /JUSNL PIU in prescribed form and also to all the authorities envisaged under the applicable laws.

GCC 4.16 The JUSNL Division /JUSNL PIU shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the Contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove shortcomings promptly. The Contractor after stopping the specific work can, if felt necessary, appeal against the order of stoppage of work to the JUSNL Division /JUSNL PIU within 3 days of such stoppage of work and decision of the JUSNL Division /JUSNL PIU in this respect shall be conclusive and binding on the Contractor.

#### **1.4 EHS RULES**

GCC 5.1 Each employee of the Contractor shall be provided with initial indoctrination regarding Environment Health and Safety by the Contractor, so as to enable him to conduct his work in a safe and sustainable manner.

GCC. 5.2 No employee shall be given a new assignment of work unfamiliar to him without proper introduction as to the hazards incident thereto, both to himself and his fellow employees.

GCC 5.3 Under no circumstances shall an employee hurry or take unnecessary chance when working under hazardous conditions.

GCC 5.4 Employees must not leave naked fires unattended. Smoking shall not be permitted around fire prone areas and adequate firefighting equipment shall be provided at crucial location.

Employee should also not leave any equipment/machinery /activity unattended if it has the potential to cause harm to the environment

GCC 5.5 Employees under the influence of any intoxicating beverage, even to the slightest degree shall not be permitted to remain at work.

GCC 5.6 The contractor shall make suitable arrangement at every work site for rendering prompt and sufficient first aid to the injured.

GCC 5.7 The staircases and passageways shall be adequately lighted.

GCC 5.8 The employees when working around moving machinery must not be permitted to wear loose garments. Safety shoes, safety helmets (IS 2925: 1984) are recommended when working in the construction site or any activity related to the project where materials or tools are likely to fall. When working at height the Contractor shall ensure that all employees use full body harness (as per IS 3521: 1999). Only experienced workers shall be permitted to go behind guard rails or to clean around energized or moving equipment. The employer shall at periodic intervals or as he may deem fit inspect these equipment and ask the Contractor for replacement of the personal safety equipment.

GCC 5.9 The employees must use the standard protection equipment intended for each job. Each piece of equipment shall be inspected before and after it is used. During the testing and charging of electrical lines and substation, the Contractor shall provide electricity insulating protective equipment like footwear (ISO 20345: 2004 Part-2), rubber gloves (IS 4770: 1991) to workers. In addition, provisions of the "Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations 2010" would be adhered to.

GCC 5.10 Requirements of ventilation in underwater working to licensed and experienced divers, use of gum boots for working in slushy or in inundated conditions are essential requirements to be fulfilled.

GCC 5.11 In case of rock excavation, blasting shall invariably be done through licensed blasters and other precautions during blasting and storage/transport of charge material shall be observed strictly.

### Annexure 3

## Special Conditions of Contract for Chouka Substation

SCC 1.1 The Contractor shall ensure that the water body located 100m in west of the site is not disturbed during site preparation work.

SCC 1.2 The Contractor should ensure that the Labour staying at site is provided with water conforming to IS: 10500. In case ground water is being provided with water from tube wells /bore wells the contractor should install adequate filtration systems to remove any impurities.

SCC 1.3 Contractor should place traffic wardens at the approach road to the site to supervise vehicle movement; vehicular speed to be maintained <20 km/ph.

Annexure 4

## Format for Reporting of ESMP Implementation

# JHARKHAND POWER SYSTEMS IMPROVEMENT PROJECT

## ENVIRONMENTAL MANAGEMENT PLAN MONTHLY IMPLEMENTATION STATUS REPORT

Name of the Substation \_\_\_\_\_ Period/Month \_\_\_\_\_

EMP Refer ence	Activities	Observation/ Status till end of last Observation/ Period	Status till end of this Period
8.	Site Preparation		
8ai	Has the pre-construction equipment checks been carried out (use additional sheets to provide the monitored Leq values)		
8aii	Is regular equipment maintenance being carried out? (Use additional sheets to provide maintenance log)		
8aiv	Has monthly noise monitoring been carried out for DG sets		
8av	Has any permission been provided by Chief Engineer for night time work?		
8bi	Has quarterly air quality monitoring been carried out during the earthwork?		
8biii	Is PUCC certificate log book being maintained on regular basis?		
8biv	Instrument, machine, vehicle maintenance log book should be maintained on regular basis		
10ci	Has the Cut and fill slopes been protected with using standard engineering practices?		
10.ci	Has peripheral site drainage channel and provision of oil-water separator been made for the site?		
10di	Has septic tanks and soak pits/modular bio-toilets would be provided at construction camp?		
10ei	Are best practices been adopted for ground water usage?		
10g	Has the safety practices been undertaken during the construction? Please explain in details whether barricading, reflective tapes has been undertaken?		
10g	What steps has been taken for coordination with local communities?		
10h	What initiatives have been taken to prevent obstruction to traffic?		
12	Please indicate the actions which have been taken to prevent conflicts with local workers?		
13ai	Have the workers been provided with relevant PPE?		
13aii	How many observation on non - compliance in using personal protective equipment?		

EMP Refer ence	Activities	Observation/ Status till end of last Observation/ Period	Status till end of this Period
13bi	Has the Contractor carried out Health Safety training for workers? (Please provide details of training carried out). This should include the details of carrying out the induction training, refresher training etc.		

## Annexure 5

# Format for Registering Grievance from Community/ Project Affected Persons

## JHARKHAND POWER SYSTEMS IMPROVEMENT PROJECT

### GRIEVANCE REDRESSAL MECHANISM

#### Format for Grievance Recording

Name of the Village: \_\_\_\_\_

Name of Block: \_\_\_\_\_

Name of the Transmission Line: \_\_\_\_\_

Period/Month: \_\_\_\_\_

*The project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback. Mentioning the name and Contact details are essential as this would help us in getting in touch with you. Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing \*(CONFIDENTIAL)\* above your name.*

*Thank you.*

*Managing Director*

*Jharkhand Urja Sancharan Nigam Limited*

Date	Sub Division of Registration (to be filled by JE)
<b>Contact Information/Personal Details</b>	
Name	
Address	
Phone Number	
<b>Complaint/Suggestion/Comment/Question:</b> Please provide the details ( who, what, where and how) of your grievance below:	
<i>If included as attachment/note/letter, please tick here:</i>	

***For Official Use Only***

Registered by (Name of the Junior Engineer Registering Grievance)
Mode of Communication: <ul style="list-style-type: none"><li>1. Letter</li><li>2. Verbal/Telephonic</li></ul>
Reviewed by (Name /Position of Official reviewing Grievance)
Action Taken
Whether Action Taken has been communicated to the Complainant: Yes/No

Annexure 6

## DGMS Prescribed Permissible Limits of Ground Vibration

**DGMS Prescribed Permissible Limits of Ground Vibration**

Type of Structure	Dominant Excitation Frequency, HZ		
	<8 HZ	8-25 HZ	>25 HZ
(A) Building/ Structure not belong to the owner			
1. Domestic house/structures (Kutchcha, Bricks & Cement)	5	10	15
2. Industrial Building	10	20	25
3. Objects of historical & Sensitive Structures	2	5	10
(B) Buildings belongs to the owner with limited span of life			
1. Domestic houses/structures	10	15	20
2. Industrial buildings	15	25	50

Annexure 7

## Labour Management Plan

## **LABOUR MANAGEMENT PLAN**

It is envisaged that during construction phase of the project, labourers for various jobs such as civil, mechanical and electrical works will be hired through authorised manpower agencies. It is anticipated that the peak labour requirement during construction phase of the project will be approx. 50 persons involving unskilled, semi-skilled and skilled labourers. Unskilled labourers is likely to be recruited from local villages, while semi-skilled and skilled labourers (approx. 10 to 15) may come from outside area. For labourer, who will spend the night onsite, accommodation will be provided.

The influx of construction labourer will have both negative and positive impacts on the nearby community and local environment. The labourer will be accommodated in temporary campsite within the project boundary, which can have significant interface with the nearby communities. This might also put pressure on the local resources such as roads, fuel wood, water etc.

### ***Purpose***

The purpose of this plan is to minimize potential health, safety and social impacts associated with influx of project workers on the host population and ensure provision of safe and healthy working conditions, for such workers in consistent with IFC PS 2 and 4 requirements and national labour laws.

### ***Scope***

The scope of this management plan encompass key labour related aspects with respect to the proposed project construction phase, such as payment of minimum wage, worker's welfare and amenities, hours of work, grievance redressal, non-discrimination and equal opportunities etc.

### ***Regulatory References***

All Contractors and its Subcontractors engaged during project construction are subject to the conditions and obligation set out in the national legislative framework, and relevant IFC PS requirements as outlined in the Box below.

## **International Finance Cooperation (IFC) Performance Standard**

**IFC Performance Standard 2- Labour and Working Conditions** is specific to labour and working conditions. This Standard focuses on the protection of the basic rights of workers, fostering constructive worker-management relationships, as well as promoting fair treatment and the provision of a safe and healthy workplace. The basic provisions for migrant workers under PS 2 are enumerated below:

- As per the provisions of PS 2, the client shall identify migrant workers engaged through third party and ensure that they are engaged on substantially equivalent terms and conditions to non-migrant workers carrying out similar work (if any);
- The contractor shall ensure provision of adequate accommodation, transportation, and basic services including water, sanitation, and medical care for the workers working on that project;
- The compensation paid to the migrant workers should be non-discriminatory and the principle of equal opportunity and fair treatment to be followed; and
- Wastewater, sewage, food and any other waste materials are to be properly handled, in compliance with local standards- whichever is more stringent – and without causing any significant impacts to the biophysical environment or surrounding communities.

**IFC Performance Standard 4 – Community Health, Safety and Security** carries health and safety through to the community environment. The objectives of the Performance Standard are:

- To minimise and manage health and safety risks to local communities; and
- To ensure that the project does not harm community health and safety.

## **National Labour Laws**

- Contract Labour (Regulation & Abolition) Act 1970
- Inter-state Migrant Workmen Act, 1979
- Minimum Wage Act, 1948
- Bonded Labour System (Abolition) Act, 1976
- Grievance Redressal Machinery under Industrial Disputes Amendment Act, 2010
- The Child Labour (Prohibition and Regulation) Act, 1986; The Child Labour (Prohibition and Regulation) Amendment Act, 2016
- Employees' Provident Fund and Miscellaneous Provisions Act, 1952
- The Payment of Wages Act, 1936, amended in 2005; Workmen's Compensation Act, 1923; The Equal Remuneration Act 1976; The Equal Remuneration Rules 1976; The Minimum Wages (Jharkhand Amendment) Rules 2015
- Maternity Benefit Act, 1961
- The Contract Labour Regulation and Abolition Act 1970 ; The Contact Labour (Prohibition and Regulation) (Jharkhand Amendment) Rules 2015
- The Inter State Migrant Workmen (Regulation of Employment and Conditions of Service)Act 1979; The Jharkhand Inter State Migrant Workmen(Regulation of Employment and Conditions of Service)(Jharkhand Amendment) Rules 2015
- The Building and other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996; The Jharkhand Building and Other Construction (RECS)(Jharkhand Amendment) Rules 2015
- Employees State Insurance Act, 1948
- Intimation of Accidents (Forms and Time of Service of Notice) Rules, 2004

## ***Roles and Responsibilities***

Contractor will be responsible to implement this labour management plan. Junior Engineer (JUSNL) who will be in charge of the site or at the Divisional/Sub-Divisional Offices of JUSNL will be responsible to monitor contractor's performance on implementation of this labour management plant.

### *Contract Agreement*

Each contractor to be mobilised for the project will have a legally binding, written contract with JUSNL that defines the following items. The scope of the contracted work, will be described in terms of:

- the responsibilities and authority limits of each party to the contract;
- a clear definition of the deliverables and minimum content to be provided by the contractor;
- a clear definition of the services to be provided by the contractor;
- any and all constraints imposed on the contractor by JUSNL such as schedule constraints, budget constraints, specific tools to be used, and
- a clear statement of requirements for quality of deliverables and services including the requirement to allow independent quality inspections of materials and processes.

Appropriate terms and conditions which will be imposed on both JUSNL and the contractor will be identified.

**In order to ensure that EHSS aspects related to construction workforce are managed in consistent with the applicable regulatory requirements and international best practices, the same shall be incorporated in the contractor bid/agreement document to demonstrate necessary compliance.**

### *HR Policy and Employment Contract*

As part of the mobilisation process, the Contractor shall be responsible for submission to JUSNL, for approval, a site specific HR Policy and Procedure that covers worker recruitment and selection processes including selection criteria of each position; method of recruitment; transparency clauses; prohibition of child labour; acknowledgement of cultural differences; non-discrimination and equal opportunity; worker wages and benefits; worker health and hygiene; grievance redressal etc.

The HR Policy shall be appropriate to the size of the project and workforce strength and prepared in consistent with the IFC PS 2 requirements.

In addition to the development of HR Policy, the contractor is required to have written contract documenting and communicating to all workers their general and special conditions of work; standard working hours; entitlement to wages and benefits and conditions concerning the termination of the contract.

Wherever possible, priority will be given for recruitment of local people. Appropriate and requisite on job and EHS training shall be provided to workers. Further, the contractor as part of the engagement should provide a signed code of conduct governing worker's behaviour.

### ***Working Hours***

Regarding working hours and conditions, the Contractor shall comply with the national laws and regulations as referred in Box 1.1 and 1.2. According to applicable labour laws viz. *BOCW Act, 1996*, the duration for onsite construction work shall not exceed more than nine hours a day or forty-eight hours a week.

In consistent with the aforesaid regulation each such worker shall be allowed a day of rest every week which shall ordinarily be Sunday, but the Contractor may fix any other day of the week as the rest day.

A notice showing the construction worker wage rate, hours of work, payment date, wage period and contact details of the Inspector having jurisdiction over such area shall be displayed at a conspicuous place. The notice shall be in English, Hindi and in the local language understood by the majority of such building workers.

### ***Non-Discrimination and Equal Opportunity***

JUSNL will strictly prohibit discrimination exercised by the Contractor against any employee or applicant for employment because of the individual's race, color, religion, gender, sexual orientation, gender identity or expression, national origin, age, disability, or any other characteristic protected by law.

### ***Child Labour***

In accordance to the national labour law provision viz. *The Child Labour (Prohibition and Regulation) Act, 1986 (as amended 2016)*, the engagement of child labour below the age of fourteen is prohibited in any occupation and/or processes. In this regard, efforts shall be made by the contractor to obtain and verify age proof documents for all workers to be engaged for the project.

Adequate care must be taken by the Contractor to prevent adolescent workers who have not received relevant occupational training to be engaged in any hazardous and dangerous activities like height work, confined space entry etc.

An abstract of the relevant section of the Child Labour Act in both English and local language to be displayed by the Contractor at a conspicuous and accessible location within the workplace.

### ***Worker Health & Hygiene***

For any construction work involving hazardous processes the Contractor is required to set up an Occupational Health Centre (OHC) The OHC to be kept in charge of a construction medical officer possessing requisite qualification.

Sufficient number of first aid boxes or cupboards to be provided and maintained at the construction site. The first aid box or cupboard to be

distinctly marked "First Aid" and shall be equipped with contents as prescribed in the *BOCW Rules, 1998* . All such boxes to be kept in charge of a trained first aider who is readily available during the working hours.

The Contractor shall conduct both pre-employment and six monthly medical examination for all worker deployed onsite particularly those engaged in hazardous process and/or dangerous operations viz. operation of crane, winch or other lifting appliance etc. Such examination to be undertaken by approved medical officer or hospitals and medical records maintained for verification by JUSNL.

Furthermore, the Contractor shall make arrangement to facilitate emergency transportation of workers suffering from serious injuries.

With respect to the provision of sanitation facilities and drinking water, please refer to the below section "*Worker Accommodation*".

### ***Wage Payment & Benefits***

With respect to payment of wages, JUSNL shall ensure that Contractor conforms to the requirements of the Minimum Wages (Jharkhand Amendment) Rules 2015 with equal wages being paid to both male and female workers for work of similar nature. Where any worker operating for the project is required to work over time he shall be entitled, in respect of such overtime work, to wages at twice the ordinary rate of wages

The wage rates, holiday hours of work and other conditions of service of an inter-State migrant workman shall the same as those applicable to other workmen in that establishment. The contractor employing interstate migrant workmen shall provide and maintain suitable residential accommodation for such workers during the period of their employment; provide the prescribed medical facilities to them, free of charge; provide such protective clothing as may be prescribed.

### ***Worker Accommodation***

In every place wherein contract worker is required to halt at night in connection regarding work at the establishment, rest rooms or alternate accommodation to be provided by the contractor. Such accommodation shall conform to the following requirements:

#### **Selection of Worker Accommodation Site**

Adequate care to be taken for selection of the worker accommodation site viz. avoidance of flood prone zone; proximity to water bodies.

#### **Ventilation & Lighting**

All worker accommodation to be sufficiently lighted and ventilated and maintained in a clean and comfortable condition.

### **Drinking Water**

The worker residing at the accommodation to have access to adequate and convenient supply of free drinking water. Drinking water receptacles shall be provided at every worker accommodation and shall be maintained in a clean and hygienic condition at all times in accordance to the applicable labour laws.

The drinking water supplied shall conform to the *IS 10500:2012* standards; in case of non-compliance with the aforesaid drinking water specifications, additional treatment shall be provided or alternative sources of water supply be arranged such as packaged drinking water conforming to IS 10500 requirements. The direct usage of water from bore well should be prohibited unless permission from the same has obtained from competent ground water authorities.

### **Cooking Arrangements**

To ensure that the fuel need of labourers in the project area does not interfere with the local requirements, necessary arrangements for supply of cooking fuel to the workers shall be done by the contractor. In case, fuel requirement for cooking purposes are only to be met by fuel wood then that must be purchased from authorized vendors.

