Final Report

ESIA Gap Closure | 50 MW Solar PV Plant | Raichur, Karnataka

Radiance Renewables Pvt Ltd

21 October 2024

Envint

Business for Better

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Abbreviations

AAQ	Ambient Air Quality
ACSR	Aluminum Conductor Steel Reinforced
AN	Ambient Noise
ATL	Pre-Agreement to Lease
AZE	Alliance for Zero Extinction
CEO	Chief Executive Officer
COO	Chief Operations Officer
CPCB	Central Pollution Control Board
CSR	Corporate Social Responsibility
CR	Critically Endangered
DC	District Collector
DD	Demand Draft
DISCOMS	Distribution Company
E&S	Environmental and Social
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EN	Endangered
ESG	Environmental, Social Governance
ESGMS	Environmental & Social Governance Management System
ESIA	Environmental & Social Impact Assessment
ESMP	Environmental & Social Management Plan
FCDO	Foreign, Commonwealth & Development Office
GCF	Green Climate Fund
GGEF	Green Growth Equity Fund
GHG	Greenhouse Gas
GRM	Grievance Redressal Mechanism
GRP	Grievance Redressal Panel
GW	Ground Water
HCM	Human Capital Management
HR	Human Resource
IBA	Important Bird Area
IBAT	Integrated Biodiversity Assessment Tool
IFC	International Finance Corporation
ICC	Internal Complaints Committee
ILO	International Labour Organization
IUCN	International Union for Conservation of Nature
KPTCL	Karnataka Power Transmission Corporation Limited
kV	Kilo Volt
MoEFCC	Ministry of Environment, Forests and Climate Change
MW	Megawatt
MWp	Megawatt Peak
NAAQS	National Ambient Air Quality Standards
NABL	National Accreditation Board for Testing and Calibration Laboratories
NTS	Non-Technical Summary
O&M	Operation and Maintenance
PHC	Primary Healthcare Centre
PL	Project Land
PPE	Personal Protective Equipment
PS	Performance Standards
PSS	Pooling Substation
RET	Rare Endemic Threatened
SC	Scheduled Caste
SEAH	Sexual Exploitation, Abuse & Harassment
SEP	Stakeholder Engagement Plan
SIF	Significant Injury or Fatality
SOI	Survey of India
SOP	Standard Operating Procedure
SPCB	State Pollution Control Board
SPV	Special Purpose Vehicle
ST	Scheduled Tribe
TL	Transmission Line
VU	Vulnerable

Executive Summary

E.1 Context Setting

Radiance Renewables is one of India's fastest-growing renewable energy power developer. The company develops competitive renewable energy solutions for commercial, industrial and residential customers, enabling them to achieve their sustainability goals. Radiance Renewables Private Limited has been promoted by Eversource Capital, India's leading climate impact investor. The company's presence spans across the pan India, with a current portfolio of operational and managed assets of 419 megawatts peak (MWp).

Eversource Capital is an equal joint venture between Everstone Group & Lightsource bp. Everstone Group is one of Asia's premier investment managers with assets across private equity, sustainability and climate impact and other sectors. Lightsource bp, is a global leader in development and management of solar energy projects.

Radiance Renewables is setting up a 50 MW Solar Power project ("Project") near Hirerayakumpi Village, in Devdurga Tehsil, Raichur District, Karnataka, India.

As part of Radiance Renewable's Corporate Policy, the company carried out an Environmental & Social Impact Assessment (ESIA) study of the project. Final ESIA report is dated 05 January 2023. Several gaps were highlighted in the ESIA Report by the investors. Radiance Renewables thus commissioned services of M/s Envint Services LLP ("Envint") for undertaking a gap closure study of the ESIA report for the project.

The ESIA gap closure exercise was conducted in conformance to the following reference framework:

- Applicable local and national environmental and social regulations (including that of the state nodal agency for Renewable energy development)
- IFC Performance Standards on Environmental and Social Sustainability (2012)
- IFC/World Bank EHS General Guidelines
- IFC/World Bank EHS Guidelines for Power Transmission and Distribution (2007)
- GGEF/Radiance ESGMS

This ESIA Gap Closure report is to be read in conjunction with the ESIA Report dated 05 January 2023.

E.2 Project Overview

The Gap Closure ESIA study is carried out for the upcoming solar energy project located near Hirerayakumpi Village, Devdurga Tehsil of Raichur District, in the State of Karnataka (India). The power generated in the project will be transmitted via a 3.2 km long, 110 KV transmission line to Karnataka Power Transmission Corporation Limited's 110/11 KV substation situated in Gugal village. The TL would involve development of 13 towers of which 4 would be located within the project boundary while the remaining 9 towers would be located outside the project boundary. The site is accessible via an unpaved road developed for the project that joins with the road connecting the villages of Hirerayakumpi and Masihal.

The entire project (including all key and associated components) is being developed over land admeasuring 207.75 acres of which 202 acres would be the PV area, 0.075 acres for the transmission tower and 5.0 acres for the access road. The entire land is leased for a period of 29 years & 11 months. The land selected for the project is private agricultural land that is not suitable for agricultural purposes due to low fertility of the land.

There are no notified international (Such as IBA, AZE, World Heritage Sites) or legally protected areas (Wildlife Sanctuaries, Protected Areas, Tiger reserves, etc.) in the project influence area.

The land procurement process was understood from the land aggregator. It was confirmed by the land owners that land lease process and lease agreements were compliant with various international good practices and applicable laws and regulations. It was confirmed that there are no pending disputes or court cases in relation to the land procured for the solar energy project. Also, it was noted that no informal settlers or structures that may need relocation were involved in the project.

No temporary workers camp will be established in the project area. The contractor appointed for the project is responsible for temporary accommodation of workers, if any. The contractor will establish a worker's camp following the guidelines provided by Radiance Renewables.

Water for construction and O&M phases of the project will be supplied through water tankers. About 50,000 liters of water per MW will be required for civil works, dust suppression, drinking and domestic use. A maximum of 54 KL of water will be consumed on an annual basis during the operation & maintenance (O&M) phase.

E.3 Applicability of Reference Framework

Radiance has developed Environmental Social & Governance Management System (ESGMS) aligned with GGEF requirements and IFC Performance Standards (IFC PS). As per the requirement of ESGMS, Radiance conducts ESIA studies, due diligence, environmental monitoring as a part of ESG risk and impact assessment and management. The ESIA is undertaken to outline the existing and potential risks and impacts associated with one or more project sites from planning to the decommissioning phase and plan mitigation measures.

The aspects included across the IFC PS are covered under various Indian regulations. A mapping of the same is presented in the report. GGEF has adopted the IFC Project Exclusion List to identify a list of activities that the Fund will not finance. The Project does not trigger any of the GGEF Exclusion List items. The Project is classified as Category B in accordance to IFC Performance Standards as part of the review of environmental and social risks and impacts associated with the project.

E.4 Baseline E&S Conditions

E.4.1 Environmental Baseline Monitoring

The ambient air quality (AAQ) was assessed for two locations within the study area. The pollutant concentrations in the ambient air in the study area were compared with National Ambient Air Quality Standards (NAAQS) of Central Pollution Control Board (CPCB). The 24-hour average concentration of PM_{10}, NOx and SO_2 monitoring in the study area were observed to be well within NAAQS except $PM_{2.5}$ at AAQ1 that exceeded the standards by a small margin. This minor deviation at AAQ1 was attributed to its location, which was surrounded by anthropogenically disturbed land within the project site and lack of vegetation. Conversely, the upstream station, AAQ2, reported a concentration that was only

half of that observed at the downstream station, as it was surrounded by agriculture land. The results for ambient air quality parameters were also compared with World Bank Group's EHS Guidelines. The 24-hour average concentration of $PM_{10,}$ $PM_{2.5}$ and SO_2 at both the locations exceeded General EHS guideline standards.

The baseline ambient noise levels were monitored at four locations for 24 hours. The ambient noise levels monitored at site were compared with CPCB standards for ambient noise (for residential zones) and World Bank Group's EHS Guidelines. The average ambient noise levels obtained for all the four locations were observed to exceed the permissible limits for both day & nighttime. The exceedance of noise recorded was not because of any source present at the project site but due to the cyclone & rainy conditions during noise monitoring.