Requirement of provision of cooking facilities (kitchen) at campsite are listed below:

- Places for food preparation are designed to permit good hygiene practices;
- Adequate personal hygiene including designated areas for cleaning hands and cleaning of utensils; and
- All kitchen floors, ceiling and wall surfaces adjacent to or above food preparation and cooking areas are built using durable, non-absorbent, easily cleanable, non-toxic materials;
- Food preparation area to be durable, easily cleanable, non-corrosive surface made of non-toxic materials.

### **Security Arrangements**

The contractor shall constitute a Camp Security Team headed by a Security Manager who will be responsible for checking the security arrangements round the clock. The residing workforce shall be made aware of security related Do's & Don'ts by the Security Team. The usage of any arms by the campsite security team shall be prohibited and all such personnel shall be imparted necessary training on dealing with conflict with local communities.

### **Drainage Arrangements**

The presence of stagnant water at the campsite may lead to spread of vector borne diseases. Hence adequate care should be taken during selection of the camp site. The selected site should not be prone to flooding and located at least 200 feet from surface water collections unless they can be subjected to vector control measures.

All worker accommodation sites should be graded, ditched, rendered free from depressions and adequately drained to avoid accumulation of water.

#### **Sanitation Arrangements**

Adequate number of sanitation facilities shall be provided at the worker accommodation - a minimum of 1 unit to 15 males and 1 unit for 10 females shall be provided. These facilities should be conveniently located and easily accessible.

All such facilities to be have wholesome supply of water, cleaned frequently (at least daily) and maintained in a clean and hygienic conditions. Each sanitation facility shall be lighted naturally or artificially with adequate lighting at all hours of the day and night.

#### **Waste Water Management**

Wastewater in the form of sewage shall be generated from the worker accommodation. The Contractor shall ensure that the accommodation sites are equipped with a combination of septic tank and soak pit system for disposal of sewage or there shall be provision of mobile bio-toilets depending upon the strength of the residing workforce.

It is also recommended that the storm water and sewage system should be maintained separately.

#### **Solid Waste Management**

The solid waste shall mostly comprise of compostable wastes like vegetable residues (kitchen waste) and combustible waste like paper, cans, plastic and some non-degradable waste like glass/glass bottles. Improper disposal of solid waste will lead to environmental degradation and health hazards to labour as well as nearby community. The following measures shall be adopted by the Contractor for ensuring effective management of solid waste:

- The solid wastes of domestic nature generated shall be collected and stored separately in appropriate containers with proper sealing on them;
- Separate bins with proper markings/colour coding in terms of recyclable or non-recyclable waste shall be provided in the houses, kitchen premises and canteen in sufficient numbers for collection of garbage;
- Pest control shall be undertaken regularly at the accommodation site;
- Food waste and other refuse are to be adequately deposited in sealable containers and removed from the kitchen frequently to avoid accumulation; and
- Wherever possible, the contractor shall engage with local waste disposal agencies approved by the municipal/rural authorities to ensure disposal of biodegradable and recyclable waste.

#### **Health Care Arrangements**

Effective health management is necessary for preventing spread of communicable diseases among the workers and within the neighboring

communities. The following health care arrangements shall be provided by the Contractor at the worker accommodation:

- Adequate first aid kits shall be provided at the accommodation in accessible locations. First aid kit shall contain all type of medicines and dressing material;
- The Contractor shall identify nearby hospital and make an agreement with the hospital to seek health care support including ambulance service for its workers, in case of an emergency.
- Contact details of nearby health care facility (hospital) shall be displayed at the camp;
- Contractor shall identify and train adequate number of workers to provide first aid during medical emergencies;
- Regular health check-ups shall be carried out for the construction workers as discussed in Section 1.1.10; and
- Conducting of awareness training on communicable diseases, AIDS etc. for the resident workers.

### *Emergency Preparedness & Response*

The Contractor at the project construction site to ensure the provision of essential life-saving aids and appliances required to handle emergencies like - head and or spinal injuries; bleeding; fractures; burns dehydration; paralysis; drowning; sunstroke; frost bite; electrical shock and poisonous bites.

Furthermore in construction site where 500 or more workers are deployed, an emergency action plan shall be developed to handle the following emergencies - fire and explosion; lifting appliance collapse; gas leakage; chemical spillage; and natural hazards.

The Contractor shall perform quarterly mock drills at both the site and worker accommodation to evaluate overall preparedness and response in dealing with emergencies.

### *Worker Grievance Management*

A Grievance Redressal Mechanism (GRM) shall be developed for the construction workers which shall include constituting a Review Committee comprising of representatives from both Contractor and JUSNL. This GRM shall have the following elements:

- Proper system for lodging grievances;
- Provision for raising anonymous complaints through complain box;
- Appropriate level of management for addressing concerns;
- Workers and members of the surrounding communities have specific means to raise concerns about security arrangement and staff;
- Provision for timely action and feedback;
- Monitoring and review of grievances raised and action taken; and scope for continual improvement of the system.

The contractor shall regularly share all the grievance received from workers and local community along with details of how the grievances are redressed, with Junior Engineer (JUSNL) who will be in charge of the site or at the Divisional/Sub-Divisional Offices of JUSNL. Workers of a particular site can also register their grievance with Junior Engineer (JUSNL) who will be in charge of the site or at the Divisional/Sub-Divisional Offices of JUSNL. In case, grievance is registered by in-charge of the site or at the Divisional/Sub-Divisional Offices of JUSNL, process laid down in the project level Grievance Redressal Mechanism (refer Section 8.6.3 of this ESIA report) would be followed.

### ***Inspection & Reporting***

The Contractor shall perform monthly inspection of the worksite and accommodation area to assess the status of implementation of the Plan and submit monthly progress report to JUSNL.

Contractor shall organize monthly progress review meeting with JUSNL to prepare a corrective action plan to deal with health, safety and social issues related to project construction work. All such meeting minutes to be documented and shared with both parties for necessary action.

Annexure 8

## Health & Safety Management Plan (HSMP) Template

# CONTRACTOR HEALTH AND SAFETY MANAGEMENT PLAN - TEMPLATE

## 9.1 PROJECT INFORMATION

### 9.1.1 Management Review

This Management Plan has been developed to outline the Contractor's approach to managing work health and safety at the <INSERT NAME OF PROJECT> at <INSERT ADDRESS>. The Contractor shall

- make this plan available to all workers and contractors on this project and ensure they have the opportunity to read, understand, clarify and ask questions
- keep a copy of the Management Plan readily available for the duration of the project
- review the plan regularly throughout this project and make any revisions known to those working on the project
- <INSERT ANY OTHER REQUIREMENTS>.

### 9.1.2 Contractor Details

<b>Business name:</b>	
<b>Address:</b>	
<b>Contact person:</b>	
<b>Work phone:</b>	
<b>Mobile phone:</b>	
<b>Fax:</b>	
<b>Email:</b>	
<b>ABN:</b>	
<b>Contract licence number:</b>	
<b>Principal contractor signature:</b>	

### 9.1.3 Details of Contractor H&S Personnel

Name	Position	Responsibilities

## 9.1.4 Scope of Project Work

<b>Description of project:</b>	
<b>Location of project:</b>	
<b>Start and finish dates:</b>	

## 9.2 GENERAL H&S INFORMATION

### 9.2.1 List of Regulations

Relevant legislation	Tick if applicable
<i>Contractor Labour (Regulation &amp; Abolition) Act, 1970</i>	<input checked="" type="checkbox"/>
<i>Contractor Labour (Regulation &amp; Abolition) Central Rules, 1971</i>	<input checked="" type="checkbox"/>
<b>&lt;INSERT ANY OTHER RELEVANT LEGISLATION&gt;</b>	<input type="checkbox"/>

### 9.2.2 H&S Codes of Practice

Relevant Codes of Practice	Tick if applicable
<i>Confined spaces</i>	<input type="checkbox"/>
<i>Construction work</i>	<input type="checkbox"/>
<i>Cranes</i>	<input type="checkbox"/>
<i>Demolition work</i>	<input type="checkbox"/>
<i>Excavation work</i>	<input type="checkbox"/>
<i>First aid in the workplace</i>	<input type="checkbox"/>
<i>Hazardous manual tasks</i>	<input type="checkbox"/>
<i>How to manage work health and safety risks</i>	<input type="checkbox"/>
<i>Labelling of workplace hazardous chemicals</i>	<input type="checkbox"/>
<i>Managing electrical risks at the workplace</i>	<input type="checkbox"/>
<i>Managing noise and preventing hearing loss at work</i>	<input type="checkbox"/>
<i>Managing risks of plant in the workplace</i>	<input type="checkbox"/>
<i>Managing the risks of falls in the workplace</i>	<input type="checkbox"/>
<i>Managing the work environment and facilities</i>	<input type="checkbox"/>
<i>Preventing falls in construction</i>	<input type="checkbox"/>
<i>Safe design structures</i>	<input type="checkbox"/>
<i>Scaffolding</i>	<input type="checkbox"/>
<i>Traffic management in workplaces</i>	<input type="checkbox"/>
<i>Welding processes</i>	<input type="checkbox"/>

Work health and safety consultation, cooperation and coordination	<input type="checkbox"/>
Working in the vicinity of overhead and underground electrical lines	<input type="checkbox"/>
<b>&lt;INSERT ANY OTHER RELEVANT CODES OF PRACTICE&gt;</b>	

### 9.2.3 *Contractor H&S Policy*

Share a copy of the Principal Contractor H&S Policy.

## 9.3 *RISK MANAGEMENT*

### 9.3.1 *Identifying hazards and managing risks*

The Contractor shall systematically identify hazards and assess risks before the project starts by using the hierarchy of control (see 1.3.2) in conjunction with:

- developing Safe Work Method Statements (SWMS) to control risks associated with high risk construction work
- using a risk management form to control general construction risks where necessary
- **<INSERT ANY OTHER STEPS IF NECESSARY>**

The Contractor shall identify risks:

- when introducing a new task; and
- when new information is received about tasks, procedures, equipment or chemicals.

All hazards that are identified throughout the project must be reported immediately to the principal employer. We will inform our workers of our risk management procedures and ensure they are trained in risk management

### 9.3.2 *Hierarchy of Control*

The contractor shall control all risks identified by applying the Hierarchy of Controls as follows:

- Eliminate
- Substitute
- Isolate
- Engineering controls
- Administrative controls
- Personal Protective Equipment.

Where possible, we will implement risk controls that are high in the order and will implement multiple controls where necessary.

### 9.3.3 *Critical Construction Work*

We have identified the following critical construction work for this project. A Safe Work Method Statement (SWMS) shall be developed for each of the high

risk construction work activities. We will also develop SWMSs for any additional high risk work that is introduced or identified during the project.

Critical construction work activity	Safe Work Method Statement developed and attached (Yes/No)

All critical construction work shall be governed by a "Permit to Work" system which shall be implemented by the Contractor.

The SWMS shall be reviewed by the Contractor when:

- there is a need to change the method of carrying out of the high risk construction work; and
- a risk has been identified that is not included and managed within a SWMS.

## 9.4 EMERGENCY PREPAREDNESS & RESPONSE

### 9.4.1 Emergency Preparedness

The Contractor shall be make arrangements for emergency preparedness to:

- show all workers and subcontractors the emergency point as part of their induction (this shall be covered in the induction checklist)
- display emergency procedures in the site office or other visible location
- provide and inspect fire extinguishers at the beginning of the project and six-monthly after that
- <INSERT ANYTHING ELSE RELEVANT TO YOUR PLAN>.

### 9.4.2 Emergency Procedure

In the event of a fire or similar emergency evacuation, the Contractor shall adopt following measures:

- constitute an Emergency Response Team and develop a response plan encompassing all potential emergency situations;
- stop work immediately and vacate the workplace;
- assist anyone in the workplace who may not be familiar with the evacuation procedures;
- call emergency services on the desired number. Other emergency numbers are on display in the site office (if applicable);
- notify the principal employer;
- assemble in the nominated assembly points until you receive further instructions from the principal employer or emergency services personnel
- <INSERT ANYTHING ELSE RELEVANT TO YOUR PLAN>.

#### 9.4.3

#### *Emergency Contact*

The contact details of the Emergency Response Team (ERT) and other emergency responder to be provided here.

#### 9.5

#### **INCIDENT REPORTING & INVESTIGATION**

##### 9.5.1

##### *Notification of Incidents*

Whenever an incident occurs at the workplace the Contractor shall:

- immediately notify the principal employer and any other authorities in conformance with the applicable regulatory requirements; and
- not interfere with the scene of the incident.

The Contractor shall report the following incidents:

- the death of a person;
- an incident requiring hospitalisation;
- a serious injury or illness of a person as defined in the relevant regulations.

In the event of such an occurrence:

- notify the principal employer who must notify the relevant authorities by the quickest means possible.
- complete and share an **Incident Notification Form** with the principal employer as soon as possible following the incident (must be within 48 hours)
- do not disturb the site until given clearance by the principal employer who will take advice from the local authorities
- the principal contractor shall only give permission to disturb the site when it is agreed that a formal investigation is not required
- if a formal investigation is required, the Contractor will secure the site
- **<INSERT ANY OTHER REQUIREMENTS>**.

##### 9.5.2

##### *Investigation of Incidents*

For any reportable incident, the Contractor shall examine all incident/accident reports and identify trends. This shall be carried out in accordance to an *Incident Investigation Procedure* which shall be developed and comprise of the following key elements:

- Establishing what happened, when, where and why through collection of evidence;
- Investigation of accidents with a high priority - before people's memories fade and while evidence is still available;
- Looking at root or underlying issues not just immediate causes: viz premises, plant and substances, procedures, or people. Underlying causes includes - management arrangements and organisational factors such as design, selection of materials, maintenance, management of change, adequacy of risk controls, communication, competence etc.

All incident investigation findings to be conducted by trained personnel and maintained in the form of a formal investigation report. In case of complex investigations involving major accident hazards, the Contractor shall engage specialist to support the process.

## 9.6

### **SITE SAFETY PROCEDURE**

The Contractor shall develop *Site Specific Safety Procedure* which shall provide details related to the following:

- Site Safety Rules;
- Site Amenities viz. provision and maintenance of sanitation facilities;
- Site Security Arrangements;
- Provision and display of safety signages at the conspicuous places;
- Provision and maintenance of Personal Protective Equipment's (PPEs);
- Management measures for specific construction hazards viz. fall from heights; excavation work; work near overhead or underground electrical lines; electrical work; scaffolding work; and
- Plan for managing the hazards associated with onsite traffic movement, as applicable.

## 9.7

### **H&S PERFORMANCE MONITORING AND REPORTING**

The H&S Plan will be reviewed on periodic basis by the Project in Charge and Senior Manager Safety and Compliance the Contractor and shall be shared with the principal employer. The performance of the Contractor will be monitored against the following Key Performance Indicators (KPIs):

- Lost time (in hours) due to accidents (including fatalities);
- Lost Time Injury (LTI) - Frequency Rate
- Number of fatalities;
- Number of reportable accidents; and
- Total of hours of Health and Safety training in the month; and
- Number of grievances raised with respect to Health and Safety.

The aforesaid indicators will be tracked and recorded on a monthly basis by the Contractor H&S Manager and compared with the industry best practices. To this regard, the Contractor shall conduct weekly site safety inspection using a standard inspection checklist and corrective action plan developed and shared with the principal employer.

## Annexure 9

# Socio-Economic Survey format

**Socio Economic Survey Form for Proposed Grid Sub Station Site  
of JPSIP**

Form No		Village Name	
Domicile No		Name of the Surveyor	
Name of the Informant		Signature	
Relationship with HOH		Date	

A1. What Caste Do You Belong				A2. What is Your Religious Group				A3. Do You Have BPL Ration Card	
General	SC	ST	OBC	Hindu	Muslim	Christian	Sikhs	Yes	No
①	②	③	④	①	②	③	④	①	②

Member Number	1	2	3	4	5	6	7	8	9	10	11	12	
B1.1 Name	HOH												Write down the names of all person who live and eat together in this household (sharing same kitchen) starting with head
B1.2 Relationship													
B1.3 Sex	Is the NAME male or female?												
	M	M	M	M	M	M	M	M	M	M	M	M	
	F	F	F	F	F	F	F	F	F	F	F	F	
B1.4 Age	How old was NAME on the last birthday?												
B1.5 Education	The class till which the person has been educated.												
	①	①	①	①	①	①	①	①	①	①	①	①	Illiterate
	②	②	②	②	②	②	②	②	②	②	②	②	Primary (class 3)
	③	③	③	③	③	③	③	③	③	③	③	③	Secondary (Class 10)
	④	④	④	④	④	④	④	④	④	④	④	④	Higher (graduate)
	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	Technical
	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	Vocational
B1.6	Is the NAME working?												
	①	①	①	①	①	①	①	①	①	①	①	①	Yes
	②	②	②	②	②	②	②	②	②	②	②	②	No
B1.7 Occupation	A. The main activity at the place of job?												
	①	①	①	①	①	①	①	①	①	①	①	①	Agriculture
	②	②	②	②	②	②	②	②	②	②	②	②	Agri Labour
	③	③	③	③	③	③	③	③	③	③	③	③	Non Agri Labour
	④	④	④	④	④	④	④	④	④	④	④	④	Business/Trad e
	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	Govt. Service
	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	Private Service

		⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	Maid Servant
		⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	Others
	<b>What was the main reason for the NAME not working?</b>													
	To be filled for persons who are not working.													
<b>B1.8</b>	①	①	①	①	①	①	①	①	①	①	①	①	①	No work available
	②	②	②	②	②	②	②	②	②	②	②	②	②	Seasonal inactivity
	③	③	③	③	③	③	③	③	③	③	③	③	③	Household family duties
	④	④	④	④	④	④	④	④	④	④	④	④	④	Old/young
	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	Handicapped
	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	Others
<b>B1.9 Income</b>	<b>How much does the NAME earn in a month?</b>													
	①	①	①	①	①	①	①	①	①	①	①	①	①	Rs. 0-Rs. 2000
	②	②	②	②	②	②	②	②	②	②	②	②	②	Rs. 2000-Rs. 5000
	③	③	③	③	③	③	③	③	③	③	③	③	③	Rs. 5000 and 10,000
	④	④	④	④	④	④	④	④	④	④	④	④	④	10,0000+
<b>C1.1 Skills</b>	<b>What is the skill possessed by the person?</b>													
														e.g.: traditional artisans, carpentry, mason, weaving, garage mechanic, nursery, others (please mention)
<b>D1.1 Which of the following are availed by the family</b>	<b>General Scheme</b>													
	1.	Old age Pension Scheme												
	2.	Widow Pension Scheme												
	3.	Pradhanmantri Awas Yojana												
	4.	Chief Minister Health insurance scheme												
	5.	Udyami Sakhi Mandal Yojana (To empower rural women)												
	6.	ARYA scheme (To attract rural youth in agriculture in Jharkhand)												
	7.	Vimrao Ambedkar Awas Yojana for widow in Jharkhand												
	<b>Scheme for Tribal people</b>													
	1.	PTG Dakiya Yojana (Free rice scheme for primitive tribal group)												
	2.	Eklavya Model Residential Schools for Tribal Student												
	3.	Development and Marketing of Tribal Products												
	4.	Scheme for Minimum Support Price for Minor Forest Produce												
	5.	Educational Fellowship and Scholarship for Higher Education of ST Students. 2017-2018"												
	6.	National Overseas Scholarship for ST candidates												
	7.	Pre and Post Matric Scholarship												
	8.	Establishment of Ashram Schools in Tribal Sub-Plan Areas												
	9.	Centrally Sponsored Scheme of Hostels for ST boys and ST Girls												
	<b>Others (Please Specify)</b>													
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

<b>E1.1 Amenities</b>	A. What is the drinking water source for the family?				
	<input type="checkbox"/> Piped Water	<input type="checkbox"/> Tube Well	<input type="checkbox"/> Well	<input type="checkbox"/> Pond	Any other, specify..... ...
	B. What is the source of water for domestic use?				
	<input type="checkbox"/> Piped Water	<input type="checkbox"/> Tube Well	<input type="checkbox"/> Well	<input type="checkbox"/> Pond	Any other, specify..... ...
	C. Is the water source used by you or other families also		<input type="checkbox"/> Only by the HH		<input type="checkbox"/> Shared by other families
	D. Availability of Household Electricity		<input type="checkbox"/> Yes		<input type="checkbox"/> No
	E. Are there Primary Schools nearby (within 1 – 1.5 km)		<input type="checkbox"/> Yes		<input type="checkbox"/> No
	F. Are there Secondary Schools nearby				
	G. Are there Colleges nearby				
H. Are there Hospitals nearby		<input type="checkbox"/> Private Hospital	<input type="checkbox"/> Govt. Hospital	<input type="checkbox"/> None	

Annexure 10

## **Critical Habitat Criteria (IFC PS6 Guidance Note 2012)**

***Critical Habitat Criteria (IFC PS6 Guidance Note 2012)***

<b>Criteria</b>	<b>Tier 1</b>	<b>Tier 2</b>
Criterion 1: Critically Endangered (CR) / Endangered (EN) species:	<p>a) Habitat required to sustain <math>\geq</math> 10 % of the global population of a CR or EN species /sub /species and where there known regular occurrences of the species and where habitat could be considered a discrete management unit for the species.</p> <p>b) Habitat with known, regular occurrences of CR or EN species where that habitat is one of 10 or fewer discrete management sites globally for that species.</p>	<p>c) Habitat that supports the regular occurrence of a single individual of a CR species and/or habitat containing regionally- important concentrations of Red-listed EN species where that habitat could be considered as a discrete management unit for the species/subspecies.</p> <p>d) Habitat of significant importance to CR/EN species that are wide-ranging and/or whose population distribution is not well understood and where the loss of such a habitat could potentially impact the long-term survivability of the species.</p> <p>e) As appropriate, habitat containing nationally/regionally important concentrations of an EN, CR or equivalent national/regional listing.</p>

Annexure 11

## **Candidate Critical Habitat Species (Criteria 1) and Assessment**

# Candidate Critical Habitat Species (Criteria 1) and Assessment

Common Name	IUCN Listing	Species Information			CH Rationale
		Criterion 1	Criterion 2	Criterion 3	
Indian Elephant	EN	X			Elephant movement is reported at the forest areas north and west of the GSS site  Though Indian Elephant movement is reported in the study area, no designated elephant corridor is located within the study area. The habitat could not be designated as habitat containing regionally-important concentrations of Elephant and hence do not represent as Critical Habitat

IUCN Categorization- EN=Endangered

Annexure 12

## Proceedings of Gram Sabha

२३/०३/२०१८

आज दिनोंके २३.३.१८ की प्राप्त वायदानमी में व्याप्ति प्रभाव भी लानीश्वर सिंह के अद्यतनता में व्याप्त रहा। तो कोइ आवाहन की गई है। केवल का आवाहन जिनका मुख्य अधिकारी सरपकेला के प्राप्त २२०/२०१८ सरपकेला दिनोंके ४.३.१८ के आवाहन में दिया जा रहा है। यह केवल १३२/३३ के विविध स्तर स्टेशन वालों, नीजा वाटुलमी सरकारी देतुलिया जा रहा है। इस व्याप्ति रही नियन्त्रित रूप से। याम प्रबल / मुख्यमान / पाठ्यसंस्करण एवं जारीवाया उपरिचय है।

१. याम प्रबल - वानीयम मिलेवा २३/०३/२०१८  
२. मुख्यमान, युनानुज २३/०३/२०१८

३. वांड सदरमुकाम - काली पटा तिहार गुरु

४. याम सदरमुकाम (प्राप्ति दिनांक २२३/३३) २३/०३/२०१८

५. समाज सेवी सदस्य Kamboles. ८०८९

६. रेगिस्टर वित्ती सिरदार RTI गोपी राम पात्र  
मीरी राम पात्र RTI गोपी राम पात्र

गुलाब पात्र

७. सुनील सिंह उमरावाला राम पात्र २३/०३/२०१८

८. जिला मुख्यमान प्रबलार्य २३/०३/२०१८

९. विद्युत कार्यपालक अधिकारी विद्युत कार्यपालक अधिकारी २३/०३/२०१८

१०. समाज सेवी पालक अधिकारी विद्युत कार्यपालक अधिकारी २३/०३/२०१८

७७. चामान ग्रामीण का लेनावर

१ सुकुसिंह

२ लुम्बेश्वर कुमार

३ निरोद्ध राम पाल

४ जगद्वाय दास

५ चाहिं राम राम

६ रामली पाल

७ दग्गमालिमधु

८ अधिक शिंह सरदार

९ समलाल R.C. सरदार

१० शोभा दुर्दुल्लाल

११ गुप्त कुमार

१२ Guna-dhru. Kumhar

१३ सीम-पाटी माझ

१४ kathli kumhar

१५ कोवाल्या देवी (R.T.I.)

१६ रामलीलाल

१७ Ram lalchandra Das

१८ लाली दास

१९ Shailendra Kumhar

२० Ghanshyam Mahato

२१ लुकुपाटी

२२ रामलीलाल

२३ उद्देश्वर माझ

० मनसा राम राम  
 २४ लक्ष्मीदा राम हुमा  
 २५ सोनारा मा राम  
 २६ अंग राम हुमा राम  
 २७ ध्येय काम  
 २८ लक्ष्मी राम हुमा  
 २९ २८/२ राम  
 ३० २८/२ राम  
 ३१  
 ३२ अंग राम हुमा  
 ३३ अंग २८-३-२०१८  
 ३४ राम राम हुमा  
 ३५ अंग २८ (३) हुमा  
 ३६ अंग २८  
 ३७ गोपा - १८ राम  
 ३८ अंग २८ (२८) ३०८  
 ३९ श्री राम हुमा  
 ४० अंग २८ (२८)  
 ४१ अंग २८  
 ४२ अंग २८

प्रस्ताव संस्था- 1 जोना डाट कुली में 132/33 के अन्तर्गत सब स्वेच्छन चौक का निर्माण कारबखन उभी संभरन भिगाउ बिभिटेर करेगी, जिसमें यांग सामा, भवलभाति से निर्णय लेकर निर्माण हेतु सहभति देवी है।

प्रत्याप सेरेपा - 2 भौजा छात्रकुलारी ने एवं अपनी छात्राएँ  
132/33 के ० भौज ट्रैडिंग मिलीज का भ्राता  
विवरण निभावत है।

आना क्र. २०१ रुपाना - १० - १६ ऐर सेल्यू २१२ रुपाना १-०२ १९५५

रेप्प कार्गो दिल्ली सरकार ने उत्तरप्रदेश सरकार द्वारा बनाए गए नियमों का अनुमति दी है।

२५ का यह सुविस्तृपात्र को शुल्कपात्र दिए गए<sup>213</sup>  
शुल्क और विवरण भावि शीर्षक

मौजा घट्टदुर्ग धाना नं ३०१-२००८ नं ६९ फैल-२०९  
रेप्टर का नाम- सुर्यन द्वितीय प्रिया

इतना हुआ दृष्टि दृष्टि का नाम - शुभ प्रभ दृष्टि  
दृष्टि दृष्टि दृष्टि दृष्टि

માના માટે કુલ અણા ૧૫ માં ૨૦૧૮ સેટ ૭૮ પ્રોટોલોસી

प्रत्याव-3 ऐप्सों को धूर्ण चुग्गन के बाहरी सूपी का अधिकार किया जाए?

प्रत्यावर्त 4. ग्रीष्म विनायिनी कार्य में ऐप्पले सन चालीजों को शामिल करने के आद्यार पर अधिकारियों द्वारा दिया गया।

प्र० १७- ५. श्रीमुखिराम चार्च में आयोग होने वाली  
सामियती का आधिकारि सामवाचीयों के द्वाय  
की किसानाएँ।

उपरोक्त विवरणी के अनुभिपर 132/33 कोणगढ़ी  
हैदराबाद पर ग्रामवासीपूरी का सर्वसामाजिक से  
निर्भय लेटी हुए अनुसूदन करवी है।

अंत में गूल प्रधान के घन्यवाद अपने के लाख सभा  
समाप्ति की जाती है।

Singh

23/03/2018

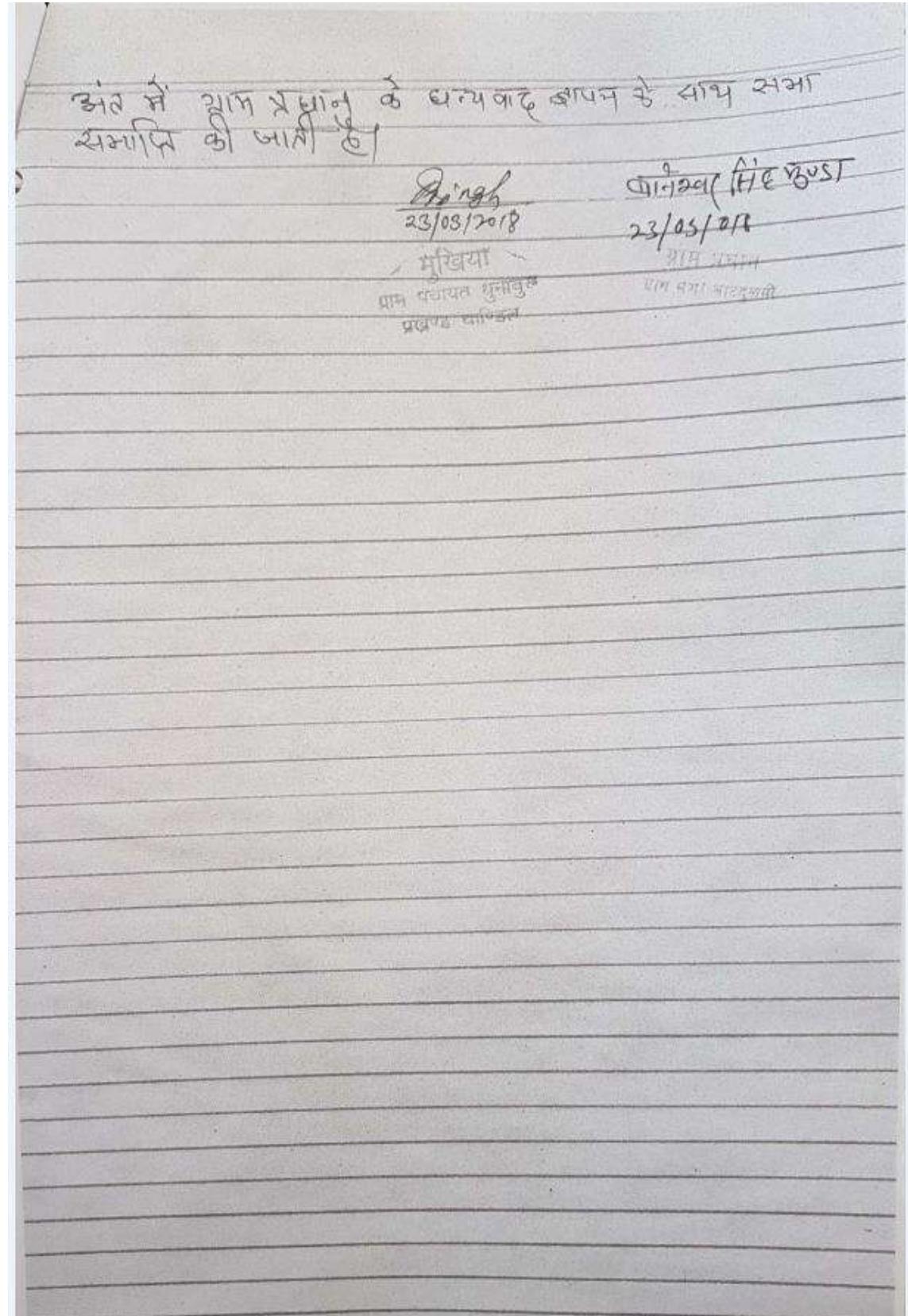
मुख्या

प्राप्त विवरण शुभ्रमुक्ति  
प्रदर्शन वापिस

कानूनी टिकटूपा

23/03/2018

प्राप्त विवरण  
प्राप्त विवरण



Annexure 13

## Formation for Expert Group

समुचित सरकार-सह-उपायुक्त, का कार्यालय सरायकेला-खरसावाँ,  
(भू-अर्जन शाखा)

— : आदेश : —

ज्ञापांक ..... / भू0310  
दिनांक : ..... / .. / 2018

132/33 के0 वी0 ग्रिड सब स्टेन चौका का निर्माण हेतु, चार्डिल अंचलान्तर्गत मौजा-घाटदुलमी, थाना न0-201 मे रकवा-7.43 एकड़ रेयती भूमि का भू-अर्जन के प्रस्ताव पर भूमि अर्जन पुर्ववासन एवं पुर्वव्यस्थापन मे उचित प्रतिकार और पारदर्शिता का अधिकार अधिनियम-2013 की धारा-4 के अंतर्गत जारदा एप्रीकल्वार रिसर्च एण्ड डेवलपमेन्ट एजेन्सी, रामगढ़ से प्राप्त सामाजिक प्रभाव आकलन अध्ययन प्रतिवेदन पर मूल्यांकन (Appraisal) करने हेतु भूमि अर्जन पुर्ववासन एवं पुर्वव्यस्थापन मे उचित प्रतिकार और पारदर्शिता का अधिकार अधिनियम-2013 की धारा-7(2) के अंतर्गत क्लिक्स दल (Expert Group) का गठन किया जाता है। क्लिक्स दल (Expert Group) के सदस्य निम्नवत हैं—

1. डॉ 0 के0 के0 शौधरी, व्याख्याता (सामाजिक वैज्ञानिक)	— सदस्य
काशी साहु महाविद्यालय, सरायकेला	
2. डॉ ०० के0 जा, व्याख्याता, (सामाजिक वैज्ञानिक)	— सदस्य
काशी साहु महाविद्यालय, सरायकेला	
3. ग्राम प्रधान	— सदस्य
घाटदुलमी मौजा,	— सदस्य
4. मुखिया,	— सदस्य
घाटदुलमी मौजा,	
5. डॉ० एस० के0 साहु व्याख्याता (पुर्ववास क्लिक्स)	— सदस्य
काशी साहु महाविद्यालय, सरायकेला	— सदस्य
6. डॉ० अमर कुमार, व्याख्याता (पुर्ववास क्लिक्स)	— सदस्य
काशी साहु महाविद्यालय, सरायकेला	
7. कार्यपालक अभियंता,	— सदस्य
ग्रामीण कार्य विभाग, सरायकेला-खरसावाँ।	

उपरोक्त क्लिक्स दल का समाप्ति कार्यपालक अभियंता ग्रामीण कार्य विभाग सरायकेला-खरसावाँ को मनोनित किया जाता है।

क्लिक्स दल को आदेश दिया जाता है कि वे क्लिक्स दल के गठन की तिथि से दो मह मे 132/33 के0 वी0 ग्रिड सब स्टेन चौका का निर्माण हेतु, चार्डिल अंचलान्तर्गत मौजा-घाटदुलमी, थाना न0-201 मे रकवा-7.43 एकड़ रेयती भूमि का भू-अर्जन प्रस्ताव पर जारदा एप्रीकल्वार रिसर्च एण्ड डेवलपमेन्ट एजेन्सी रामगढ़ से प्राप्त सामाजिक प्रभाव आकलन अध्ययन प्रतिवेदन पर मूल्यांकन (Appraisal) कर प्रतिवेदन समुचित सरकार-सह-उपायुक्त, महोदय (अद्योहरताकारी) को समर्पित करना सुनिश्चित करेंगे।