The ground water quality was assessed for two locations within the project influence area namely Gugal and Matpalli Villages. The results for ground water quality parameters were compared with IS 10500:2012 and World Bank Group's EHS Guidelines The parameters like alkalinity, hardness, total dissolved solids, pH, magnesium, and chloride exceeded the acceptable limits specified. However, they remained within the permissible limits, except for alkalinity and pH which exceeded the permissible levels as well. It was understood that these parameters exceed the standards in this region in general.

The soil quality was assessed for one location within the project site. The soil analysis was carried out as per the different set method reference. It is observed that the project site soil has a high pH value and potassium levels.

E.4.2 Biodiversity Profile

The biodiversity was studied for a buffer of 10 km around the project site boundary that included the transmission line alignment. Different types of habitats were identified during the desktop review that were verified during the site visit. These included agricultural fields, ponds/ lakes, wetlands, woodland, riverbank, rural areas and peri rural areas. During the site survey it was found that the region is rich in species diversity

A total of 43 floral species belonging to 22 families were observed within 5 km buffer of the project site. Fabaceae was the most dominating family in the area with 12 species. None of the species identified in the region are rare, endangered or threatened. There were also no religious/sacred trees in the project site.

During the site survey Aves from 69 different species, totaling to 383 Individuals were spotted. Additionally, 63 species of birds were also reported in the region as per various sources such as E-bird, EIA/ ESIA of projects in neighboring areas. Three Schedule 1 species (as per Wildlife Protection Act 1972) were spotted in the project influence area namely *Aquila nipalensis* (Steppe Eagle (IUCN- EN)), *Pavo Cristatus* (Indian Peafowl (IUCN-LC)) and *Sterna aurantia* (River Tern (IUCN- VU)). The project is however not expected to impact any of the species mentioned above as these were found at least 4 km away from the project site and are attracted to particular habitats that are not near the project site.

Snake species such as Reddish Peninsular Cat Snake (*Boiga forsteni)* were spotted by the project staff in the site. As per the H&S Policy of Radiance the staff needs to wear appropriate PPEs for self-protection and to prevent snake bites. Project site maintains a 'Faunal Carcass Register' to record disturbances to local fauna due to project activities as well as a 'Near Miss' register to record occurrences of herpetofauna (Snakes) and Arachnida (Scorpions) species in the project site.

E.4.4 Social Baseline

A stakeholder consultation was conducted with villagers in the Gugal, Chickraikumpi, Hireraikumpi, Matpalli and Masihal villages within the study area. While interacting with villagers, it was found that medical facility such as, Primary Healthcare Centre (PHC) was available only in Gugal village. No medical facilities were present in Chickraikumpi, Hireraikumpi, Matpalli and Masihal villages.

Primary school (1st to 7th standard) was found to be present in every village. Only three (Gugal, Hireraikumpi & Matpalli) out of five villages had Anganwadi facilities. Higher secondary school (8th to 10th standard) was found to be present only in Hireraikumpi village.

ST/SC population was absent in the study area. The primary occupation was farming and the majority of respondents in group discussion were engaged in farming activities. Some villagers were reported to be working in urban areas. The project site has a separate 'Stakeholder Engagement Plan' (SEP) that identifies the stakeholders, engagement process and grievance redress mechanism.

E.5 Impact Assessment

E.5.1 Analysis of Alternatives

The alternatives assessed for transmission lines and access roads are based on location and technology. Alternatives for transmission line conductors, tower design and location were considered. For access road, location-based alternative was assessed. ASCR conductors, that are very widely used for all transmission and distribution purposes, especially for long spans and high voltage transmission will be used in the project. The project will deploy B, C, and D types of transmission towers that is the most suitable transmission tower technology based on the available corridor and design criteria for transmission of 110 KV. There are no structures (permanent or temporary) within the setback distance of the transmission towers and transmission line. There are also no E&S sensitive receptors present in the area of influence of the transmission line.

The access road to the site (of approx. 1 km) connecting to the Hirerayakumpi - Masihal village road is being specifically developed for the project. This new access road traverses along the boundaries of agricultural fields and is the shortest route to the project site. The road alignment thus results in least amount of disturbance and land procurement.

E.5.2 Assessment of Impacts

For assessment of the E&S impacts, the process presented in the ESIA Report dated 05.01.2023 has been followed to maintain consistency. Impacts of the transmission line and access roads has been assessed.

The impacts identified are of 'Moderate' and 'Minor' and most of these would be 'local' in extent and have a 'short' duration.

Summary Table

Nature of Impact	Impact Significance	Residual Impact Significance
1. Impact Assessment of Transmission Line		
a) O&M Phase: Occupational Health & safety Impact	**Negligible**	**Negligible**
b) O&M Phase: Biodiversity impacts	**Minor**	**Minor**
c) O&M Phase: Community Health & Safety Impacts	**Negligible**	**Negligible**
2. Impact Assessment - Biodiversity	**Minor**	**Minor**
3. Impact on Labour & Working Conditions		
a) Human Resource Management	**Minor**	**Negligible**
b) Sexual Exploitation, Abuse & Harassment (SEAH)	**Minor**	**Negligible**
c) Labour Risks	**Minor**	**Negligible**
4. Impact Assessment on Water Resources	**Moderate**	**Minor**

E.6 Environmental and Social Management Plan

E.6.1 Capability & Performance

It is estimated that 80 skilled, semi-skilled and unskilled labourers would be hired and deployed at the site by the contractor during the construction of the plant. A 3rd Party vendor would be hired for labour related compliance A safety supervisor (Owner's Engineer) would be appointed by a 3rd party contractor for the project during construction phase. The project manager would have the overall responsibility to manage and administer all aspects of the EPC contract and assist with negotiations of the EPC contract as well as preparation of technical exhibits. The project manager would drive execution of the project, keeping it on schedule and on budget, while maintaining relationships with clients, stakeholders, and vendors.

During the operational phase, it has been estimated that approximately 35 technicians will be deployed at site by Radiance Renewables. EHS head of Radiance Renewables will ensure that EHS induction training and job specific trainings are being identified and provided to the concerned personnel for operation of the solar plant.

E.6.2 Radiance ESG-MS

Radiance Renewables is committed to ensuring that the projects are managed in a manner reflecting sound environmental, social and governance management practices. For this purpose, company has adopted the Environmental, Social and Governance Management System (ESG-MS) which has been developed to formalize GGEF's commitment to environmental and social management. The ESGMS and underlying procedures were developed in conformance to World Bank Group's EHS Guidelines (General & Sector-specific).

E.6.3 Grievance Redress

Radiance Renewables has a separate grievance redressal mechanism for internal & external grievances aligned with GGEF ESGMS. These practices are followed at the level of the subsidiaries/SPVs of Radiance Renewables and the project site. GRM establishes the process for

addressing grievances raised by internal & external stakeholders in connection with activities of projects owned, developed or operated by Radiance Renewables. For internal grievances, HCM department or respective department heads are responsible for recording internal grievances directly or through specified mail id. For records of external grievances, a separate register & website has been facilitated. A grievance register is available with the security guards to record external grievances. Awareness about the register among local people will be created by the deployed security personnel.

E.6.4 Monitoring & Reporting

Radiance Renewables follows a monitoring procedure that is aligned with GGEF ESGMS. It defines an indicative minimum monitoring criterion along with the minimum monitoring frequency. As per the category of 50 MW solar project (Category B) monitoring frequency has been specified for at least one visit during the construction phase and annual visits during operational phase of the project.

There are various types of reporting formats with specific objectives ranging from a monthly to an annual reporting and an event-based reporting. The Monthly reporting would cover matrices and indicators related to Greenhouse gas (GHG) emissions avoidance, operational parameters, leading HSE indicators and lagging HSE indicators.

The quarterly reporting would cover parameters on ESG & HSE (Unsafe acts, unsafe conditions, near misses and significant injury or fatality (SIF) initiatives undertaken in the quarter, gender-disaggregated data for the workforce (permanent + contractual) and ESAP closure progress.

The Annual reports would encompass information about the greenhouse gas emissions associated with the portfolio companies, their progress in meeting the UN Sustainable Development Goals (UN-SDGs) relevant to Eversource's priorities, and their adherence to the IFC PS, accidents/incidents that have occurred in the quarter and corporate social responsibility expenditure.

The Event based reports would be case specific in case on any serious incident and be submitted within 48 Hours.

E.6.5 Management Plan

ESMP attached in ESIA report dated 05.01.2023 has been updated as per gaps identified in present study. The cost and schedule for the implementation of the same has been added.