यह आदेशत्वात्काल प्रभाव से लागू होगा।

समुचित सरकार  
— सह—  
उपायुक्त,  
सरायकेला-खरसावाँ।

जिला भू-अर्जन पदाधिकारी  
सरायकेला-खरसावाँ  
03/09/18

Annexure 14

Copy of draft SIA

# सामाजिक प्रभाव आंकलन

फाइनल रिपोर्ट

जिला भू-अर्जन अधिकारी, सराइकेला, झारखण्ड

ग्रिड सब स्टेशन (132/33 के.वी.) निर्माण परियोजना – घाटदुलमी, सराइकेला

प्रस्तुत

उपायुक्त

सराइकेला, झारखण्ड

शारदा एग्रीकल्चर रिसर्च एंड डेवलपमेंट एजेंसी  
मुख्यालय शारदा भवन, छोटकी मुराम, रामगढ़ कैट, रामगढ़ – 829122 (झारखण्ड)  
ई-मेल: [sardaresearch@gmail.com](mailto:sardaresearch@gmail.com)

## विषय-सूची

क्रमांक	विवरण/व्योरा	पृष्ठ संख्या
१	अभिस्वीकृति	०३
२	कार्यकारी सारांश	०४-०५
३	विस्तृत परियोजना विवरण	०६-०९
४	टीम रचना, दृष्टिकोण, विधि और एसआईए	१०-१४
५	भूमि आकलन	१६-१७
६	प्रभावित परिवारों और संपत्तियों की अनुमान और समापन	१८
७	प्रभावी क्षेत्र का सामाजिक आर्थिक प्रोफाइल	१९-२०
८	सामाजिक प्रभाव	२१-२२
९	अधिग्रहण पर लाभ और सिफारिश का विश्लेषण	२३-२४
१०	सामाजिक प्रभाव प्रबंधन योजना	२५-२६
११	जन सुनवाई प्रतिवेदन	२७-३३
१२	सलग्र	३४-३५

## आभार/अभिस्वीकृति

ग्रिड सब स्टेशन (१३२ / ३३ के.वी.) निर्माण परियोजना –घाटदुलमी , सराइकेला-खरसावाँ का सामाजिक प्रभाव मूल्यांकन की फाइनल रिपोर्ट आपके साथ साझा करने में हमें आपार खुशी हो रही है जो हमारे संगठन शारदा एग्रीकल्चर रिसर्च एंड डेवलपमेंट एजेंसी द्वारा तैयार किया गया है। यह संकलित रिपोर्ट संगठन द्वारा निर्धारित कड़े प्रक्रिया और प्रक्रियाओं के दौरान हुई विभिन्न चर्चाओं के परिणाम का एकीकरण है। रिपोर्ट का विस्तृत विवरण संगठन के विभिन्न स्तरों पर कार्य कर रहे लोगों का सामूहिक प्रयास है और उनमें से हर एक ने अपने संबंधित क्षेत्र में अपना योगदान दिया है जिसके फलस्वरूप इस ड्राफ्ट रिपोर्ट को समय पर अंतिम रूप दिया जा सका।

यहां हम उपायुक्त, सराइकेला-खरसावाँ का आभार व्यक्त करना चाहते हैं जिन्होंने हमें अपने जिला का सेवा करने का अवसर प्रदान किया है, हम जिला भू-अर्जन पदाधिकारी, सराइकेला-खरसावाँ और उनकी टीम के सदस्यों के अथक प्रयासों का भी आभार व्यक्त करना चाहेंगे जिन्होंने हमें सभी प्रासंगिक अनुपूरक जानकारी प्रदान करने के साथ-साथ सभी प्रासंगिक चर्चाओं के लिए भी खुद को उपलब्ध कराया है जिससे हमें अपना काम समय पर पूरा करने में काफी मदद हुई है। हम इस मौके पर अपने मुख्य कार्यकारी पदाधिकारी, शारदा एग्रीकल्चर रिसर्च एंड डेवलपमेंट एजेंसी के सराहनीय मार्गदर्शन और प्रेरणा के लिए धन्यवाद करना चाहेंगे जिन्होंने एसआईए के सभी चरणों में हम सभी के लिए एक प्रेरणाश्रोत और सहायक की तरह साथ रहे हैं और विशेषकर रिपोर्ट लिखने में उनका दिशानिर्देश सराहनीय है।

हम इस ग्रिड सब स्टेशन (१३२/ ३३ के.वी.) निर्माण परियोजना –घाटदुलमी , सराइकेला-खरसावाँ के एसआईए रिपोर्ट को पूरा करने में सहायता के लिए डेटा संग्रह में शामिल सभी क्षेत्रीय कर्मचारी, डेटा संकलन के लिए एमआईएस कर्मचारी और रिपोर्ट लेखन टीम का भी आभार व्यक्त करना चाहेंगे।

अंत में हम सभी गांवों के परियोजना प्रभावित परिवारों के डेटा संग्रह के दौरान उनके सहयोग के लिए धन्यवाद करना चाहेंगे क्योंकि उनके सहयोग के बिना यह कार्य संभव नहीं होता।

## शारदा एग्रीकल्चर रिसर्च एंड डेवलपमेंट एजेंसी

## १. कार्यकारी सारांश

एक उन्नत जीवन के लिए बिजली एक ऐसी मुलभुत आवश्यकता है जिसके बिना किसी भी क्षेत्र के विकास की कल्पना भी नहीं की जा सकती है। ऐसा हमेशा से ही कहा गया है की किसी भी क्षेत्र में विकास के लिए एक अच्छी आधारिक संरचना का वहां होना अवश्यक है और ये आधारिक संरचना बिजली की अवश्यक मात्र के बिना बिलकुल ही संभव नहीं है। एक क्षेत्र के विकास के लिए मुलभुत सुविधाओं के अलावे उस क्षेत्र के ग्रामीणों/लोगों की मानसिकता सकारात्मक होनी चाहिए, मगर ये भी उतना ही सत्य है की ऐसी सकारात्मक मानसिकता किसी भी क्षेत्र में बिजली की कमी के साथ कभी भी पनप नहीं सकती है। आज के प्रौद्योगिकी एवं प्रौद्योगिकीय युग में बिजली की महत्व से कौन इनकार कर सकता है, वास्तव में बिजली की उपलब्धता का एक महत्वपूर्ण स्थान और योगदान है। बिजली की उचित प्रबंधन हमारे सामाजिक जीवन और किसी भी क्षेत्र के विकास में एक सकारात्मक क्रन्तिकारी बदलाव लाने की क्षमता रखता है, विशेष कर किसी भी क्षेत्र के लोगों/ग्रामीणों के जीवन के स्तर को उन्नत बनाने में बड़ा सामाजिक प्रभाव पैदा कर सकता है। इसलिए सरकार बिजली के उचित साधन उपलब्ध करने के लिए विभिन्न प्रकार के परियोजनायों का संचालन करती रहती है और ऐसी ही एक परियोजना घाटदुलमी गाँव के लिए प्रस्तावित है जिसका नाम है "ग्रिड सब स्टेशन (१३२/३३ के.वी.) निर्माण परियोजना -घाटदुलमी, सराइकेला-खरसावाँ"।

विद्युत ग्रिड एक माध्यम है जिसके माध्यम से अंतिम उपयोगकर्ता को बिजली उत्पन्न, संचारित और वितरित किया जाता है। घर या व्यापार में उपयोगी होने की शक्ति के लिए, यह ट्रांसमिशन ग्रिड से निकल जाता है और वितरण ग्रिड में कदम रखा जाता है यह कई चरणों में हो सकता है ऐसा स्थान जहां "संचरण" से "वितरण" तक का रूपांतरण होता है, एक शक्ति सबस्टेशन में होता है। एक पावर सबस्टेशन आम तौर पर दो या तीन चीज़ें करता है:

- इसमें ट्रांसफार्मर हैं, जो कि "स्टेप डाउन" ट्रांसमिशन वोल्टेज (दसियों या सैकड़ों वोल्ट रेज में) नीचे वितरण वोल्ट्स (आमतौर पर 10,000 वोल्ट्स से कम) में हैं।
- इसकी एक "बस" है जो कई दिशाओं में वितरण शक्ति को विभाजित कर सकती है।
- यह अक्सर सर्किट तोड़ने वाले और स्विचेस होता है ताकि सबस्टेशन को ट्रांसमिशन ग्रिड से अलग किया जा सके या अलग-अलग वितरण लाइनों को जब आवश्यक हो तो सबस्टेशन से डिस्कनेक्ट किया जा सकता है।

बिजली ट्रांसफार्मर से वितरण बस में जाती है बस स्थानीय वितरण लाइनों को बिजली वितरित करता है बस का अपना ट्रांसफार्मर है जो स्थानीय ऊर्जा आवश्यकताओं के अनुसार वोल्टेज को भी नीचे या बढ़ा सकता है।

इस परियोजना से इस क्षेत्र में विद्युत की समस्या, छोटी या बड़ी के खत्म होने की पूरी संभावना है खासकर यह परियोजना इस क्षेत्र में लोगों का रुझान विद्युत पर निर्भर व्यवसाय की तरफ ले जायेगा और पहले से चल रहे

व्यवसाय को भी बेहतर बनाने में ये परियोजना मददगार साबित हो सकता है। इस प्रकार प्रस्तावित परियोजना के निर्माण से घाटदुलमी गाँव और इस क्षेत्र के लोगों को निश्चित रूप से लाभ मिलेगा और बिजली की समस्या से भी काफी हद तक निजात मिलेगा।

इस प्रकार यह स्टैष्ट है की प्रस्तावित परियोजना इस क्षेत्र के लिए काफी सहायक सिद्ध होगी और निश्चित रूप से घाटदुलमी गाँव एवं इस क्षेत्र के लोगों पर एक सकारात्मक सामाजिक प्रभाव डालेगी। घाटदुलमी गाँव का पूरा विवरण नीचे रिपोर्ट में दिया गया है। प्रस्तावित परियोजना “ग्रिड सब स्टेशन (१५/३३ के.वी.) निर्माण परियोजना - घाटदुलमी, सराइकेला-खरसावाँ” के अंतर्गत के अंतर्गत घाटदुलमी गाँव में प्रस्तावित कुल भूमि अधिग्रहण लगभग ७.४३ एकर्स है जिसमें करीब ०५ भूखंड शामिल हैं, इस परियोजना के भूमि अधिग्रहण से लगभग ५ परिवार/रैयत प्रभावित हो रहे हैं। कृषि पर निर्भरता कम होने के कारण ज्यादातर लोग अपनी आजीविका अर्जित करने के लिए आस-पास के संस्थानों में काम करते हैं। प्रस्तावित अधिग्रहण से ऐसा कोई रैयतों का नुकसान नहीं हो रहा है बल्कि इस परियोजना से इस क्षेत्र के ग्रामीणों का जीवन और उन्नत होने की संभावना है।

प्रस्तावित परियोजना के मद्देनजर रैयत सरकार के इस योजना से खुश दिखाई दिए लेकिन उन्होंने परियोजना प्रभावित परिवार के लोगों को तकलीफों से बचाने के लिए समय पर उचित मुवाबजा प्रदान करने का अनुरोध भी किया। आसपास के लोग भी इस परियोजना से खुश थे क्योंकि प्रस्तावित “ग्रिड सब स्टेशन (१३२/३३ के.वी.) निर्माण परियोजना - घाटदुलमी, सराइकेला-खरसावाँ” एक प्रकार से बिजली की समस्या को काफी हद तक हल कर लेगा औ एक बेहतर जीवन इस क्षेत्र के ग्रामीणों को प्रदान करेगा। हमारे द्वारा की गयी सामाजिक प्रभाव आकलन से प्रमुख निष्कर्ष यह निकलता है कि इस गाँव के लोग/रैयत सरकार द्वारा पहल का समर्थन करते हैं और इस परियोजना के समर्थन में हैं क्योंकि यह क्षेत्र के लिए बहु-उपयोगी और लाभकारी होगा। इसलिए वे झारखंड सरकार को प्रक्रिया के तहत भूमि देने के इच्छुक हैं। एसआईए डाटा संग्रहण के दौरान मुआवजे, भुगतान की स्थिति और दर पर कुछ / मुद्दे उठाए गए थे जिसका उचित उत्तर दे कर रैयत को अपेक्षित मंचों में संबंधित अधिकारी तक पहुंचने के लिए उनका मार्गदर्शन किया गया और उन्हें यह भी बताया गया की सरकार इस अधिग्रहण से उत्पन्न गाँव वालों की कठिनाई को कम करने के लिए उचित कार्यवाही करेगी।

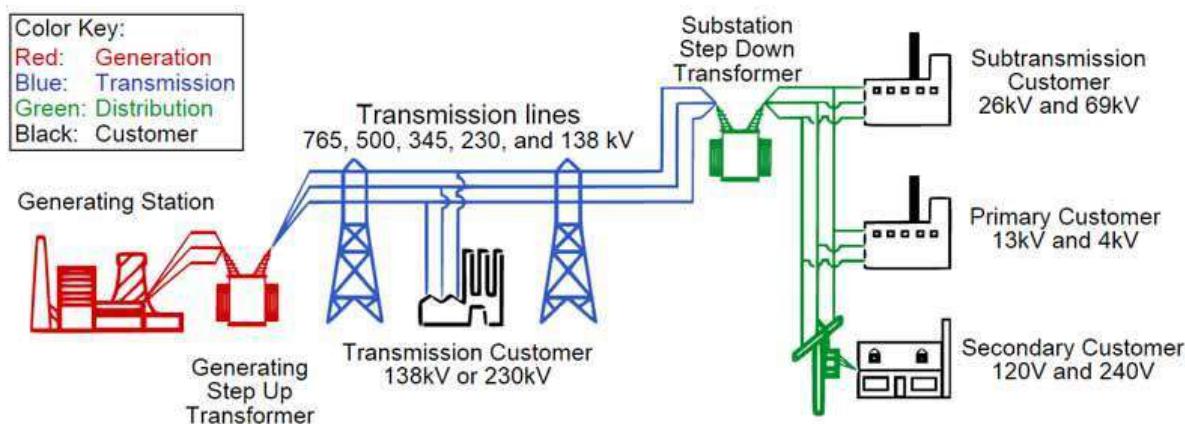
प्रस्तावित परियोजना के कारन स्थानीय स्तर पर उन्नत जीवन के लिए अनुमानित दीर्घकालिक लाभ के कारण, जो इस क्षेत्र के रैयत और ग्रामीणों के साथ चर्चा के दौरान आयी थी, हम परियोजना के लिए प्रस्तावित भूमि अधिग्रहण की सिफारिश करते हैं।

## 2. विस्तृत परियोजना विवरण

### 2.1 परियोजना पृष्ठभूमि

प्रस्तावित “ग्रिड सब स्टेशन (१३२ /३३ के.वी.) निर्माण परियोजना -घाटदुलमी , सराइकेला-खरसावाँ” के अंतर्गत ग्रिड सब स्टेशन का निर्माण घाटदुलमी गाँव मे पास होना है। जैसा की ऊपर भी उल्लेखित है इस क्षेत्र में चुंकि सिचाई की बहुत अच्छी व्यवस्था अभि नहीं हैं इसलिए इस क्षेत्र में मुख्यता किसान बारिश पर निर्भर कृषि कर रहें हैं। कृषि पर निर्भरता कम होने के कारण ज्यादातर लोग अपनी आजीविका अर्जित करने के लिए आस-पास के संस्थानों मे काम करते हैं और कुछ मजदूरी भी करते हैं या फिर कुछ लोग छोटे-छोटे दुकान खोल कर अतिरिक्त आमदनी की व्यवस्था भी किये हुए हैं। बिजली की समस्या एक आम समस्या है और यह क्षेत्र भी इससे अछुता नहीं है अतः प्रस्तावित परियोजना से इस क्षेत्र मे व्यापक सुधार आने के अलावा बिजली की समस्या को भी काफी हद तक दूर करने मे मदद करेगा, खास कर के इस क्षेत्र के ग्रामीण इससे लाभान्वित होंगे और यह उन्हें एक उन्नत जीवन प्रदान करने मे मददगार भी होंगे।

प्रस्तावित “ग्रिड सब स्टेशन (१३२ /३३ के.वी.) निर्माण परियोजना -घाटदुलमी , सराइकेला-खरसावाँ” के अंतर्गत घाटदुलमी गाँव मे प्रस्तावित कुल भूमि अधिग्रहण लगभग ७.४३ एकर्स है जिसमें करीब ५ भूखंड शामिल हैं, इस परियोजना के भूमि अधिग्रहण से लगभग ५ परिवार/रैयत प्रभावित हो रहे हैं।



इस पावर ग्रिड को तीन चरणों में विभाजित किया जा सकता है: बिजली उत्पादन, संचरण और वितरण। इन चरणों मे से प्रत्येक को नीचे विवरण में समझाया गया है।

#### विद्युत उत्पादन:

विद्युत संयंत्रों में बिजली उत्पन्न होती है जो अक्सर आबादी वाले क्षेत्रों से दूर स्थित होती हैं। थर्मल, परमाणु, जल, सौर, पवन आदि ऐसे विभिन्न विद्युत उत्पादन केंद्र हैं। एक विद्युत संयंत्र में दो या अधिक 3 चरण के वैकल्पिक समांतर हो सकते हैं जो समानांतर में संचालित होते हैं। 11 किलोवां से 25 केवी तक के वोल्टेज में विद्युत संयंत्रों में बिजली उत्पन्न होती है। तकनीकी सीमाओं के कारण जनरेशन वोल्टेज बहुत ज्यादा नहीं हो सकता।