1 Introduction

1.1 Background

Radiance Renewables is one of India's fastest-growing renewable energy power developers. It was incorporated in 2018, as a private equity owned developer. The company develops competitive renewable energy solutions for commercial, industrial and residential customers, enabling them to achieve their sustainability goals. Radiance Renewables Private Limited has been promoted by Eversource Capital, India's leading climate impact investor. The company's presence spans across pan India, with a current portfolio of operational and managed assets of 419 megawatts peak (MWp).

Eversource Capital is an equal joint venture between Everstone Group & Lightsource bp. Everstone Group is one of Asia's premier investment managers with assets across private equity, sustainability and climate impact and other sectors. Lightsource bp, is a global leader in development and management of solar energy projects. Eversource manages India's largest climate impact fund with anchor investments from India's National Investment & Infrastructure Fund (NIIF) and UK Government's Foreign, Commonwealth & Development Office (FCDO).

As part of their venture in the solar sector, Radiance Renewables is setting up a 50 MW Solar Power project in Raichur District, in the State of Karnataka, India ("Project"). The solar project is located near Hirerayakumpi Village, in Devdurga Tehsil, Raichur District, Karnataka, India (Hereinafter referred to as 'the project').

India's Central Electricity Authority set a target of producing 50% of the total electricity from non-fossil fuels sources by 2030. India has also set a target of producing 175 GW by 2022 and 500 GW by 2030 from renewable energy. The project by Radiance Renewables will contribute towards achieving this national target of 500 GW.

1.2 Purpose of the Study

As part of Radiance Renewable's Corporate Policy, the company carried out an Environmental & Social Impact Assessment (ESIA) study of the project. Final ESIA report is dated 05 January 2023. Several gaps were highlighted in the ESIA Report by investors of Radiance. Radiance Renewables thus commissioned services of M/s Envint Services LLP ("Envint") for undertaking a gap closure study of the ESIA report for the project.

1.3 Summary of Gaps in ESIA Report

The gaps identified in the ESIA Report are summarized below in **Table 1-1**. A reference to the section of this ESIA Gap Closure Report that addresses the gaps is also mapped.

Table 1-1 : Summary of Gaps

#	Summary of Gap	Reference
1.	Establishing baseline conditions and evaluating potential E&S impacts from laying of transmission line and modification of access roads	**Section 4 5.2**
2.	Potential impacts from the land acquisition or temporary land take along the alignment of the transmission lines and the access roads	**Section 5.1**
3.	E&S categorization after inclusion of the transmission lines, towers, and access roads	**Section 3.2.3**

#	Summary of Gap	Reference
4.	Confirmation that the subproject was screened against the GGEF Exclusion List	**Section 3.2.2**
5.	Gap assessment of the applicable standards set for IFC/WBG General and sector specific EHS Guidelines	**Section 3.1**
6.	Comparison of the applicable national/local laws and regulations with international safeguard requirements	**Section 3.1**
7.	Baseline noise levels and baseline ambient air quality	**Section 4**
8.	Past and current information on the land use along the right-of-way of the transmission lines and access road	**Section 2.3**
9.	Season of baseline survey days (within migration season or not)	**Section 4.2**
10.	Information of organizations or institutes, who may have been consulted during the ESIA exercise	**Section 4**
11.	Need for any specialized studies such as critical habitat assessment	**Section 4.2.2**
12.	Inclusion of scope of transmission line and access road in the ESIA and ESMP	**Section 5.2 & Annex 12**
13.	Information on the alternatives considered for the transmission line alignment and the alignment/improvements for the access road	**Section 5.1**
14.	Water source for the estimated water requirement during construction & operation phase	**Section 5.5**
15.	Information on involvement in sexual exploitation, abuse, and harassment (SEAH)	**Section 5.4.2**
16.	Information on labour risks in the supply chain of solar photovoltaic (PV) panels in ESIA & relevant measures in the ESMP	**Section 5.4.3**
17.	Potential environmental and social impacts from the 1. Transmission line 2. Access Road 3. Water abstraction in drought-prone areas 4. SEAH risks 5. Labour risks	**Section 5**
18.	Information on 1. Mechanism used to address expectations and key concerns from the stakeholders 2. Time, location, sex-disaggregated information of the public consultation participants 3. Information shared with the participants including questionnaires	**Section 4.3**
19.	Information about 1. Internal & external grievance redress mechanism 2. Grievance redress mechanism log that will be included in the annual reporting	**Section 6.3**
20.	Commensurate mitigation measures from the potential E&S risk that were not covered	**Section 5**
21.	Organizational structure during construction and operation phase including information on capacity and planned capacity building activities	**Section 6.1**
22.	Monitoring and reporting procedures consistent with the GGEF ESGMS	**Section 6.4**
23.	Schedule and cost of ESMP implementation	**Section 6.5**
24.	Radiance's labour management, including HR policies and its alignment with applicable national and local labour laws and the requirements of ILO core labour standards	**Section 5.4.1**

#	Summary of Gap	Reference
25.	Inclusion of community health & safety in emergency preparedness and response	**Section 5.2.2 & Annex 1**
26.	Information on 1. Alignment of the land acquisition process and lease agreements with international good practices and applicable laws and regulations, and GGEF ESGMS; 2. Involvement in pending disputes or court cases in relation to the land acquired for the solar power plant	**Section 2.4 & Section 3.2**

1.4 Scope of Work

The scope of work was to update the existing ESIA and the ESMP after closing the gaps identified in the ESIA report of the project.

1.4.1 Reference framework

The ESIA gap closure was conducted in conformance to the following reference framework:

- Applicable local and national environmental and social regulations (including that of the state nodal agency for Renewable energy development)
- IFC Performance Standards on Environmental and Social Sustainability (2012)
- IFC/World Bank EHS General Guidelines
- IFC/World Bank EHS Guidelines for Power Transmission and Distribution (2007)
- GGEF/Radiance ESGMS

1.5 Approach & Methodology

The approach and methodology adopted for conducting the Gap Closure of ESIA study is outlined below.

1.5.1 Information Review

The ESIA report dated 05.01.2023 with comments on gaps was reviewed. An information request list was prepared to request project details that would enable planning of the next steps in the gap closure exercise. The IRL included details on current status, transmission line, land ownership, resource requirement, biodiversity incidents, standard SOPs & legal documents.

Besides review of project details, secondary literature review was conducted on biodiversity in the study area (10 km buffer around the project site) including the transmission line.

1.5.2 Mapping of Sensitive Receptors

The environmental and social (E&S) receptors sensitive to solar energy development were identified and mapped for the project influence area along the TL and access road through review of secondary data. These receptors were spatially represented by creating data layers using Google Earth Pro and ArcGIS. Secondary data for the mapping activity was sourced from recognized, publicly available databases.

The sensitive receptors reviewed and mapped in the study area include:

1. Habitations/ Settlements

2. Important Bird Areas as per database created by Bombay Natural History Society and Birdlife International
3. Water bodies (rivers, streams, ponds, lakes, reservoirs, check dams, canals)
4. Cultural heritage and archaeological important places (world heritage sites, excavations, state protected monuments, museums)
5. Forests (Wildlife Sanctuaries, National Parks, Reserved Forest, Protected Forest, Open Jungle) based on data provided in the Survey of India (SOI) Open Series Toposheets and website of Forest Department
6. Rail network, road network (national/state highways, district roads) and airports
7. Scheduled Areas and Tribal Areas

The outputs of the mapping exercise were used as input for planning and execution of the baseline primary survey.

1.5.3 Baseline Primary Survey

A site visit was conducted to the project area between 03 – 06 September 2023 for undertaking the following activities:

- Understanding of project area and transmission line (TL) route
- Verification of receptors that were identified during desk-based review.
- Baseline Environmental Quality Monitoring (Ambient Air, Ambient Noise, Soil, and Ground Water)
- Biodiversity survey – visit to various habitats identified during desk-based review
- Stakeholder Consultation - social profiling of the settlements in the study area through a semi-structured approach
- Consultation with land aggregator and landowners for social profiling and to identify whether land leasing for the project resulted in marginalization of any farmers/landowners. (A" Marginal Farmer" can be defined as a farmer cultivating (as owner or tenant or share cropper) agricultural land up to 1 hectare (2.5 acres).

1.5.4 Impact Assessment

Impact Assessment was conducted for the transmission line across all phases of the project life cycle. Impact assessment was also strengthened for areas that were identified as gaps in the ESIA Report dated 05.01.2023 such as:

- Physical environment – air, water, land
- Biodiversity (flora and fauna)
- Physical climate risks
- Landowners & those economically dependent on it
- Neighboring community (other than landowners)

The project influence area was also be screened through IBAT (Integrated Biodiversity Assessment Tool) for biodiversity risks (if any).

1.5.5 Environmental and Social Management Plan (ESMP)

An Environmental and Social Management Plan (ESMP) is presented in this ESIA Gap Closure Report for impacts of components that were identified as gaps in the ESIA Report dated 05.01.2023. The E&S Management System and underlying procedures of Radiance Renewables that are deployed at site and the ESMP presented in the ESIA Report were taken into consideration while preparing the ESMP in this Gap Closure report.

The reference framework was taken into account for recommending management measures. The general hierarchy for planning management measures i.e., elimination, substitution, engineering control, administrative control and personal protective equipment has been adopted.

1.6 Organization of the Report

The ESIA Gap Closure report is an addendum to the ESIA report dated 05/01/2023 and is to be read in conjunction. The Gap closure report has been organized across 6 chapters as follows:

- **Chapter 1** provides a background to the project while specifying the need to undertake the gap closure study along with summary of gaps identified in ESIA report. The purpose and approach taken to conduct the study is described in this Chapter.
- **Chapter 2** provides overview of project specifics, encompassing project location and the transmission line. *(Addendum to Chapter 2)*
- **Chapter 3** presents screening of project against GGEF exclusion list & defines the ESS categorization of project as per IFC requirements *(Addendum to Chapter 4)*
- **Chapter 4** describes analysis of baseline environmental & social conditions present at site *(Addendum to Chapter 5)*
- **Chapter 5** presents assessment of impacts on environmental & social aspects along with analysis of alternative for transmission line & access road *(Addendum to Chapter 7)*
- **Chapter 6** outlines management plan for E&S aspects and the schedule & cost of implementation. *(Addendum to Chapter 8)*

2 Project Description

2.1 Salient Features of Project

The key project components of the 50 MW Solar Power Project include solar panels, switchyard, inverters, transformers, main control room, and pooling substation. The associated facilities include transmission line and towers, and access roads. The solar power project is based on monocrystalline solar photo voltaic technology.

The entire project (including all key and associated components) is being developed over land measuring 207 acres. The entire land is leased for a period of 29 years & 11 months. Land for the Project is recognized as "agricultural land". However, the identified land is not suitable for agricultural purposes due to low fertility.

Power from the Project will be evacuated via 110 KV transmission line to Karnataka Power Transmission Corporation Limited's 110/11 KV substation located in Gugal village, Devdurga Taluka, Raichur District, at an approximate distance of 3 km northeast from the solar project's pooling sub-station (PSS).

The site is accessible via an unpaved village road (admeasuring approx. 1 km) that connects with the paved village road between Hirerayakumpi Village and Masihal village. A No Objection Certificate was sought from the Gram Panchayat and use of the road (post levelling and widening) for project purpose was leased from the landowners adjoining the access road.

There are no National Parks or Wildlife Sanctuaries located within a 10 km radius of the Project site. The nearest protected area as well as important bird area (IBA), Amrabad Tiger Reserve, Telangana, is situated about 98 km away from the site in the east direction. A Great Indian Bustard (GIB) Rollapadu Wildlife Sanctuary, Andhra Pradesh is present about 150 km away from the site in north- west direction.

As per the review of google earth imagery and site visit, it is established that there are no structures bearing cultural, historical, religious or spiritual significance located within the project influence area.

2.2 Project Location

The Gap Closure ESIA study has been carried out for solar energy project of 50 MW capacity. The project located near Hirerayakumpi Village, Devdurga Tehsil of Raichur District, in state of Karnataka (India). The location coordinates of the project site are 16°26'17.39"N;77° 7'47.72"E. The administrative boundaries shown in **Figure 2-1** boundaries have been obtained from Census of India 2011[1].

[1] https://censusindia.gov.in/census.website/data/atlas [Last published data by Census of India]

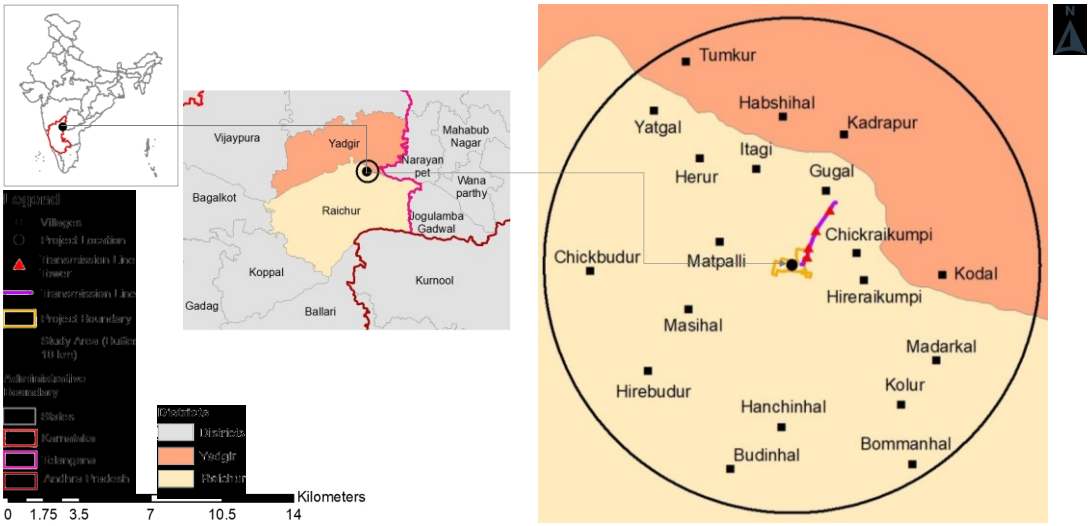


Figure 2-1 : Project Location and Administrative Boundaries

2.3 Transmission Line Details

The power generated from the plant will be evacuated via 110 KV transmission line to Karnataka Power Transmission Corporation Limited's 110/11 KV substation which is situated in Gugal village in Devdurga Tehsil of Raichur District. The substation is located at an approximate distance of 3 km in the north-east direction from the pooling substation (PSS) of the Project.

An EPC contractor is appointed for developing the infrastructure necessary for power evacuation from PSS to KPTCL substation. As reported, the conductor wires used for transmission line in this project are Aluminum-Conductor Steel-reinforced (ACSR) type. The conductors used to carry the power from generation point to delivery point are of three phases and single circuit. The transmission line being established for this project is 3.2 km long. The capacity of these conductors is 110 KV.

2.4 Project Land Requirement & Procurement Process

2.4.1 Land Requirement

Refer **Table 2-1** for a summary of project component wise land requirement.

Table 2-1 : Land Requirement Details

Project Component	Land Requirement (Acres)	Mode of Procurement	Type of Land
PV Area	202.0	Lease	Private Agricultural
TL Tower	0.075	Lease	Private Agricultural
Access Road	5.0	Lease	Private Agricultural
Total	**207.075 acres**		

Solar Farm

The total land required for setting up the PV area is 202 acres. The land has been leased for a period of 29 years & 11 months on willing basis by landowners. The project area is drought prone, dependent on rainfall for agriculture and is also facing a shortage of agricultural labour. Hence, farmers have willingly leased their land for the project as it enables stable income on an annual basis (except one-time lumpsum paid for the TL ROW). As part of the assessment, the process of land transfer was understood through consultations with the Radiance Renewables Corporate land team, project team,

land aggregator and landowners. A social profiling of landowners was also conducted to identify if any farmers have been marginalized or lost their means of livelihood in the process.

Access Road

The access road to the site connecting to the Hirerayakumpi - Masihal village road is being specifically developed for the project along the boundaries of agricultural fields. The land required for this road is 5 acres which is taken on lease for a period of 29 years & 11 months. A lumpsum one-time amount has been paid to landowners. During the site visit, it was observed that the access road is a non-bituminous unpaved road which is also being used by villagers now to access their agricultural fields surrounding the road. The access road has agricultural farmlands to towards its east and west. The solar PV project is located towards north of the access road and the Hirerayakumpi -Masihal village road is located to the south.