## संचरण:

अधिक दूरी पर बिजली के संचरण के लिए, उत्पन्न वोल्टेज को एक उच्च स्तर तक बढ़ाया जाता है इस उद्देश्य के लिए एक कदम अप ट्रांसफार्मर का उपयोग किया जाता है, जो वर्तमान में इसी कमी के साथ वोल्टेज स्तर को बढ़ाता है। संचरण लाइनों में I2R घाटे को कम करके ट्रांसमिशन दक्षता में वृद्धि करने के लिए वोल्टेज को बढ़ाया जाना ज़रूरी है। उच्चतर ट्रांसमिशन वोल्टेज का अर्थ मौजूदा से कम है और इसलिए, I2R का नुकसान कम है। ट्रांसमिशन वोल्टेज सामान्यतया 220kV या 765kV तक अधिक है। एक शहर के बाहरी इलाके में ट्रांसमिशन लाइनों को अक्सर लंबा टॉवर पर चलने में देखा जाता है।

अधिकतर उच्च वोल्टेज पर सामान्यतः 3-चरण एसी बिजली विद्युत पारेषण के लिए उपयोग की जाती है। लेकिन बिजली इलेक्ट्रॉनिक्स में प्रगति के कारण, एचवीडीसी (उच्च वोल्टेज डीसी) ने लंबी दूरी की संचरण के लिए कई फायदे साबित कर दिए हैं। इसलिए, एचवीडीसी ट्रांसमिशन सिस्टम बहुत लंबी दूरी की विद्युत पारेषण के लिए नियोजित किया जा रहा है। एसी बिजली ट्रांसमिशन के लिए कनवर्टर स्टेशन पर एचवीडीसी में परिवर्तित हो जाती है, और फिर इसे दूसरे छोर पर एसी में परिवर्तित कर दिया जाता है। साथ ही, विभिन्न आवृत्तियों के साथ गठजोड़ करने के लिए आज ही एचवीडीसी लिंक ही एकमात्र विकल्प है।

## वितरण:

ट्रांसमिशन सिस्टम से पावर को एक प्राथमिक चरण-डाउन सबस्टेशन में एक कदम-डाउन ट्रांसफार्मर का उपयोग करके काफी कम वोल्टेज (33 से 66kV) कहते हैं। तब बिजली वितरण सबस्टेशन या सीधे बहुत बड़े औद्योगिक उपभोक्ताओं के लिए किया जाता है। वितरण सबस्टेशन में, बिजली आगे नीचे कदम रखा गया है (11kV पर कहते हैं) ऊपरी या भूमिगत वितरण लाइनों का उपयोग करके विद्युत वितरण किया जाता है, जो आमतौर पर एक अंगूठी या जाल नेटवर्क प्रकारों में जुड़े होते हैं। वितरण ट्रांसफार्मर का इस्तेमाल वोल्ट वोल्टेज (120 वोल्ट या 230 वोल्ट) को कम करने के लिए किया जाता है और माध्यमिक वितरण लाइनों का उपयोग करते हुए कई उपभोक्ताओं को आपूर्ति करता है।

यह, हालांकि, एक विद्युत शक्ति ग्रिड का एक सामान्य अवलोकन है। लेकिन, व्यावहारिक रूप से, एक पावर ग्रिड अधिक जटिल है। संचरण और वितरण के लिए वोल्टेज स्तर व्यापक रूप से भिन्न होते हैं।

## 2.2 परियोजना और सार्वजनिक उद्देश्य के लिए तर्क

प्रस्तावित "ग्रिड सब स्टेशन (१३२ /३३ के.वी.) निर्माण परियोजना -घाटदुलमी, सराइकेला-खरसावाँ" के अंतर्गत ग्रिड सब स्टेशन का निर्माण घाटदुलमी गाँव में पास होना है। जैसा की ऊपर भी उल्लेखित है प्रस्तावित परियोजना से

इस क्षेत्र के लोगों के जीवन को उन्नत बनाने में व्यापक सुधार होने की संभावना से इंकार नहीं किया जा सकता है इस परियोजना से इस क्षेत्र में विद्युत् की समस्या, छोटी या बड़ी के खत्त होने की पूरी संभावना है खासकर यह परियोजना इस क्षेत्र में लोगों का रुझान विद्युत् पर निर्भर व्यवसाय की तरफ ले जायेगा और पहले से चल रहे व्यवसाय को भी बेहतर बनाने में ये परियोजना मददगार साबित हो सकता है। इस प्रकार प्रस्तावित परियोजना के निर्माण से घाटदुलमी गाँव और इस क्षेत्र के लोगों को निश्चित रूप से लाभ मिलेगा और बिजली की समस्या से भी काफी हद तक निजात मिलेगा।

प्रस्तावित "ग्रिड सब स्टेशन (१३२/३३ के.वी.) निर्माण परियोजना -घाटदुलमी, सराइकेला-खरसावाँ" इस क्षेत्र की अनिवार्यता है मगर साथ ही रैयतों की सुरक्षा के लिए परियोजना प्रभावित परिवारों के पुनर्वास और पुनर्वसन की भी उतनी ही आवश्यकता है। पुनर्वास नई "भूमि अधिग्रहण, पुनर्वास और पुनर्वसन अधिनियम, 2013 में निष्पक्ष मुआवजा और पारदर्शिता का अधिकार के अनुसार किया जाना है। बराज निर्माण के लिए प्रस्तावित परियोजना क्षेत्र काफी उपयुक्त हैं और पुनर्वास और पुनर्वसन समिति के सदस्यों के परामर्श और प्रस्तावित क्षेत्रों के रैयत के आकांक्षा के अनुरूप और जरूरत के अनुसार वो उपयुक्त स्थानों पर पुनर्स्थापित किए जाएंगे।

### 2.3 परियोजना विवरण और वैकल्पिक विश्लेषण

प्रस्तावित "ग्रिड सब स्टेशन (१३२/३३ के.वी.) निर्माण परियोजना -घाटदुलमी, सराइकेला-खरसावाँ" इस जिले के घाटदुलमी गाँव में प्रस्तावित है। एक उन्नत विद्युत् व्यवस्था किसी भी क्षेत्र के लोगों को उन्नत बनाती है जो उस क्षेत्र में विकास की नीव रखता है और साथ ही साथ देश की अर्थव्यवस्था में एक निर्णायिक भूमिका निभाता है। अच्छी बिजली व्यवस्था के निर्माण के उन्नयन और सुधार कार्यों को पहचानने और कार्यान्वित करने के लिए राज्य सरकार द्वारा "झारखण्ड त्वरित विकास" के लिए इस प्रकार की परियोजना एक बहुत बड़ी भूमिका निभाता है।

प्रस्तावित "ग्रिड सब स्टेशन (१३२/३३ के.वी.) निर्माण परियोजना -घाटदुलमी, सराइकेला-खरसावाँ" के अंतर्गत घाटदुलमी गाँव में प्रस्तावित कुल भूमि अधिग्रहण लगभग ७.४३ एकर्स है जिसमें करीब ५ भूखंड शामिल हैं, इस परियोजना के भूमि अधिग्रहण से लगभग २० के आसपास परिवार/रैयत प्रभावित हो रहे हैं। घाटदुलमी गाँव और उनके अंचल का नाम नीचे तालिका में दिया हुआ है।

क्रमांक	अंचल का नाम	गाँव का नाम
१	चांडिल	घाटदुलमी

इससे पहले परियोजना के लिए ग्रिड सब स्टेशन बनाने वाले विभाग द्वारा सभी आवश्यक सूचनायें जमा करने के बाद, सराइकेला-खरसावाँ जिला के उपायुक्त(डी.सी.) ने प्रस्तावित "ग्रिड सब स्टेशन (१३२/३३ के.वी.) निर्माण परियोजना -घाटदुलमी, सराइकेला-खरसावाँ" के निर्माण के लिए महत्वपूर्ण परियोजना गतिविधि "सामाजिक प्रभाव आकलन (एसआईए)" को मंजूरी दे दी थी। झारखण्ड भू अर्जन अधिनियम 2015 के दिशा निर्देश के तहत एसआईए की पूरी गतिविधि की जा रही है।

हाल के वर्षों में, परियोजना प्रभावित इलाकों में रहने वाले आबादी की आकांक्षाओं को पूरा करने और नई भूमि अधिग्रहण और पुनर्वास और पुनर्स्थापना (आर एंड आर) अधिनियम को भारत सरकार द्वारा लाया गया था। एक नया अधिनियम, "उचित मुआवजा और उचित स्थानान्तरण के लिए आवश्यकताओं को वैध बनाने के लिए सितंबर, २०१३" में केंद्रीय सरकार द्वारा भूमि अधिग्रहण, पुनर्वास और पुनर्स्थापना अधिनियम २०१३ में उचित मुआवजा और पारदर्शिता का अधिकार दिया गया है। यह अधिनियम १ जनवरी २०१४ से लागू हुआ है। आरएफसीटीएलआरआर - २०१३ के अधिनियम के तहत, बिजली विभाग ने पश्चिम सिंधभूम जिले में ऊपर लिखित गावों के अंतर्गत आनेवाली भूमि के अधिग्रहण के लिए मांग जमा की थी और गांवों को इसके लिए अधिसूचना जारी कर दी गई थी।

## 2.4 लागू कानूनों और नीतियां

इस खंड में देश के मौजूदा कानूनों और विनियमों के बारे में बताया गया है, प्रस्तावित "ग्रिड सब स्टेशन (१५ /३३ के.वी.) निर्माण परियोजना -घाटदुलमी , सराइकेला-खरसावाँ", झारखंड के तहत होने वाले प्रस्तावित अधिग्रहण के लिए लागू होते हैं। यहाँ यह उल्लेख करना अनावश्यक है कि परियोजनाओं को कार्यान्वित करने में कानूनी और प्रक्रियाओं को समझने के लिए अधिनियमों और नीतियों का विश्लेषण करना और उसमें मौजूद अंतराल की पहचान करना कितना महत्वपूर्ण है। प्रस्तावित अधिग्रहण के लिए भूमि अधिग्रहण, पुनर्वास और पुनर्स्थापन पर लागू कानून, जैसा ऊपर भी उल्लिखित है, ये हैं:

- भूमि अधिग्रहण, पुनर्वास और पुनर्स्थापन अधिनियम, २०१३ में उचित मुआवजा और पारदर्शिता का अधिकार
- भूमि अधिग्रहण, पुनर्वास और पुनर्स्थापन (सामाजिक प्रभाव आकलन और सहमति) नियम, २०१५ में उचित मुआवजा और पारदर्शिता का अधिकार

## ३ . टीम रचना, दृष्टिकोण, विधि और एसआईए

### ३.१ टीम की रचना

सामाजिक प्रभाव आकलन टीम की रचना तालिका १ में दी गई है जो सामाजिक प्रभाव आकलन को पूरा करने के लिए जिम्मेदार है। टीम का प्रत्येक सदस्य अपने क्षेत्र में अनुभवी हैं और कार्य को प्रभावी तरीके से करने में सक्षम है।

#### तालिका ३ : विशेषज्ञ टीम के सदस्य

क्रमांक	नाम	योग्यता	लिंग	विशेषज्ञता
१	हेमंत तिर्की	एम.वी.ए .	पुरुष	सोशल मोबिलाईज़र और टीम लीडर
२	ज्ञान प्रकाश	पी.जी इन कंप्यूटर एप्लीकेशन	पुरुष	सोशल मोबिलाईज़र और डाटा एनालिस्ट

### ३.२ पद्धति के लिए विवरण और तर्क

सामाजिक प्रभाव आकलन (एसआईए) का बुनियादी ढांचा परियोजनाओं और अन्य विकास हस्तक्षेपों के सामाजिक प्रभावों की समीक्षा करने की एक पद्धति है। सामाजिक प्रभाव आकलन अब बुनियादी ढांचे और विकास परियोजना प्रक्रिया का एक अभिन्न अंग बन गया है, जहां पर विशेष रूप से सामाजिक प्रभाव शमन योजना तैयार करने पर पूरी तरह ध्यान केंद्रित किया जाता है, जो बड़े पैमाने पर परियोजना प्रभावित परिवारों (पीएएफ) के सामाजिक दुखों का ख्याल रखता है।

एसआईए को परियोजना-प्रभावित परिवारों (पीएएफ) के साथ सामाजिक-आर्थिक सर्वेक्षण, पीआरए, एफजीडी के रूप में किया गया, जिसने परियोजना-प्रेरित विस्थापन का सामना करने वाले लोगों और समुदायों पर सामाजिक और आर्थिक प्रभावों की पहचान की गई। सामाजिक प्रभाव निर्धारण में इन हस्तक्षेपों द्वारा लागू किए गए किसी भी सामाजिक परिवर्तन प्रक्रियाओं (नीतियों, कार्यक्रमों, योजनाओं, परियोजनाओं) के उद्देश्य और अनदेखा सामाजिक परिणामों, सकारात्मक और नकारात्मक दोनों के विश्लेषण, निगरानी और प्रबंधन की प्रक्रियाएं शामिल हैं। इसके अतिरिक्त, इस प्रकार उत्पन्न डेटा का उपयोग शमन उपायों के डिजाइन के साथ-साथ विभिन्न चरणों में निगरानी का कार्यान्वयन भी किया जाता है। वर्तमान आंकड़ों को एकत्रित करने के लिए, कई प्राथमिक और माध्यमिक डेटा स्रोतों का इस्तेमाल किया गया है और जहाँ जरूरत पड़ी है वहां परामर्श भी किया गया है।

### एसआईए और सामाजिक प्रभाव प्रबंधन योजना प्लान तैयारी प्रक्रिया

सामाजिक प्रभाव का आकलन और सामाजिक प्रभाव प्रबंधन योजना तब आवश्यक होती है जब परियोजना का परिणाम लोगों के भौतिक या आर्थिक विस्थापन में होता है। योजना को यह सुनिश्चित करना चाहिए कि परियोजना से प्रभावित लोगों की आजीविका परियोजना के प्रारंभ होने से पहले प्रचलित स्तरों पर बहाल हो जाए। प्रभावी एसआईए और सामाजिक प्रभाव प्रबंधन योजना तैयार करने के लिए कुछ महत्वपूर्ण घटकों और कदमों को ध्यान में रखा जाना, परियोजना के सामाजिक-आर्थिक प्रभावों की पहचान, सार्वजनिक / सामुदायिक परामर्श, भूमि अधिग्रहण और मुआवजे के लिए कानूनी संरचना, पात्रता नीति, स्थानांतरण और पुनर्वास, आय बहाली और आर एंड आर बजट का विवरण वर्गीकृत करना है।

### अध्ययन का उद्देश्य

अध्ययन का उद्देश्य झारखंड के अनुमोदित दिशानिर्देशों के अध्याय के नियम १० और ११ के अनुसार सामाजिक प्रभाव निर्धारण मूल्यांकन का संचालन करना है, जो विभाग द्वारा जारी भूमि अधिग्रहण, पुनर्वास और पुनर्वसन नियम,

२०१५ (जेआरएफसीटीएलएआरआर) में उचित मुआवजा और पारदर्शिता का अधिकार देता है, यह झारखण्ड सरकार के राजस्व और भूमि सुधार विभाग द्वारा, पत्र संख्या-१०ए/भु.ए.नि./नियमावली-२१/२०१५/१३१ / नि.रा. दिनांक ३०/०३/२०१५, के माध्यम से जारी किए गए हैं।

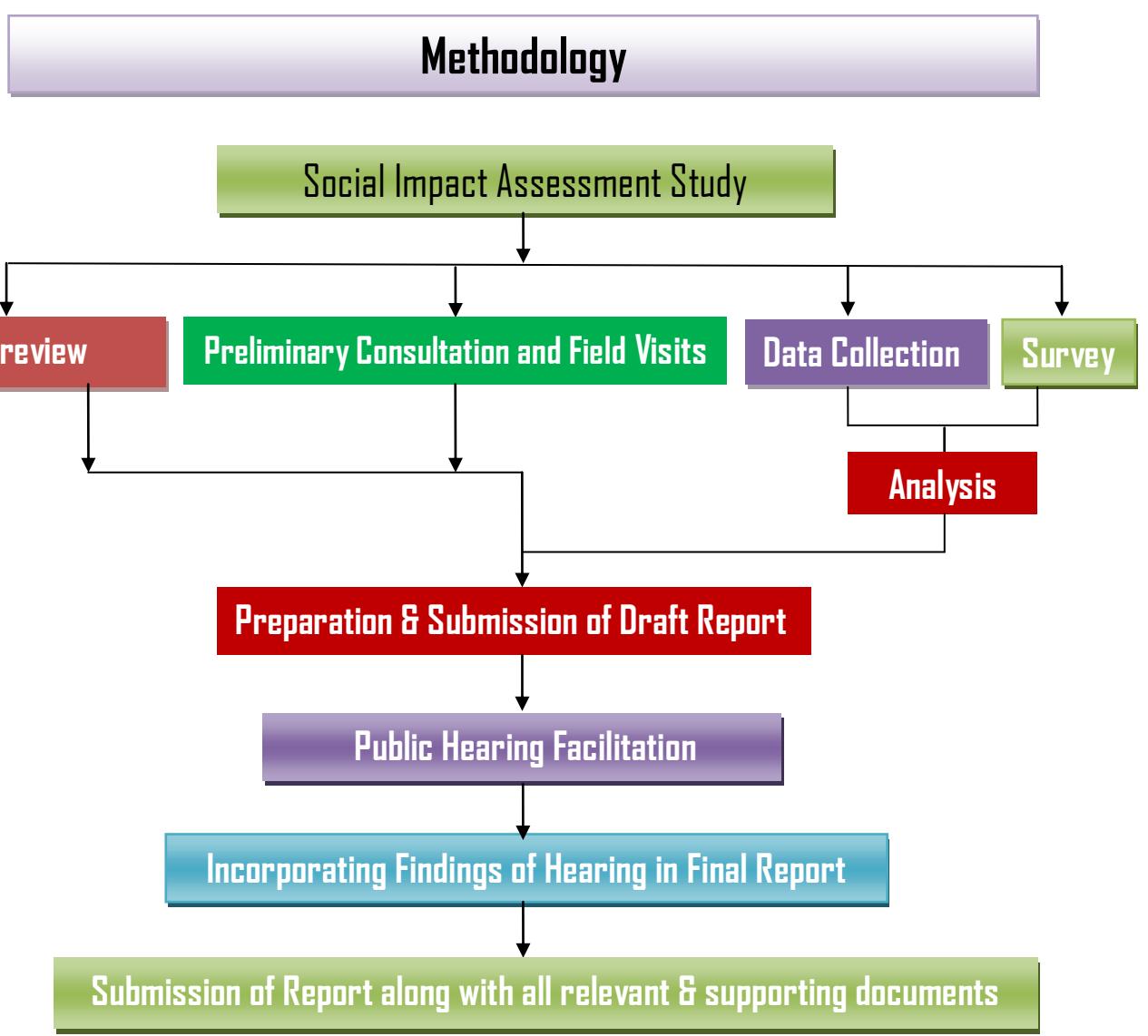
### दृष्टिकोण और विधिवृद्धि

सामाजिक प्रभाव का आकलन (एसआईए) का अध्ययन जेआरएफसीटीएलएआरआर नियम २०१५ के अनुसार तैयार किया गया है। सामाजिक प्रभाव आकलन पद्धति तीन तत्वों पर आधारित है:

-पीआरए टूल (ग्राम सर्वेक्षण, सामाजिक-संसाधन मानचित्र) के उपयोग के माध्यम से ग्राम के सामाजिक-आर्थिक समग्र परियोजना के प्रभाव को समझने के लिए ग्रामवासियों के साथ समूह बैठक।

-एफजीडी और सर्वेक्षण के माध्यम से लोगों के सामाजिक-आर्थिक स्थितियों का विस्तृत आकलन जो नकारात्मक रूप से प्रभावित हो सकते हैं।

-परियोजना प्रभावित परिवारों के साथ बैठक।



### अध्ययन क्षेत्र :

**सराइकेला-खरसावाँ जिला :** सराइकेला की मिट्टी "छौ" की लय के साथ जीवंत है, जिसने न केवल भारतीय कला प्रेमियों की कल्पना की कल्पना की थी, बल्कि दुनिया भर में कला प्रेमियों को अपनी अद्वितीय भव्यता से अकार्षित और मोहित किया था। 1620 में, कुमार बिक्रम सिंह, तीसरा महाराजा जगन्नाथ सिंह ने सराइकेला राज्य की स्थापना की, जो बिहार के साथ विलय हो गई थी। आजादी के बाद राज्य को खारसाना राज्य की सीमाओं के साथ विलय के उपरांत सब-डिवीज़न का स्थान दिया गया। बाद में "टेरिटरी एक्ट, १९५०" के आधार पर चंदिल, निमदिह और तामार इलाके के 39 गांवों को इसमें शामिल किया गया।



यह हरे भरे वनों, पहाड़ी, नागिन और नदियों की तरह घिरा हुआ है। सराइकेला टाउन नदी के किनारे स्थित है। सराइकेला-खरसावाँ जिला में न केवल एक समृद्ध सांस्कृतिक विरासत है बल्कि इसमें किनाइट, एस्बेस्टोस, कार्टूज आदि अन्य मूल्यवान खनियों बड़ी जमाराशि है। जिले में आदित्यपुर औद्योगिक क्षेत्र भी शामिल है जो एशिया के सबसे बड़े औद्योगिक क्षेत्रों में से एक है।

साराइकेला-खारसवाना जिले की 2011 की जनगणना के अनुसार कुल जनसंख्या 1063458 है। कुल पुरुष 544411 और महिलाएं 520323 हैं। कुल जनसंख्या का 612993 साक्षर हैं। इसका कुल क्षेत्रफल 2724.55 वर्ग किलोमीटर है। यह राज्य में जनसंख्या के मामले द्वारा 14 वां सबसे बड़ा जिला है जबकि पूरे देश में जनसंख्या के हिसाब से यह 424 वां सबसे बड़ा जिला है। इसके अलावा यह पूरे राज्य में क्षेत्र के मामले में 14 वां सबसे बड़ा जिला है। साक्षरता दर के हिसाब से यह जिला राज्य का 7 वां सबसे बड़ा जिला है और इसकी साक्षरता दर 68.85% है। साक्षरता दर में पूरे देशमें इसकी रैंक 418 है।

इरकहाड़ में टिकार नदी पर पुल, सराइकेला राजनगर में शामिल होने वाली सड़क पर टिटिर्बिला पुल, शाख नदी में पुलवाड़ ने जिले के विकासशील चरणों की रूपरेखा की। दूर ग्रामीण क्षेत्रों, ब्लॉक और जिला मुख्यालयों में शामिल होने वाली सड़क का निर्माण किया जा रहा है। पीने के पानी और सिंचाई के स्रोत के लिए ट्यूब कुओं, टैक और बांध का निर्माण किया जा रहा है। पुराने नहरों को भी पुनर्निर्मित किया जा रहा है। महिलाओं के लिए आयुर्वेदिक मेडिकल कॉलेज, निजी इंजीनियरिंग कॉलेज, अस्पताल और आईटीआई की स्थापना की योजना बनाई जा रही है ताकि महिलाओं का शैक्षिक विकास हो सके। जिला के सभी आठ ब्लॉक में नए विकास कार्यक्रम किए गए हैं। सरकार ने जिला को एक पर्यटन केंद्र के रूप में घोषित किया है क्योंकि यहां कई ऐतिहासिक और दर्शनीय स्थल हैं। वह दिन बहुत दूर नहीं है जब सराइकेला एक महत्वपूर्ण जिला बन जाएगा और पर्यटकों के आकर्षण का केंद्र होगा।

### ३.३ एसआईए के लिए जानकारी एकत्र करने के लिए उपयोग किए गए टूल

#### माध्यमिक स्रोतों से डेटा

माध्यमिक स्रोतों की जानकारी विभिन्न मंचों जैसे जिला भूमि अधिग्रहण कार्यालय, जनगणना डेटा, सांख्यिकीय की किताब, संबंधित विभागों और अन्य साहित्य से एकत्र की गई है। इस प्रकार, माध्यमिक स्रोतों की जानकारी ने प्राथमिक आंकड़ों को पूरित किया जो प्रभावित लोगों और अन्य हितधारकों से क्षेत्र सर्वेक्षण के माध्यम से हासिल किया गया था। विस्तृत क्षेत्र जांच करने से पहले परियोजना क्षेत्र की भौतिक, सामाजिक, आर्थिक और सांस्कृतिक स्थापना के बारे में एक समझ विकसित की गई थी।

#### प्रस्तावित क्षेत्र का दौरा और सूचना प्रसार

एसआईए टीम ने प्रस्तावित क्षेत्र पर नक्शे को सत्यापित करने और उसकी पहचान करने के लिए उन क्षेत्रों का दौरा किया। क्षेत्र की पहचान करने के बाद सर्वेक्षण दल ने परियोजना स्थल पर मुखिया/प्रधान/स्थानीय संसाधन व्यक्ति से परामर्श किया, जहां तक संभव हुआ भूमि अधिग्रहण के बारे में लोगों के विचारों और अन्य जानकारी को प्राप्त करने के लिए ग्रामीणों के साथ एफजीडी बैठक आयोजित की गई। सर्वेक्षण दल ने उन हितधारकों के साथ बैठकें भी आयोजित की जो इस परियोजना से प्रभावित हुए हैं। परियोजना के बारे में जानकारी और सर्वेक्षण प्रक्रिया भी उनके साथ साझा की गई थी।

#### बेसलाइन सामाजिक-आर्थिक शर्खियत

परियोजना क्षेत्र में प्रभावित होने की संभावना वाले भूखंडों की गणना और सत्यापन के बाद, प्रभावित परिवारों के सामाजिक-आर्थिक स्थितियों पर प्रस्तावित परियोजना के प्रभाव का आकलन करने के लिए ग्राम सामाजिक आर्थिक सर्वेक्षण / एफजीडी आयोजित किए गए थे। एक पूर्व-परीक्षण वाले "ग्राम सर्वेक्षण स्वरूप" की सहायता से ग्राम सर्वेक्षण, एफजीडी में व्यापक रूप से शामिल पहलुओं जैसे पीएफ का सामाजिक प्रोफाइल, परिवार के विवरण, व्यवसाय, और प्रभावित ढांचे, वाणिज्यिक/स्व रोजगार गतिविधियों, भूमि प्रकार, भू-उपयोग, परियोजना पर पीएफ के राय और विचारों के बारे में जानकारी के स्रोत की पहचान करना और पुनर्वास परियोजना के महत्वपूर्ण पहलू को व्यापक रूप से शामिल किया गया जिससे परियोजना प्रभावित क्षेत्रों को समझने और इसकी गणना करने में काफी मदद मिली।

#### ३.४ सर्वेक्षण और नमूना पद्धति

एसआईए सर्वेक्षण करने के लिए हितधारकों को २ श्रेणियों में विभाजित किया गया, प्राथमिक हितधारक और द्वितीयक हितधारक:

**प्राथमिक हितधारक:** इनमें अधिग्रहीत भूमि के मालिक, उनके परिवार, जिनके नाम जमाबंदी में दर्ज किए गए थे और जो लोग संपत्ति में अपनी साझेदारी का दावा करते हैं। इनमें वो लोग भी शामिल होंगे जो किसी न किसी तरह से अधिग्रहित की जा रही भूमि पर अपने आजीविका या रोजी रोटी के लिए आश्रित या निर्भर करते हैं।

**द्वितीयक हितधारक:** वो ग्रामीण जो भूमि अधिग्रहण से अप्रत्यक्ष रूप से प्रभावित हो रहे हैं।

**नमूनाकरण पद्धति:** गांवों में कुछ चुनिंदे रैयत जो इस परियोजना से प्रभावित हुए हैं उनके साथ इस अधिग्रहण के बारे में एक चर्चा हुई, चर्चा से निकली जनकारिओं को रिपोर्ट में अन्य सूचनाओं के साथ शामिल किए गए थे। हमने जहाँ तक संभव हुआ चर्चा में मुखिया/प्रधान को भी शामिल करने की कोशिश की ताकि परियोजना से प्रभावित

परिवार (पीएफ) इन लोगों से बाद में मदद के लिए मिल सके। इन प्रतिनिधियों की उपस्थिति में ग्राम बैठकें सीधे प्रभावित प्राथमिक हितधारकों के साथ किए गए थे।

### ३.५ डाटा स्रोतों का इस्तेमाल किया

अध्ययन के लिए इस्तेमाल किए गए डेटा स्रोतों को दो व्यापक श्रेणियों के तहत विभाजित किया गया है

#### १) प्राथमिक स्रोत

##### i) चुनिंदों पीएफ के साथ चर्चा:

इसमें प्राथमिक और कभी-कभी द्वितीयक हितधारकों के साथ आयोजित समर्पित चर्चा से एकत्र की गई जानकारी शामिल है और इन्हें फिर बाद में रिपोर्ट में शामिल किया जाता है।

##### ii) राय और प्रभाव आकलन सर्वेक्षण (एफजीडी):

प्रस्तावित परियोजना के प्रभाव का अध्ययन करने और परियोजना के बारे में विभिन्न हितधारकों की राय के लिए इन सर्वेक्षणों का आयोजन किया गया। इस सर्वेक्षण में ऐसे हितधारकों को भी शामिल किया गया जो परियोजना स्थल के पास के थे।

#### २) द्वितीयक स्रोत

क) भारत की जनगणना

ब) आरटीएफसीटीएलएआरआर, २०१३ और झारखंड आरटीएफसीटीएलएआरआर नियम, २०१५

### ३.६ एसआईए की अनुसूची:

#### तालिका ३.१ : परामर्श की अनुसूची

क्रमांक	ब्लॉक का नाम	गांव का नाम	तारीख
१	चांडिल-डाटा क्लेक्शन	घाटदुलभी	१२/०१/२०१८
२	चांडिल -जनसुनवाई	घाटदुलभी	

### ४. भूमि आकलन

#### ४.१ भूमि की आवश्यकता और वर्तमान उपयोग

प्रस्तावित “ग्रिड सब स्टेशन (१३२ /३३ के.वी.) निर्माण परियोजना -घाटदुलमी , सराइकेला-खरसावाँ” के अंतर्गत घाटदुलमी गाँव में प्रस्तावित कुल भूमि अधिग्रहण लगभग ७.४३ एकर्स है जिसमें करीब ५ भूखंड शामिल हैं, इस परियोजना के भूमि अधिग्रहण से लगभग ०५ परिवार/रैयत प्रभावित हो रहे हैं।

इस प्रस्तावित परियोजना के अंतर्गत घाटदुलमी गाँव में अधिग्रहण के लिए प्रस्तावित भूमि का विवरण, नीचे तालिका ४ में दिया गया है।

#### तालिका ४ : भूमि अधिग्रहण का विवरण

क्र.	खतियानी रैयत	वर्तमान रैयत	गाँव	खाता संख्या	प्लाट न.	क्षेत्र	भू प्रकार	वर्तमान रैयत संख्या
1	Dinu Sardar S/o Gurucharan Sardar	Dinu Sardar	Ghatdulmi	16	212	2.02	Purani Parti Kabil Abad	1
2	Mochi Ram Patar, Gulab Patar S/o Budhu Patar	Mochi Ram Patar, Gulab Patar	Ghatdulmi	42	213	3.65	Purani Parti Kabil Abad	2
3	Suchan Singh Munda S/o Dhan Singh Munda	Suchan Singh Munda	Ghatdulmi	69	209	1.49	Purani Parti Kabil Abad	1
4	Anabad Bihar Sarkar	Anabad Bihar Sarkar	Ghatdulmi	78	210	0.08	Purani Parti Kabil Abad	
5	Anabad Bihar Sarkar	Anabad Bihar Sarkar	Ghatdulmi	78	211	0.19	Purani Parti Kabil Abad	

#### ४.२ परियोजना के तहत प्रभाव का क्षेत्रफल

जैसा कि ऊपर भी उल्लिखित है, इस परियोजना के अंतर्गत आनेवाले गाँव घाटदुलमी मे भूमि अधिग्रहण ऐसा कोई नकारात्मक प्रभाव नहीं डाल रही है और ना ही कोई निजी संपत्ति का नुकसान हो रहा है।

#### तालिका ४.१ : भूमि आकलन का सारांश:

क्रमांक	भूमि का विवरण	उपलब्ध विवरण
१	खसर नक्शा और स्वामित्व के विवरण के साथ भूमि की सूची का विवरण हैं?	हाँ
२	प्रभाव के क्षेत्र का सीमांकन	हाँ
३	प्रस्तावित भूमि अधिग्रहण का स्थान	जिला सराइकेला-खरसावाँ में घाटदुलमी मे मुख्य सड़क से कुछ अन्दर के तरफ की फैली हुई भूमि
४	अधिग्रहण के लिए प्रस्तावित भूमि का कुल आकार	प्रस्तावित कुल भूमि अधिग्रहण लगभग ७.४३ है जिसमें करीब ५ भूखंड

		शामिल हैं
५	क्या किसी भी जमीन को पहले से ही खरीद लिया गया है या पहले से ही इस परियोजना के प्रयोजन के लिए अधिग्रहण किया गया है	नहीं
६	यदि भूमि कृषि भूमि है तो सिंचाई क्वरेज और फसल का पैटर्न क्या है	नहीं
७	भूमि की प्रकृति और भूमि का वर्तमान उपयोग।	इस भूमि पर वर्तमान में किसी भी प्रकार का उपयोग नहो किया जा रहा है एवं भूमि परती पड़ी है।
८	क्या होलिंग के आकार, स्वामित्व पैटर्न, भूमि वितरण और आवासीय मकान की संख्या के विवरण उपलब्ध हैं	हाँ

## ५. प्रभावित परिवारों और संपत्तियों की अनुमान और समापन

### ५.१ प्रभावित परिवारों के विवरण

प्राथमिक हितधारक गाँव के रैयत हैं जिनके भूमि का अधिग्रहण करना है। प्रस्तावित "ग्रिड सब स्टेशन (१३२/३३ के.वी.) निर्माण परियोजना -घाटदुलमी, सराइकेला-खरसावाँ" के अंतर्गत घाटदुलमी गाँव में प्रस्तावित कुल भूमि अधिग्रहण लगभग ७.४३ एकर्स है जिसमें करीब ५ भूखंड शामिल हैं, इस परियोजना के भूमि अधिग्रहण से लगभग ०५ परिवार/रैयत प्रभावित हो रहे हैं। इस क्षेत्र में चुंकि सिचाई की बहुत अच्छी व्यवस्था अभि नहीं हैं इसलिए ज्यादातर जगह पर वर्षा पर निर्भर कृषि का अभ्यास किया जा रहा है। यहाँ मुख्यता भूमि का प्रकार टाढ़ हैं जो कुल अधिग्रहण का लगभग १००% है और उपयोग में नहीं है। इस परियोजना में प्रस्तावित अधिग्रहण ऐसा कोई नकारात्मक प्रभाव रैयतों पर नहीं डाल रही है।

### ५.२ परोक्ष रूप से प्रभावित

इस क्षेत्र में लोगों के साथ बातचीत करने के बाद यह स्पष्ट हो गया था कि इस अधिग्रहण से कोई भी परिवार / व्यक्ति (द्वितीयक हितधारकों) पर ऐसा कुछ नकारात्मक प्रभाव नहीं पड़ रहा है क्योंकि उनमें से कोई भी हितधारक अधिग्रहित संपत्ति पर अपनी आजीविका के लिए निर्भर नहीं करता है। अधिकांश मामलों में यह देखा गया है कि द्वितीयक हितधारक प्रस्तावित परियोजना से खुश थे क्योंकि यह प्रस्तावित परियोजना इस क्षेत्र में बिजली की व्यवस्था में निश्चित रूप से सुधार लायेगा और काफी हद तक बिजली की समस्या का भी निदान होगा। अच्छी बिजली व्यवस्था से इस क्षेत्र के लोग उन्नत होंगे और निश्चित रूप से उनके स्तर में एक सकारात्मक सुधार आयेगा और इस क्षेत्र के विकास में काफी मददगार साबित होगा।