Transmission Line

The project transmission line (TL) being established is 3.2 km long. The TL involves 13 number of towers, out of which 4 are located within the project boundary and remaining 9 towers are located outside the project boundary. As reported by land aggregator land required for TL towers is 0.075 acres which is taken on lease for project life period (29 years & 11 months). However, the construction corridor (20 m) for stringing the TL between the towers are leased for period limited to construction activities for TL. The landowners were paid one-time compensation for lease of the construction corridor.

2.4.2 Land Procurement Process

After understanding the land procurement process from land aggregator & landowners it was confirmed that land lease process and lease agreements were compliant with international good practices and applicable laws and regulations and the entitlement matrix in the GGEF ESGMS *Appendix O*. Also, it was confirmed that there are no pending disputes or court cases in relation to the land procured for the solar energy project. Refer **Figure 2-2** & **Table 2-2** for land procurement process for project land, TL & access road.

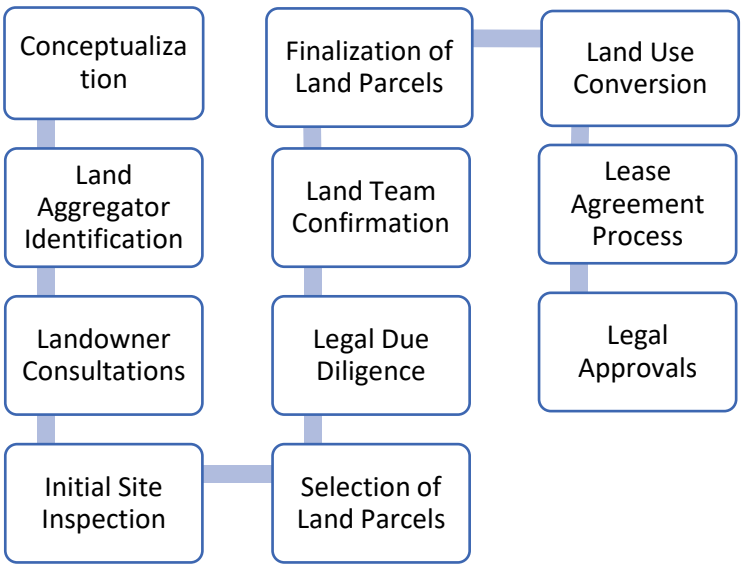


Figure 2-2 : Land Procurement Process

Table 2-2 : Land Procurement Process

Process	Description
Project Land	
Land Conceptualization	• Potential locations for identification of land parcels suitable for proposed project were identified. • Identified land parcels were confirmed by conducting internal discussion with business development team
Land Aggregator Identification	• Based on finalized site location and confirmation on availability of land parcels, local land aggregator are identified. • One local land aggregator was selected by the commercial committee of Radiance based on selection criteria. • The criteria for selection included qualification, financials, credentials, feedback from previous developers on timeliness, cost, quality, feedback from local community. • The scope of land aggregator includes Part 1 – Preliminary Due Diligence, Detailed Due Diligence, Land Acquisition, Registration, Mutation and Conversion, Permits and Approvals • The type of land parcels to be avoided is communicated to the land aggregators. The land details required for undertaking the title due diligence is also provided by Radiance. The ethical practices to be followed by aggregators in the land lease process is clearly communicated by Radiance.
Landowner Consultations	• Land aggregator identifies suitable land parcels for proposed project. • Discussions are conducted by land aggregator with potential landowners and their family members (spouse, children, parents) about the project details, legal aspects, lease rate & period. • Lease rates are finalized based on state (government) rules, competitor's rates & local situation.
Initial Site Inspection	• ESG team conducts preliminary desktop study of site with the help of checklist using secondary information and gives preliminary approval. • Radiance Renewables land team members along with land aggregator physically visit the potential land parcels to check the suitability of land for project as per standard ESG checklist.
Selection of Land Parcels	• The ESG team does a desk-based review (google earth, GIS, etc.) and provides feedback on key aspects for the land team to evaluate - e.g., informal land users, displacement, cultivation, religious sites, common property areas, etc. • The land parcels that have received preliminary confirmation from ESG team and suitable as per the criteria defined in

Process	Description
	Preliminary Land Due Diligence Checklist attached as Annex 4 are then finalized for further legal clearance. • The land parcels selected for the project did not have any informal land users.
Legal Due Diligence	• Required land documents such as title & land revenue records as per preliminary land due diligence checklist are collected from landowners. • Documents mentioned in the list are collected by land aggregator from potential landowners to verify the legal status of land (to identify any legal issue) for the past 30 years. • Refer **Annex 4** for Preliminary Land Due Diligence checklist. • After legal due diligence, socio-economic profiling of landowners is conducted to confirm whether the landowner has additional parcel of land apart from the leased land. • Refer **Annex 5** for socio-economic profiling format conducted for project.
Land Team Confirmation	• List of landowners who have complied with all the initial legal verification is shared with Radiance Renewables land team by land aggregator.
Finalization of Land Parcels	• Land team finalize and informs to land aggregator the land parcels suitable as per legal and project requirements. • After confirmation, further legal process is carried out by land aggregator to complete Pre-Agreement to Lease (ATL) to confirm involvement of the leased land parcel in the proposed solar energy project.
Land Use Conversion	• Documents of potential land for the past 30 years are verified. • Application for land use conversion is made through an online portal to District Tehsildar. Hard copy of application is submitted to Tehsildar office for verification. • This copy is submitted to the District Collector (DC) office. Challan is released by DC office after approval. Challan is paid by Radiance Renewables through online mode. • After payment of challan NA order is released, which confirms land use change from agricultural to non-agricultural.
Lease Agreement Process	• Three years advance is paid to landowner directly by Radiance via bank transfer. • ATL along with the relevant documents are registered for the land parcel. Post which the lease agreement process is considered to be completed. • As reported land lease process was completed on 30-11-2023

Process	Description
Legal Consents/Approvals	• All applicable certificates, agreements or consents required in relation to land for the solar power plant and its associated facilities are complied. • ATL documents are submitted to the Gram Panchayat. • Then internal committee of gram panchayat verifies and issues NOC. Refer **Annexure 13**.
Land lease Rates	• The first lease compensation is paid to landowners in the form of DD. Remaining amount its transferred directly to the bank account of landowners.
Transmission Line Land	
Site Inspection	• For TL land a physical survey is conducted along the route from GSS to PSS to identify any disturbance to environment such as water bodies as per Preliminary Land Due Diligence checklist • Land with minimum land cultivation and dry area are selected for TL route. • If any disturbance is identified, then that land parcel is rejected.
Lease Rate	• After reviewing the TL route discussions are conducted with TL landowners and local district collector. • In some cases, District Collector/other DISCOMS fixes lease compensation for TL land.
Access Road	
Site Inspection	• Inspection process similar to the TL land site inspection is adopted.
Land Procurement	• The land for the access road has been taken on lease.

2.4.3 Land Procurement Rates

The rates at which land was procured for setting up the solar energy project, TL and access road is presented below.

Table 2-3: Land Procurement rates

Type of Land	Lease Rate
Project land	• For project land INR 30,000/year/acre is being paid to landowners for leasing period of 29 years & 11 months. • There will be increment in this lease rate every year after 3 years which is INR 1000/year/acre.
TL tower Land & construction corridor	• For TL tower land and construction corridor lease rate of INR 60,000 to INR 70,000 per/acre was paid to landowners as a one-time payment.

Type of Land	Lease Rate
Access road land	• For land parcels admeasuring more than 0.5 acres in area, lease rate of INR 30,000 per acre was paid to landowners as a one-time payment. • For land parcels admeasuring less than 0.5 acres, a lump sum amount was paid to landowners.

2.4.4 Project Landowner Consultation

Details of landowners whose land has been leased for the project were received from Radiance Renewables team. The availability of landowners was discussed with land aggregator. Landowners for consultation were shortlisted based on their availability.

The objectives of the landowner consultation were:

- To verify the process followed by Radiance Renewables for land procurement
- To confirm that the landowner has not been rendered landless, has not lost their primary means of livelihood, and payment received for the land procured

Out of the total of 41 solar PV project landowners and 13 landowners associated with TL, consultations were carried out with 12 and 3 landowners respectively, based on their availability.

The landowner consultation process was as follows:

- Almost 25 % of the total landowners involved in land lease process for solar power plant were available for consultation.
- The landowner's consultations were conducted in the presence of Radiance Renewables' team & the land aggregator.
- A questionnaire was prepared for consultation with landowners to understand the land lease process & to verify the transparency of the process. Thus, before consultation, the entire process of leasing was understood from land aggregator and Radiance Renewables team. During the survey questions from questionnaire were discussed with local landowners & their responses were recorded. Refer **Annex 5 & 6** for landowner's socio-economic profiling format & questionnaire for landowners' consultation respectively.

Details of the public consultation, time, location, sex-disaggregated information were also recorded.

Summary of Landowner's Consultation

The initial screening process of landowners conducted by Radiance Renewables was reviewed and the entire process was validated through tri-partite discussions held with Radiance Renewables team, land aggregator and the landowners. It was established that no landowner was marginalized in the process and hence there was no need to conduct a detailed socio-economic survey of landowners. Instead, a structured consultation with individual landowner was conducted. Also, it was noted that no informal settlers or structures that may need relocation were involved in the project as the company follows 'Resettlement Policy Framework' established by GGEF. Following are the summary of discussion points with landowners (**Table 2-4)**:

Table 2-4 : Summary of Landowner Consultation

Aspects	Result of Discussions
Number of landowners involved in Project Land (PL) & Transmission Line (TL)	• 41(PL) • 13 (TL)
Number of landowners consulted	• 12 (PL) • 3 (TL)
Leasing Period	• 29 years and 11 months
Compensation charges for leased land	• INR 30,000/year/acre and increment of Rs. 1000/year/acre for project land • INR 60,000 to INR 70,000 per acre as a one-time payment for transmission line
Approach for purchasing the land	• With the help of the local land aggregator, Radiance Renewables team had conducted group meetings and explained all the project related details with potential landowners. • The discussion was focused on points related to project details, lease period & compensation for lease.
Process	• Identification of potential lands for proposed project. • Discussion of land aggregator with potential landowners. • Explaining project and compensation details to landowners. • Conducting socio-economic profiling of potential landowners to ensure that none of the farmers involved comes under marginalized section. • Collection of documents like AADHAR card as ID proof, Account details for payment of compensatory fees & 7/12 as land documents were collected for land lease process. • Validation of documents and completion of lease process.
Reason to lease out the land	• Farmers agreed to lease their potential farm on willing buyer – willing seller basis as it was infertile; water scarcity and dependency on rainfall; and due to lack of agricultural labor.
Satisfied with the amount received for the land	• It was found that most of the farmers were aware of the entire process of payment cycle and were satisfied with lease rate.
Paid fairly	
Sources of income	• Most of the landowners were involved in agricultural activity and few were employed in companies in urban areas.
Does land parcel that was leased contribute to your household income? Do you have any other parcels of land? What is your total landholding?	• The socio – economic profiling of landowners was conducted by Radiance Renewables prior to finalization of land parcels. It was considered as one of the requirements before finalizing to avoid land transaction with any marginalized farmer. • This socio – economic profiling template includes parameters such as names of family members and their relation with principal land owner, gender, age, education, primary & secondary occupation, avg yearly income (INR), housing details (kuccha/pakka), facilities available in house (drinking water, electricity, toilet), caste & religion, landowner from BPL/EBC class, procured land by the radiance/ SPV, balance land after land sale, indigenous population, SC/ST, any

Aspects	Result of Discussions
	business activity on procured land, any type of construction on procured land, any religious structure on the procured land, any tenancy right, animal fodder and remarks. • The same was reconfirmed during the consultation with landowners and was found to be complied with the requirement of Radiance Renewables.

Based on the details presented in this section, it is confirmed that the land acquisition process and lease agreements were compliant with international good practices and applicable laws and regulations, and the entitlement matrix in the GGEF ESGMS Appendix O; and that there are no pending disputes or court cases in relation to the land acquired for the solar power plant.

2.5 Temporary Workers' Camp

No temporary workers camp will be established in the project area. The contractor appointed for the project is responsible for temporary accommodation of workers, if any. The contractor will establish a worker's camp following the guidelines provided by Radiance Renewables.

2.6 Water for the Project

Water for construction and O&M phases of the project will be supplied through water tankers. The project will have 1,05,000 solar modules. The O&M phase of the solar project will involve periodical cleaning of solar modules for better efficiency. Two types of module cleaning methods, dry & wet will be employed in the project. During the O&M phase dry module cleaning will be performed after every two days. Dry robotic cleaning of modules requires 20 robots. While wet module cleaning will be carried out on a quarterly basis throughout the year. Wet module cleaning requires a period of 20-30 days to cover the entire solar plant. This activity requires 2,000-6,000 liters of water per day. A maximum of 54 KL of water will be consumed on an annual basis.

3 Applicability of Reference Framework

3.1 Addendum to Applicability of International Standards

IFC applies the Performance Standards to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing in its member countries eligible for financing. These performance standards and guidelines provide ways and means to identify impacts and affected stakeholders and lay down processes for management and mitigation of adverse impacts. Refer **Table 3-1** for applicability of IFC PS to the project.

The aspects included across the IFC PS are covered under various Indian regulations. The same are listed in the table.

Table 3-1 : IFC Performance Standards, their Applicability & Comparison with Indian Regulations

IFC PS	Description	Objectives and Applicability to the Project	Comparable Indian Regulation
IFC PS 1: Assessment and Management of Environmental and Social Risks and Impacts	This PS aims to assess the existing social and environmental management systems and to identify the gaps with respect to their functioning, existence and implementation of an environmental and social management plan (ESMP), a defined EHS Policy, organization chart with defined roles and responsibilities, risk identification and management procedures as well as processes like stakeholder engagement and grievance management.	**Applicable** The Radiance ESG-MS that has been developed in alignment to the IFC PS 1 is being deployed in the project.	• The Environment (Protection) Act 1986
IFC PS 2: Labour and Working Conditions	This PS is guided by a number of international conventions and instruments on labour and workers' rights. It recognizes that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of fundamental rights of workers. The PS covers following themes: human resource policy and management, workers' organization, non-discrimination and equal opportunity, retrenchment, protecting the workforce and occupational health and safety.	**Applicable** The Project activities will engage approximately 200-300 skilled, semi-skilled and unskilled labourers and staff during the construction and operation phase. The Project will have to comply with the labour laws, ensure non-discrimination and equal opportunity, protection of the workforce and occupational health and safety.	• The Child Labour (Prohibition & Regulation) Act, 1986 • Minimum Wages Act, 1948 • The Equal Remuneration Act, 1976 • Employees' State Insurance Act (ESI), 1948 • The Employees' Provident Funds (EPF) and Miscellaneous Provisions Act, 1952 amended up to 1996 • Employee Compensation Act 1923 • The Payment of Bonus Act, 1965 • The Contract Labour (Regulation and Abolition) Act, 1970 • The Maternity Benefits Act, 1961 • The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 • Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 • Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 / The Indian Electricity Rules, 1956
IFC PS 3: Resource	PS-3 covers the use resources and materials as inputs and wastes that	**Applicable** The Project construction	• Construction and Demolition Waste Management Rules, 2016