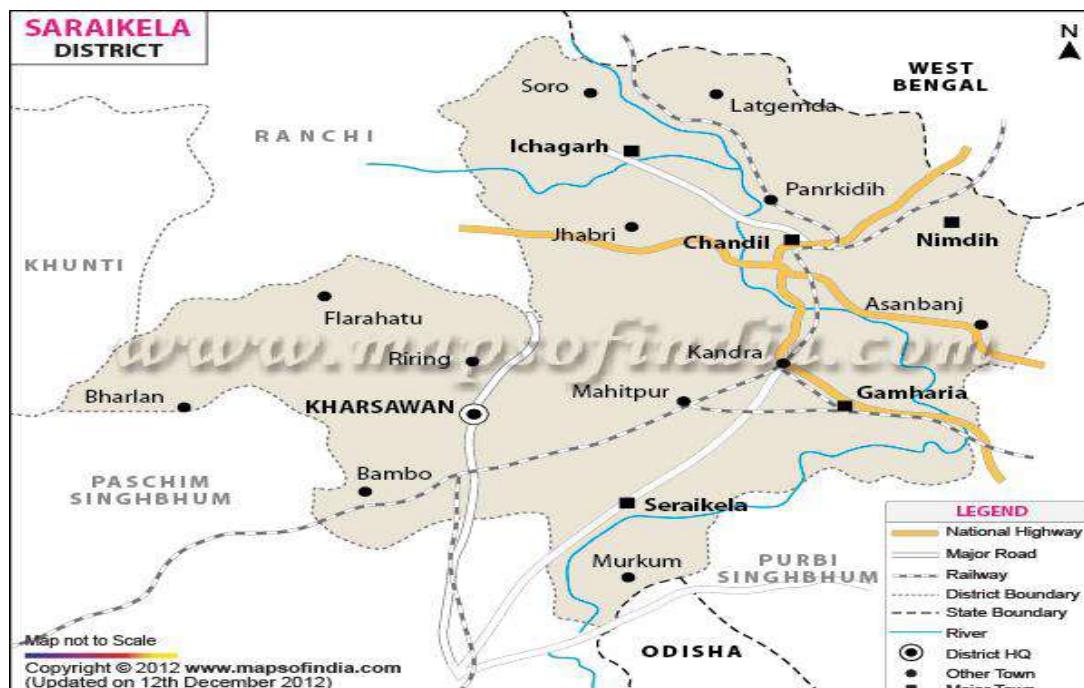
तालिका ५ : प्रभावित परिवारों के आकलन और गणना का सारः

क्रमांक	विवरण	उपलब्ध विवरण
A)	सीधे प्रभावित	
१	जमाबंदी में नाम के अनुसार वर्तमान भूमि मालिक	हाँ, सूची संलग्न (तालिका संख्या ४ के अनुसार)
२	क्या वहाँ किरायेदार हैं या किसी ने जमीन को अपने कब्जे में रखा है	नहीं
३	अनुसूचित जनजाति और अन्य पारंपरिक वनवासियों ने अपने वन अधिकारों को खो दिया है	नहीं
४	परियोजना प्रभावित परिवार आम संपत्ति संसाधनों पर निर्भर करता है और उनकी आजीविका भूमि के अधिग्रहण के कारण प्रभावित होंगे।	नहीं
५	अपनी किसी भी योजना के तहत उचित सरकार द्वारा पहले भूमि सौंपी गई हो और इस तरह की भूमि क्या प्रस्तावित अधिग्रहण के अंतर्गत आ रही है।	नहीं
६	अधिग्रहण से ३ साल पहले से आजीविका के प्राथमिक स्रोत के रूप में अधिग्रहित होने वाली जमीन पर निर्भर है।	नहीं
B)	परोक्ष रूप से प्रभावित	कोई अप्रत्यक्ष प्रभाव नहीं।

## ६. प्रभावी क्षेत्र और सामाजिक आर्थिक शब्दिसयत

### ६.१ परियोजना क्षेत्र में जनसंख्या का जनसांख्यिकीय विवरण

**सराइकेला-खरसावाँ जिला :** साराइकेला-खरसावाना जिले की 2011 की जनगणना के अनुसार कुल जनसंख्या 1063458 है। कुल पुरुष 544411 और महिलाएं 520323 हैं। कुल जनसंख्या का 612993 साक्षर हैं। इसका कुल क्षेत्रफल 2724.55 वर्ग किलोमीटर है। यह राज्य में जनसंख्या के मामले द्वारा 14 वां सबसे बड़ा जिला है जबकि पूरे देश में जनसंख्या के हिसाब से यह 424 वां सबसे बड़ा जिला है। इसके अलावा यह पूरे राज्य में क्षेत्र के मामले में 14 वां सबसे बड़ा जिला है। साक्षरता दर के हिसाब से यह जिला राज्य का 7 वां सबसे बड़ा जिला है और इसकी साक्षरता दर 68.85% है। साक्षरता दर में पूरे देशमें इसकी रैंक 418 है।



सराइकेला-खरसावाँ जिला हरे भरे वनों, पहाड़ी, नागिन और नदियों की तरह घिरा हुआ है। सराइकेला टाउन नदी के किनारे स्थित है। सराइकेला-खरसावाँ जिला में न केवल एक समृद्ध सांस्कृतिक विरासत है बल्कि इसमें किनाइट, एस्बेस्टोस, कार्ट्ट्ज आदि अन्य मूल्यवान खनियों बड़ी जमाराशि है। जिले में आदित्यपुर औद्योगिक क्षेत्र भी शामिल है जो एशिया के सबसे बड़े औद्योगिक क्षेत्रों में से एक है।

इस जिले के दूर ग्रामीण क्षेत्रों, ब्लॉक और जिला मुख्यालयों में शामिल होने वाली सड़क का निर्माण किया जा रहा है। पीने के पानी और सिंचाई के स्रोत के लिए ट्यूब कुओं, टैक और बांध का निर्माण किया जा रहा है। पुराने नहरों को भी पुनर्निर्मित किया जा रहा है। महिलाओं के लिए आयुर्वेदिक मेडिकल कॉलेज, निजी इंजीनियरिंग कॉलेज, अस्पताल और आईटीआई की स्थापना की योजना बनाई जा रही है ताकि महिलाओं का शैक्षिक विकास हो सके। जिला के सभी आठ ब्लॉक में नए विकास कार्यक्रम किए गए हैं। सरकार ने जिला को एक पर्यटन केंद्र के रूप में घोषित किया है क्योंकि यहां कई ऐतिहासिक और दर्शनीय स्थल हैं। वह दिन बहुत दूर नहीं है जब सराइकेला एक महत्वपूर्ण जिला बन जाएगा और पर्यटकों के आकर्षण का केंद्र होगा।

## घाटदुलमी गांव का जनसांख्यिकीय विवरण

विवरण/व्योरा	कुल	पुरुष	महिलाएं
मकानों की कुल संख्या	<b>113</b>	-	-
आबादी	<b>573</b>	300	273
बच्चे (०-६ वर्ष)	<b>87</b>	40	47
अनुसूचित जाती	<b>6</b>	4	2
अनुसूचित जन जाती	<b>484</b>	255	229
साक्षरता	<b>64.20 %</b>	78.85 %	47.35 %
कुल श्रमिक	<b>193</b>	171	22
मुख्य श्रमिक	<b>41</b>	29,363	0
सीमांत श्रमिक	<b>152</b>	134	18

### जनसंख्या विवरण:

गांव की जनसंख्या 573 है जिसमें से 300 पुरुष हैं जबकि 273 महिलाएं हैं। ०-६ की उम्र वाले बच्चों की संख्या गांव में 87 है, जो गांव की कुल जनसंख्या का 15.18% है। गांव का औसत लिंग अनुपात ९१० है जो झारखण्ड राज्य की औसत ९४८ से कम है। जनगणना के अनुसार बाल लिंग अनुपात ११७५ है, जो झारखण्ड की औसत ९४८ से ज्यादा है।

### साक्षरता स्तर:

झारखण्ड की तुलना में गांव में साक्षरता दर कम है। झारखण्ड की ६६.४१% की तुलना में गांव की साक्षरता दर ६४.२०% है। पुरुष साक्षरता ७८.८५% है जबकि महिला साक्षरता दर ४७.३५% है।

### जाति फैक्टर:

अनुसूचित जाति (एस.सी.) १.०५% जबकि अनुसूचित जनजाति (एस.टी.) गांव में कुल आबादी का ८४.४७% है।

### कार्य प्रोफाइल:

गाँव की कुल आबादी में 193 लोग कार्य गतिविधियां में लगे हुए हैं। २१.२४% श्रमिक अपने कार्य को मुख्य कार्य (रोजगार या ६ महीने से अधिक समय से कर्माई) के रूप में बताते हैं, जबकि ७८.७६% लोग ६ महीनों से कम अवधि के लिए आजीविका प्रदान करने वाली सीमांत गतिविधि में शामिल हैं। मुख्य कार्य में लगे 193 कर्मचारियों में, २०७ किसान (मालिक या सह-स्वामी) हैं जबकि ०१ कृषि मजदूर हैं।

## ७. सामाजिक प्रभाव

### ७.१ फ्रेमवर्क और प्रभाव पहचानने के लिए दृष्टिकोण

एसआईए, सामाजिक प्रभाव की संभावना का आकलन करता है जो कि विकास को बढ़ावा देने के लिए किए गए परियोजनाओं का कार्यान्वयन करने से हो सकती है। यह एक ऐसी व्यवस्था है जो निर्णयकर्ता को अपने कार्यों की संभावित नकारात्मक प्रभावों की भविष्यवाणी करने में मदद कर सकता है ताकि उनको रोकने के लिए आवश्यक कदमों को कम से कम समय पर लिया जा सके। निर्णय लेने की प्रक्रिया के लिए सहायता के रूप में, एसआईए सामाजिक और सांस्कृतिक कारकों पर जानकारी प्रदान करता है, जो सीधे या अप्रत्यक्ष रूप से परियोजना क्षेत्र के लोगों के जीवन पर प्रभाव डालते हैं।

सामाजिक प्रभाव आकलन के संचालन की प्रक्रिया को इस तरीके से डिजाइन किया गया है जिसमें प्रस्तावित अधिग्रहण के प्रभाव का आकलन करने के लिए व्यवस्थित तरीके से सभी हितधारकों को शामिल किया जाता है। प्रभावों की पहचान करने के लिए ढांचा और दृष्टिकोण निम्नलिखित चरणों में दिखाया गया है।

चरण १ : एसआईए टीम

चरण २ : साहित्य समीक्षा

चरण ३ : विभिन्न हितधारकों के साथ बैठक

चरण ४ : डेटा संग्रह (उपकरण: प्रश्नावली, एफजीडी, अनुसूची)

चरण ५ : डेटा प्रोसेसिंग

चरण ६ : रिपोर्टिंग

अधिग्रहण से मुख्य प्रभाव प्राथमिक हितधारक पर होता है क्योंकि जो भूमि अधिग्रहण का प्रस्ताव किया गया है वो बड़े पैमाने पर उनकी आजीविका को सीधे या अप्रत्यक्ष रूप से प्रभावित करता है।

### ७.२ परियोजना चक्र के विभिन्न चरणों में प्रभाव का वर्णन

प्रस्तावित “ग्रिड सब स्टेशन (132 /३३ के.वी.) निर्माण परियोजना -घाटदुलमी , सराइकेला-खरसावाँ” के लिए भूमि के अधिग्रहण का विभिन्न चरणों में सामाजिक प्रभाव अंकलन और आरएंडआर इस प्रकार है:

(I) पूर्व-निर्माण चरण के दौरान प्रभाव

(ii) निर्माण चरण के दौरान प्रभाव

(iii) ऑपरेशन चरण के दौरान प्रभाव

परियोजना के साथ जुड़े कुछ प्रभावों को नीचे दी गई सारणी में दिया गया है। सामाजिक प्रभाव प्रबंधन योजना का मुख्य उद्देश्य यह सुनिश्चित करना है कि जो कुछ भी विभिन्न प्रतिकूल प्रभाव हैं उनको कम किया जाए और सकारात्मक प्रभाव में बढ़ोतारी हो। सामाजिक प्रभाव प्रबंधन परियोजना के विभिन्न चरणों के दौरान इनका अंकलन किया गया, ये विभिन्न चरण हैं - पूर्व निर्माण चरण, निर्माण चरण के दौरान और ऑपरेशन चरण। परियोजना के विभिन्न चरणों के प्रभावों का वर्णन नीचे तालिका ७ में प्रस्तुत किया गया है जो ग्रामीणों से परामर्श के बाद निकलकर सामने आया है :

## तालिका ७ : परियोजना के विभिन्न चरणों में सामाजिक प्रभावों का आकलन

क्रमांक	पूर्व निर्माण	निर्माण	ऑपरेशन
१	भूमि का अधिग्रहण	वायु प्रदूषण	बिजली की व्यवस्था में सुधार होने की संभावना
२	मुआवजा और पुनर्वास का डर, क्या मुआवजे का भुगतान भूमि अधिग्रहण से पहले समय से होगा या नहीं ।	धनि प्रदूषण।	लोगों का रुझान बिजली पर निर्भर जीविका अर्जन के साधन के तरफ झुकाव बढ़ने की संभावना
३		निर्माण के दौरान रोजगार	खाली और बिना उपयोग के पड़े हुये भूमि से अर्जित मुवाबजे से रैयत को अपनी जीविका अर्जित करने या उसमे बढ़ोतरी करने के अवसर मिलने की संभावना

यह परियोजना निश्चित रूप से राइयतों पर एक सकारात्मक प्रभाव डाल रही है और इस क्षेत्र में लगने वाले ग्रिड सबस्टेशन को लेकर लोग खुश हैं। प्रभावित रैयतों ने भी अपनी भावनाओं को सकारात्मक रूप से व्यक्त किया और कहा कि आम तौर पर सरकार विकास की राह पर अस्थायी चुनौतियों के पीछे बड़ी तस्वीर देखती हैं। उन्होंने यह भी उल्लेख किया कि यदि सरकार हमसे जमीन ले रही है तो वे (सरकार) सभी संबंधित प्रभावित परिवारों (पि.ए.एफ.) को तदनुसार मुआवजे की व्यवस्था करेगी और सबसे अच्छी बात यह है की ये विकास कार्य सभी के अच्छे के लिए हो रहा है।

## ८. अधिग्रहण पर लाभ और सिफारिश का विश्लेषण

### सामाजिक मूल्यों और लाभों का आकलन

क्षेत्र / समाज में रहने वाले लोगों को असंख्य लाभ सुनिश्चित करने के उद्देश्य से ही कोई भी विकास परियोजना तैयार और प्रस्तावित की जाती है। इस परियोजना का उद्देश्य भी इस क्षेत्र में विकास लाने के लिए है ताकि लोगों की सामाजिक आर्थिक स्थिति को सकारात्मक रूप से उन्नत बनाया जा सके ताकि उनके जीवन स्तर को आगे उच्च स्तर पर लाया जा सके। प्रस्तावित परियोजना आसपास के क्षेत्र के लोगों के जीवन स्तर में निश्चित रूप से एक सकारात्मक सुधार लाएगी और बिजली के स्तर में संभावित सुधार के कारन इस क्षेत्र के लोगों के जीवन शैली में एक सकारात्मक बदलाव लाने में मदद करेगी। परियोजना के परिणामस्वरूप होने वाले कुछ व्यापक सकारात्मक और नकारात्मक प्रभावों के बारे में अच्छी तरह से विचार किया गया है जिसका विवरण नीचे तालिका ८ में उपलब्ध हैं:

### तालिका ८ : परियोजना के सकारात्मक और नकारात्मक प्रभाव:

क्रमांक	सकारात्मक प्रभाव	नकारात्मक प्रभाव	टिप्पणि
१	बिजली की व्यवस्था स्तर में सुधार होने की संभवना बढ़ेगी होगा और आनेवाले दिनों में इस क्षेत्र के लोगों की जीवन शैली बेहतर होगी	ग्रामीणों के भूमि का अधिग्रहण होगा	
२	क्षेत्र में बिजली की समस्या का काफी हद तक निरापद होने की संभावना है		
३	स्थानीय रोजगार के अवसर बढ़ सकते हैं क्योंकि बिजली की व्यवस्था में सुधार के कारन लोगों का रुद्धान बिजली पर आधारित व्यवसाय की तरफ बढ़ेगा, इसके अलावे बिजली के स्तर में सुधार के कारन कोई भी पहले से की जा रही व्यवसाय को बेहतर करने में मददगार ही होगी		सर्वेक्षण के माध्यम से विभिन्न हितधारकों द्वारा उल्लिखित सभी प्रभावों का सुझाव दिया गया है। अगर परियोजना से नकारात्मक प्रभावों को सफलतापूर्वक कम किया जा सकता है तो प्रस्तावित परियोजना बड़े पैमाने पर जनता को लाभ पहुंचाएगी।
४	अच्छी बिजली व्यवस्था से रैयत उन्नत होंगे और उनके रहन सहन के स्तर में सुधार होने की भी संभावना बढ़ेगी। इस मूलभूत व्यवस्था में सुधार के कारन आनेवाले पीढ़ी का स्तर बेहतर होने की संभावना है।		
५	जमीन के लिए क्षतिपूर्ति राशि उन्हें कुछ व्यवसाय शुरू करने का अवसर प्रदान करेगी।		