IFC PS	Description	Objectives and Applicability to the Project	Comparable Indian Regulation
Efficiency and Pollution Prevention	could affect human health. The objectives of PS-3 are: to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; to promote more sustainable use of resources, including energy and water, and to reduce project related GHG emissions. Key themes covered under PS-3 are: pollution prevention, resource conservation and energy efficiency, wastes, hazardous materials, emergency preparedness and response, greenhouse emissions, pesticide use and management. This PS will assess how Radiance intends to minimize pollution related impacts, what management plans and systems are in place, and what measures it plans to take to conserve and use resources more efficiently.	activities will lead to increased fugitive dust emissions, especially in the area it is being developed due site clearance and excavation related activities. The Project activities will also lead to increase in ambient noise level during the construction phase, which may impact the nearest villages. Furthermore, the Project activities will involve generation of waste and will involve abstraction of groundwater. Therefore, PS 3 is applicable to the Project.	• The Water (Prevention and Control of Pollution) Act 1974 • The Air (Prevention and Control of Pollution) 1981 • The Noise Pollution (Regulation and Control) Rules, 2000 • The Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2016 • E-Waste (Management) Rules, 2022 • Plastic Waste Management Rules, 2016 & amendment of 2022 • Solid Waste Management Rules, 2016 • Battery Waste Management Rules, 2022 • Ozone Depleting Substances (Regulation & Control) Rules, 2000
IFC PS4: Community Health, Safety and Security	This PS-4 requires due diligence to anticipate and avoid adverse impacts on the health and safety of the affected community during the project life from both routine and non- routine circumstances. It also requires to ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the affected Communities. Key areas of compliance screened under PS- 4 includes: infrastructure/equipment safety, hazardous material safety, natural resource issues, exposure to disease, emergency preparedness and response, and security personnel requirements.	**Applicable** The project would affect the health and safety of the communities adjacent to it during construction phase. Transportation of equipment and increased traffic in the area may lead to accidents and other threats on community health and safety, therefore PS 4 is applicable to the Project.	• Central Motor Vehicles Act 1988 • Private Security Agencies (Regulation) Act, 2005
IFC PS 5: Land Acquisition and Involuntary Resettlement	PS-5 requires project proponents to anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use. The key themes covered under this are: compensation and benefits for displaced persons, consultation and grievance mechanism, resettlement planning and implementation, physical displacement, economic displacement. The PS-5 also prescribes private sector responsibility to supplement government actions and bridge the gap between government's assigned entitlements, procedures, and the	**Not applicable** As per the information provided by the client, a total of 207 acres of land is required for the Project. The entire project is located on a private land and is taken on lease. This is being leased in directly through landowners and there's no use of eminent domain. Further, the land lease will not result in any physical or economic displacement, since the land is private fallow land and was	• The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013

IFC PS	Description	Objectives and Applicability to the Project	Comparable Indian Regulation
	requirements of PS-5.	not used for agricultural purposes or any other purpose.	
IFC PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	The objectives of PS 6 are: to protect and conserve biodiversity, to maintain the benefits from ecosystem services and to promote the sustainable management of living natural resources through the adoption of practices that integrates conservation needs and development priorities.	**Applicable** As the solar project, pose some amount of threat to avifauna. There is a possibility of resident and migratory avifauna getting affected; thus, the PS-6 is applicable here.	• The Wildlife (Protection) Act, 1972 • The Wildlife (Protection) Amendment Act, 2022
IFC PS 7: Indigenous Peoples	This Performance Standard applies to communities or groups of Indigenous Peoples who maintain a collective attachment, i.e., whose identity as a group or community is linked, to distinct habitats or ancestral territories and the natural resources therein. PS-7 endeavor to ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource- based livelihoods of Indigenous People. Key themes covered under PS-7 are: avoidance of adverse impacts, consultation and informed participation, impacts on traditional or customary land under use, relocation of IPs from traditional or customary lands, and cultural resources.	**Not applicable** As confirmed during community consultations and consultation with the land team, that no indigenous peoples (IPS) are affected by the project activities and no IP land is leased/ purchased. Therefore, PS 7 is not applicable to the project.	• 5th Schedule of Indian Constitution
IFC PS 8: Cultural Heritage	For the purposes of PS-8, cultural heritage refers to (i) tangible forms of cultural heritage; (ii) unique natural features or tangible objects that embody cultural values; and (iii) certain instances of intangible forms of culture that are proposed to be used for commercial purposes. The requirements of PS-8 apply to cultural heritage regardless of whether or not it has been legally protected or previously disturbed.	**Not applicable** As confirmed during the site visit, no cultural heritage will be affected by the project activities. Therefore, PS 8 is not applicable to the project.	• Ancient Monuments and Archaeological Sites and Remains Act 1958

The IFC-PS 2 & 3 refer to the World Bank Group's Environment, Health & Safety Guidelines developed to address general and sector specific EHS and community safety risks and impacts.

- The World Bank Group's General EHS Guidelines, 2007 present standards on ambient air quality, noise quality, wastewater discharge. Comparable Indian Standards include:
  - National Ambient Air Quality Standards (NAAQS)
  - Ground water quality standard by IS 10500:2012
  - Water Quality Criteria by CPCB
  - Ambient Noise Standards in Noise Pollution (Regulation and Control) Rules, 2000

- The guidelines have been compared with the monitoring results observed in the study area for analysis. Refer section **4.1** for the same.

- The World Bank Group's EHS Guidelines for Power Transmission and Distribution, 2007 presents potential EHS and community risks and impacts from transmission line projects. Comparable Indian Standards include:
  - Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010
  - The Indian Electricity Rules, 1956

3.2 Radiance & GGEF ESGMS

Radiance has developed Environmental Social & Governance Management System (ESGMS) aligned with GGEF requirements. Radiance's ethical framework comprises a commitment to deepen ESG, anti-corruption, anti-bribery, code of conduct and ethics, whistleblower mechanism and grievance redressal, reinforcing its respect as a credible corporate citizen. The GGEF ESGMS is attached as **Annexure 3**.

3.2.1 Application of ESGMS

As per the requirement of ESGMS, Radiance conducts ESIA studies, due diligence, environmental monitoring as a part of ESG risk and impact assessment and management. The ESIA is undertaken to outline the existing and potential risks and impacts associated with one or more project sites from planning to the decommissioning phase and plan mitigation measures.

3.2.2 GGEF Exclusion List

GGEF has adopted the IFC Project Exclusion List to identify a list of activities that the Fund will not finance. The results of GGEF exclusion list screening for the project is provided below.

The Project does not trigger any of the GGEF Exclusion List items.

#	Activities	Project Status
1.	Production of or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements subject to international phase outs or bans, such as: • Polychlorinated biphenyls, pharmaceuticals, pesticides, herbicides and wastes; • Ozone depleting substances; • Wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora • Unsustainable fishing methods • Transboundary trade in waste or waste products	No
2.	Production of or trade in arms (i.e., weapons, ammunitions or nuclear products, primarily designated for military purposes, including paramilitary material)	No
3.	Commercial logging operations or the purchase of logging equipment for use in primary tropical moist forest or old-growth forests	No

#	Activities	Project Status
4.	Production or trade in wood or other forestry products other than from sustainably managed forests	No
5.	Destruction of High Conservation Value areas	No
6.	Production or activities involving harmful or exploitative forms of forced labour and child labour	No
7.	Production of, use of, or trade in, unbounded asbestos fibers	No
8.	Production of or trade in alcoholic beverages (excluding beer and wine)	No
9.	Production of or trade in radioactive materials	No
10.	Racist and/or anti-democratic media	No
11.	Any businesses, if any of the following activities represents a substantial portion of such business: • Gambling, gaming casinos and equivalent enterprises • Production of or trade in Tobacco or tobacco related products • Pornography	No

3.2.3 Project Categorization

The Project has been categorized in accordance with the E&S categories developed by IFC. The categories are:

- Category A: Business activities with potential significant adverse environmental or social risks and/or impacts that are diverse, irreversible, or unprecedented.
- Category B: Business activities with potential limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.
- Category C: Business activities with minimal or no adverse environmental or social risks and/or impacts.

The Project is classified as Category B in accordance with IFC Performance Standards for the following reasons:

- The project E&S impacts during construction phase and O&M phase are expected to be few in number, generally site-specific, largely reversible, and can be readily addressed through adoption of adequate mitigation and monitoring measures.
- Based on the project activities and its location, the project is not expected to result in any irreversible or unprecedented impacts.
- No permanent and/or temporary land acquisition has been involved for the project land, transmission line towers and access roads.
- The total land required for the solar project including transmission line and access road is 207 acres. All the land parcels required for the project is leased from private landowners for a period of 29 years and 11 months. This avoids rendering the farmers landless in the long term.

- Direct lease from landowners has been undertaken at fair market price for ensuring that the lease of the land is in lieu of any monetary benefits they may have gained from cultivation on these land parcels during the short & medium term.
- The profiling of landowners involved in the project indicates that no land has been taken on lease from marginalized section of society.[2] Further the land leasing for the project has also not resulted in the landowners getting converted to a marginal farmer.
- There are no Indigenous People as per Schedule V in the project influence area.
- There are no internationally recognized biodiversity areas (such as important bird areas, UNESCO word heritage sites, AZE sites); and legally protected areas (such as Wildlife Sanctuaries and National Parks) in the project influence area.

[2] A" Marginal Farmer" can be defined as a farmer cultivating (as owner or tenant or share cropper) agricultural land up to 1 hectare (2.5 acres)

4 Baseline Environmental and Social Status

Note: Study area for the project has been defined in the ESIA dated 05.01.2023. This section has been developed as an addendum to close the gap on baseline environmental monitoring, biodiversity profile & stakeholder consultation.