### तालिका ८.१: संभावित प्रभावों की सूची:

प्रभाव कारक	प्राथमिक हितधारकों पर प्रभाव	द्वितीयक हितधारकों पर प्रभाव
भूमि, मकान	<ul style="list-style-type: none"> <li>यह सभी प्राथमिक हितधारकों को प्रत्यक्ष रूप से प्रभावित कर रहा है</li> <li>भूमि की हानि से रैयत प्रभावित हो रहे हैं।</li> </ul>	यहाँ द्वितीयक हितधारकों पर कोई बड़ा प्रभाव नहीं पड़ रहा है।
आजीविका और आय	इस क्षेत्र में रहने वाले रैयत क्रमिक हैं और अपनी जीविका चलाने के लिए आसपास के इलाकों में काम या मजदूरी के लिये जाते हैं। प्रस्तावित परियोजना कुछ कृषक को प्रभावित कर रही है। मगर भविष्य में लोगों का रुझान बिजली पर आधारित व्यवसाय की तरफ बढ़ेगा, इसके अलावे बिजली के स्तर में सुधार के कारण कोई भी पहले से की जा रही व्यवसाय को बेहतर करने में मददगार ही होगी।	ऐसा कोई बड़ा प्रभाव नहीं पड़ रहा है। मगर भविष्य में लोगों का रुझान बिजली पर आधारित व्यवसाय की तरफ बढ़ेगा, इसके अलावे बिजली के स्तर में सुधार के कारण कोई भी पहले से की जा रही व्यवसाय को बेहतर करने में मददगार ही होगी।
भौतिक साधन	ऐसा कोई प्रभाव नहीं पड़ रहा है।	ऐसा कोई प्रभाव नहीं पड़ रहा है।
निजी संपत्ति	ऐसा कोई प्रभाव नहीं पड़ रहा है।	ऐसा कोई प्रभाव नहीं पड़ रहा है।
सार्वजनिक सेवाओं और उपयोगिताओं	ऐसा कोई प्रभाव नहीं पड़ रहा है।	ऐसा कोई प्रभाव नहीं पड़ रहा है।
स्वास्थ्य	प्रस्तावित अधिग्रहण के कारण प्राथमिक हितधारकों के स्वास्थ्य पर कोई संभावित नकारात्मक प्रभाव नहीं है।	प्रस्तावित अधिग्रहण के कारण, द्वितीयक हितधारक के स्वास्थ्य पर कोई संभावित नकारात्मक प्रभाव नहीं पड़ता है।
संस्कृति और सामाजिक सामंजस्य	संस्कृति और सामाजिक सामंजस्य पर कोई प्रत्यक्ष प्रभाव नहीं।	संस्कृति और सामाजिक सामंजस्य पर कोई प्रत्यक्ष प्रभाव नहीं।

## ९. सामाजिक प्रभाव प्रबंधन योजना

### ९.१ मुकाबला करने और क्षतिपूर्ति करने के उपाय:

झारखंड आरएफसीटीएलएआरआर नियम, २०१५ के अनुसार, प्रस्तावित “ग्रिड सब स्टेशन (१३२ /३३ के.वी.) निर्माण परियोजना -घाटदुलमी, सराइकेला-खरसावाँ” के तहत भूमि के अधिग्रहण के नकारात्मक सामाजिक प्रभावों को कम करने के लिए यह सामाजिक प्रभाव प्रबंधन योजना (एसआईएमपी) तैयार की गई है। सामाजिक प्रभाव प्रबंधन योजना (एस.आई.पी.) में प्रतिकूल सामाजिक प्रभावों को खत्म करने और इसे स्वीकार्य स्तरों तक ले जाने के लिए परियोजना के डिजाइन, निर्माण और संचालन के चरणों के दौरान शमन, निगरानी और संस्थागत उपायों का एक समूह शामिल है। सामाजिक प्रभाव प्रबंधन का मुख्य उद्देश्य यह सुनिश्चित करना है कि विभिन्न प्रतिकूल प्रभावों को कम किया जाय और सकारात्मक प्रभाव को ज्यादा से ज्यादा बढ़ाया जाय। सामाजिक प्रभाव प्रबंधन परियोजना को विभिन्न चरणों के दौरान कार्यान्वित किया जाएगा अर्थात् पूर्व निर्माण चरण, निर्माण के दौरान और अँपरेशनल चरण का मूल्यांकन अलग अलग चरणों में प्रभाव के आधार पर किया जायेगा।

### ९.२ प्रभाव से बचने, मुकाबला करने और क्षतिपूर्ति करने के उपाय:

१. परियोजना प्रभावित परिवारों को स्पष्ट रूप से उन लोगों से लिए जा रहे भूमि के बारे में सूचित किया जाना चाहिए, और तदनुसार कुल मुआवजा राशि की गणना कर भुगतान किया जाना चाहिए आदि। बीच में किसी भी प्रकार के बिचौलिया से पूरी तरह से बचा जाना चाहिए।

जन सुनवाई एक महत्वपूर्ण गतिविधि है और हमें यह सुनिश्चित करना होगा कि रैयतों के सभी संदेहों और समस्याओं को सकारात्मक रूप से हल किया जाए और उसका समाधान उनके संतुष्टि के स्तर तक किया जाये।

२. पीएएफ में से उन लोगों की चिंताओं और समस्याओं, जो विशेष रूप से अपने घरों को खो रहे हैं, को ध्यान में रखा जाना चाहिए और यह सुनिश्चित किया जाना चाहिए कि उनके घर को परियोजना के तहत लिए जाने से पहले उन्हें एक नए सिरे से जीवन यापन के लिए पुनर्वास प्रदान किया जाए।

३. भूमि के अधिग्रहण के बाद, रैयत को अधिग्रहित भूमि के लिए कर का भुगतान करने के बोझ से राहत दिया जाए।

४. यदि हितधारकों में कोई विवाद है, तो इस विवाद को पहले हल कर लिया जाना चाहिए और यह सुनिश्चित किया जाना चाहिए कि मुआवजे कानूनी मालिकों को ही दी जाये जिसके लिए पूरी जाँच पड़ताल अच्छे से की जानी चाहिए।

५. जनसुनवाई के दौरान रैयतों को बहुत ध्यान के साथ सुनना चाहिए और उन्हें एक उचित और संतोषजनक उत्तर नियम और कानून के अनुसार देना चाहिए।

### पुनर्वास और पुनर्स्थापन निवारण उपाय

१. पुनर्वास और पुनर्वास प्रक्रिया की पूरी प्रक्रिया और प्रवाह की हर गतिविधि के लिए समय सीमा के साथ सभी सम्बन्धितों को समझाया जाना चाहिए जब तक उन्हें पूरी प्रक्रिया से संतुष्टी न हो जाये।

२. उन सभी रैयत जो अपने घरों को खो रहे हैं उन्हें पुनर्वास की पूरी प्रक्रिया सही तरीके से समझाया जाना चाहिए।

३. यहां तक कि जिन लोगों की भूमि अधिग्रहीत की जा रही है, उन्हें भी विस्तार से बताया जाना चाहिए और संपूर्ण मुआवजा और पुनर्वास प्रक्रिया उन रैयतों को निर्धारित समय सीमा के साथ समझायी जानी चाहिए। एक विस्तृत स्तर की कार्रवाई योजनाओं को उन सभी मामलों के साथ साझा किया जाना चाहिए।

४. प्रभावित क्षेत्र में समुचित जल स्रोत सुनिश्चित करने के लिए निर्माण / निर्मित होने के लिए वैकल्पिक योजना तैयार होनी चाहिए।

तालिका ९: विभिन्न संभावित सामाजिक प्रभावों का विश्लेषण, और उनके प्रस्तावित उपाय:

क्रमांक	प्रभाव का प्रकार	स्थिति	प्रस्तावित शमन योजना
१	भूमि का नुकसान	हाँ, भूमि का नुकसान होगा	झारखंड-आरएफसीटीएलएआरआर नियम, २०१५ के अनुसार मुआवजा
२	बिल्ट-अप प्रॉपर्टी का नुकसान	नहीं	
३	उत्पादक संपत्ति का नुकसान	नहीं	
४	आजीविका का नुकसान	नहीं	
५	सार्वजनिक उपयोगिता लाइनों की हानि	नहीं	
६	सामान्य संपत्ति संसाधनों की हानि	नहीं	
७	नागरिक सेवाओं और आम संपत्ति संसाधनों तक पहुंच का नुकसान	नहीं	
८	सांस्कृतिक गुणों में कमी	नहीं	
९	कमजोर समूहों के विस्थापन	नहीं	

## १०. जनसुनवाई प्रतिवेदन

प्रस्तावित योजना हेतु किये गये सामाजिक प्रभाव मुल्याकन के पश्चात जमा किये प्रतिवेदन के अनुसार एक जन सुनवाई किया जाना आवश्यक था जिसमे रैयत के समस्त प्रश्नों तथा आशंकाओं का उचित स्पष्टीकरण भु-अर्जन पदाधिकारी, अंचलाधिकारी एवं बिजली विभाग के पदाधिकारी के द्वारा किया जाना था यह संपुर्ण जन सुनवाई, जिला भु-अर्जन पदाधिकारी, महोदय सराइकेला के अध्यक्षता में पुर्ण किया जाना निर्देशित है।

इस कार्य हेतु दिनांक २३ मार्च २०१८ को गाँव में सुबह ११ बजे से जिला के प्रतिनिधि एवं, जिला भु-अर्जन विभाग एवं सम्बंधित क्षेत्र के अंचलनिरीक्षक की अध्यक्षता में जन सुनवाई का आयोजन किया गया जिसमे जिला भु-अर्जन विभाग के प्रतिनिधि एवं बिजली निर्माण विभाग के प्रतिनिधि के साथ साथ, शारदा

एस आई ए इकाई के सदस्य, रैयत तथा ग्रामीण शामिल हुए।

दिनांक	रैयत का नाम	समस्या	निराकरण
२३/०३/२०१८	मोतीराम पातर	नौकरी में प्राथमिकता मिलना चाहिये।	उपस्थित अधिकारीयों ने बताया की यदि किसी भी प्रकार की नौकरी की वैस्था होगी तो प्राथमिकता जरूर डी जाईगी।
२३/०३/२०१८	गुलाब सिंह पातर	कितना मुवावजा राशी मिलेगी बताने का कष्ट करें।	उपस्थित अधिकारीयों ने बताया की ग्रामीण क्षेत्र में जमीन के मूल्य का चारगुना मिलेगा। यदि पेड़ पौधे जा रहे हैं तो उसका मुवावजा अलग से मिलेगा। यदि घर का नुकशान होगा तो वो वर्तमान कीमत से दो गुणा मिलेगा।
२३/०३/२०१८	हेमंत सिंह मुंडा	पुनर्वास की सुविधा मिलेगा की नहीं।	उपस्थित अधिकारीयों ने बताया की यदि घर बार का अधिग्रहण हो रहा है

		<p>तो पुनर्वास की सुविधा यह फिर पैसा मिलेगा. इस परियोजना के संदर्भ में किसी भी प्रकार के आवास का नुकशान नहीं हो रहा है. इस लिए पुनर्वास सुविधा नहीं मिलेगा.</p>
--	--	---



ओज रिलोक 23.3.18 को प्राप्त वार्तालामी में ग्राम प्रधान श्री बालेश्वर सिंह के अधिकारी में शाम-रात ती के लिए आहत की गई है। लिए का आधीनत जिन्हे भू अंडोन घासीकारी संस्थाकोटा के प्रक्रिय 220/पु.स्ट संस्थाकोटा दिनों ४.३.१८ के आसान में किया जा रहा है। यह केवल १३२/३३ के नवीनीकरण संस्थान जैका, गोजा वार्तालामी युवनार्द हेतु किया जा रहा है। इस वानू-समा में विवाहित रेखा / ग्राम प्रधान / मुख्यमान / नाइसल्फ एवं शामीग उल्लिखित हैं।

१. ग्राम प्रधान -

वानूवार्ता मिलेपुरा,

२३/०३/२०१८

२. मुख्यमान, युवार्द

श्रीमति देवी विध्या  
२३/०३/२०१८ विवाह संस्थान  
प्रबुल वानू-समा

३. नाइसल्फ -

काली वडा/तिहारोड़ा

४. फैसलिति सदस्य

श्रीमति विध्या  
२३/०३/२०१८

५. समाज सेवी सदस्य Ramdas sonia

६. दैवत, विवु सरदार

RTI

श्रीमा रामपाल  
RTI

मीरी राम पात्र

श्रीमिराम पात्र

गुलाब पात्र

गुलाब पात्र

सुर्पिल सिंह

श्रीमा रामपाल

७. जिला मुआजिला प्रबालिकारी

श्रीमति  
२३/०३/२०१८

८. विवु रामपाल काली वडा आमिना-वालिका

श्रीमति  
२३/०३/१८

९. सहायता कामिल क आमिना वालिका

श्रीमति  
२३/०३/१८

१०. सहायता कामिल क आमिना वालिका

श्रीमति  
२३/०३/१८

७७. ग्रामीण समाजिकों का इस्तावर

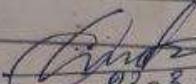
- १) साकृतिक
- २) लुक्केस्ट्रेटम्बर
- ३) निरोद सिंह पाल
- ४) जगद्वाप द्वासु
- ५) चाहिं रामा रामू
- ६) रामलु पाल

- ७) रामगोप्यपाल
- ८) आद्यु शिंह सरदार
- ९) सामलार R.C. सरदार

- १०) सोम योंदु कुमार
- ११) तपन छान्दार
- १२) Guna-dhar. Kumhar
- १३) सीम-योंदु माझ
- १४) kothi kishan
- १५) कोहाल्या डेवी (R.T.I.)
- १६) जाहुर दास
- १७) Ram kishan das
- १८) लाल दास
- १९) Shailendra Kumhar
- २०) (Hanshyam Mahato)
- २१) बुकापुरामि
- २२) वडी नाथ लक्ष्मी दास
- २३) उद्देश्वर मोहन

(28) मिनी लाइटर  
(29) लाइकोडा सिंह लुटा  
(30) लोन्गर बासी  
(31) अंगारा द्वितीय रेडार  
(32) Physical culture  
(33) लोन्गर मल भूमि  
(34) गान्धी संसदी  
(35)

32 लोन्गर द्वितीय रुम्ह

33  23-3-2018  
34 लोन्गर मल  
35 लोन्गर (द्वितीय रुम्ह)  
36 लोन्गर द्वितीय  
37 गोरा - 116 पाल  
38 लोन्गर 215 (216 रुम्ह)  
39 लोन्गर द्वितीय  
40 लोन्गर (216)

प्रत्यावरण संख्या - 1 मौजा घाटकुली में 132/33 के ० अ०  
श्रीड सब स्वेच्छान चौका का निर्माण मारुती  
जूरी संचरण निगम बिपिटेउ करेगी, जिसमें  
ग्राम समां सर्वसमानति से निर्णय लेचर  
निर्माण हेतु सहभाग देवीहु

प्रत्यावरण संख्या - 2 मौजा घाटकुली में प्रत्यावरण  
132/33 के ० अ० श्रीड निर्माण का अनु  
विवरण निम्नलिखत है

आना नं २०१ रकाना नं ० - १६ लौर संख्या २१२ रकाना ७-०२८८

ऐप्ट कार्गीम दितु सरकार पिल शुक्रवरण सरकार ग्राम-बालु

आना नं २०१ रकाना सं ० - ५२ लौर नं २१३ रकाना ३-६५५५३५

ऐप्ट का नाम सुपिरस्प भातर को शुक्रवरण भातर दितु का  
कुमु उंश लालन खाति शुगिज

मौजा घाटकुली भाना नं २०१- रकाना नं ६७ प्लॉड-२०७

रकाना १-०७९८५२ ऐप्ट का नाम- सुर्येन दितु शुगा पिल  
२०० धन सिंह शुगा

मौजा घाटकुली भाना सं २०१ रकाना सं ० ७४ लौर नं १०२१  
रकाना- ०.०६ एकड़, ०.१७ एकड़ (अन्यकांडा कार्यवाही लरकड़)

प्रत्यावरण - ३ ऐप्टों को पूर्ण शुगरान के बाह्य शृणि का  
उत्तिष्ठान किया जाए।

प्रत्यावरण ४. श्रीड निर्माण कार्य से ऐप्टों से यालीजों  
को योग्यता के आधार पर धार्मिकता दियाए।

प्रत्यावरण - ५. श्रीड निर्माण कार्य में आयोज होने वाली  
स्थानिकों का आश्रिति शाम वार्षीयों के बाय  
की किया जाए।

उपरीके विवरणी के सुभिपर १३२/३३ के ० अ०  
श्रीड निर्माण पर ग्रामवायीमों को सर्वसमानति से  
निर्णय लेनी ईरवं अनुमोदन करती है।

ग्राम बैठक की तस्वीरें:



आज दिनांक 12/01/2017 को शारदा एग्रीकल्चर रिसर्च एंड डेवलपमेंट लैंड रैपर्ट के लिए दिल्ली के लाल बाजार का आगोनन, किंग ग्राम। इस बाजार के रैपर्ट को डिए प्रक्रिया रख अंगावले की इस प्रकारियों दी गई। इस बाजार में निम्न लिखित रैपर्ट उपलब्ध है।

नाम

दृष्टिकोण

- ① गुलाब रस्ते पातर
- ② भरवीराम मामूलियु
- ③ मीठीराम पातर
- ④ जोधला देवी
- ⑤ सागरमनी हैवी
- ⑥ गुरुवारी देवी
- ⑦ श्रीगंगानी देवी



गुलाब रस्ते पातर  
भरवीराम मामूलियु  
मीठीराम पातर



सागरमनी हैवी



गुरुवारी देवी

श्रीगंगानी देवी