4.1 Baseline Environmental Monitoring

For undertaking the baseline monitoring, the E&S receptors present in the study area were reviewed to identify monitoring locations. The receptors identified in 10 km buffer **(Figure 4-1)** include:

- Human Settlements
- Water bodies (*Krishna* River & seasonal water streams and lakes)
- Cultural and social places (temples, schools, hospitals etc.)
- Transportation network (roads, bus stop etc.)

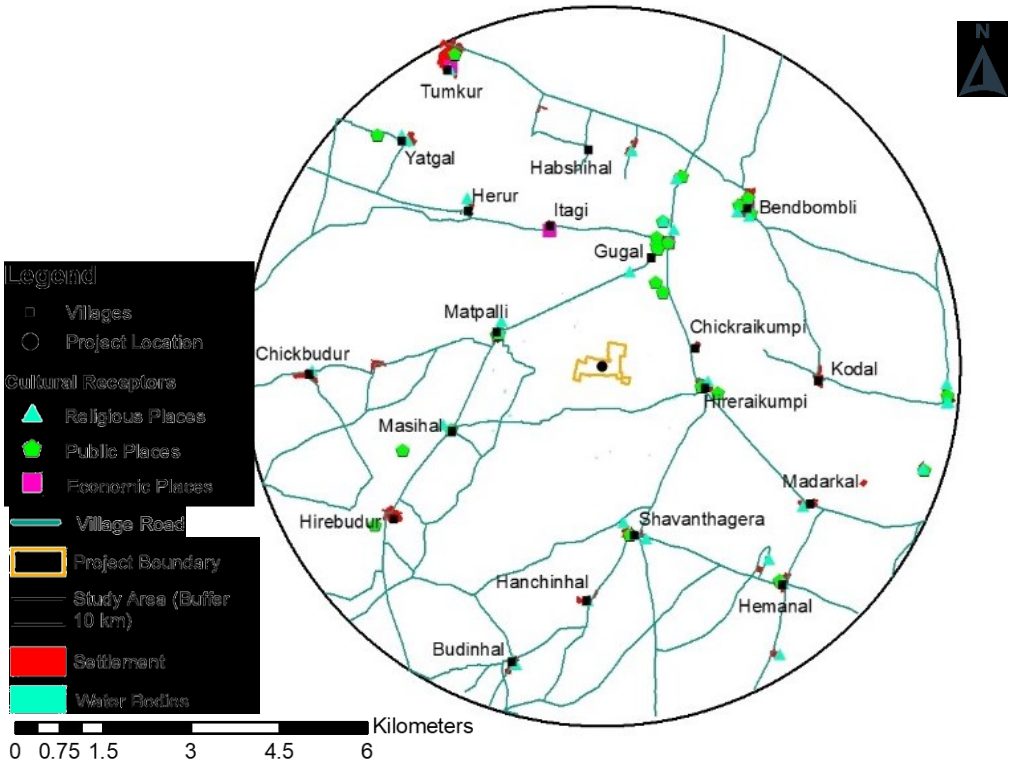


Figure 4-1 : Identified E&S Sensitive Receptor in Study Area (buffer 10 km)

Clean Enviro Labs Pvt Ltd; a NABL[3] accredited laboratory was engaged for collection of baseline information on ambient air quality, groundwater quality, soil quality and ambient noise quality. Brief details on baseline monitoring are presented in **Table 4-1**. Refer **Figure 4-2** for locations of ambient air, noise monitoring & soil monitoring which were located within the project site area and **Figure 4-3** for ground water monitoring locations which were located within study area.

[3] National Accreditation Board for Testing and Calibration Laboratories (NABL) is an accreditation body by Government of India that grants accreditation to Testing and Calibration laboratories as a part of quality control in the country. NABL accredits laboratories for specific activities. The laboratory appointed for environmental monitoring for this project is also NABL accredited for air, water and soil as noise is not accredited under the scheme.

Table 4-1 : Primary Environmental Monitoring Baseline Data Collection

#	Environmental Attribute	No. of Locations	Frequency	Remarks
1	Ambient Noise Quality	4	Hourly noise values over a 24-hour period	Ambient noise monitored within project site area surrounded by agricultural fields.
2	Ambient Air Quality	2	Once for 24 hours during monitoring period	Ambient air quality monitored within residential structures and institutions located within study area.
3	Ground Water Quality	2	Once during monitoring period	Water was collected from bore wells for ground water quality from villages located within study area.
5	Soil Analysis	1	Once during monitoring period	Soil sample was collected from project site.

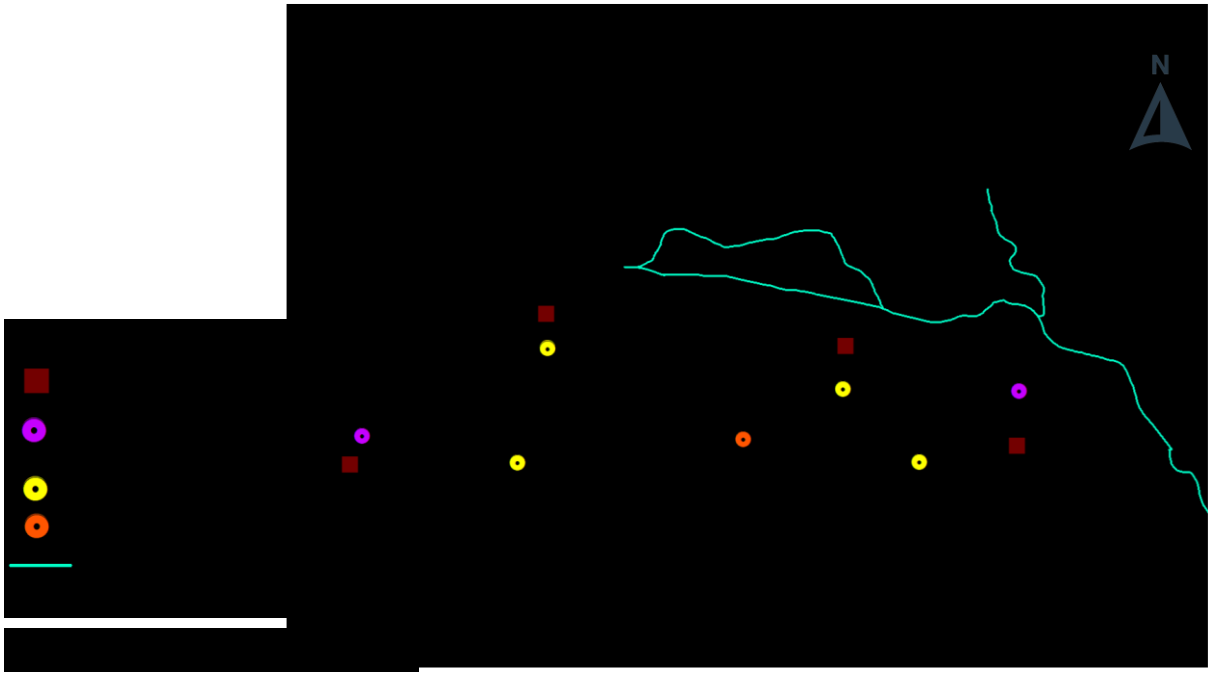


Figure 4-2 : Air, Noise & Soil Monitoring Locations

The baseline monitoring results received from the monitoring agency is presented in **Annexure 8**.

4.1.1 Ambient Air Quality

The Ambient Air Quality (AAQ) of study area was assessed by conducting baseline ambient air quality monitoring at two locations within study area. The siting of the air quality monitoring stations was carried out based on the prevalent wind direction and presence of sensitive receptors. The criteria for selection of each of the monitoring station is presented below. Refer **Figure 4-2** for locations of the monitoring stations.

Criteria for selection of air monitoring stations

Monitoring Locations	Criteria for selection
AAQ 1 – Project Site: Invertor (1) Block -1.3 Area [16° 26' 15.7"N; 77° 7' 46.97"E]	The monitoring location (AAQ 1) was located within the project site at Invertor (1) Block -1.3 Area. The location is downstream of the pre-dominant wind direction i.e., East
AAQ 2 – Project Site: Invertor (2) Block-1.1 Area [16°26'15.48" N; 77° 7' 26" E]	The monitoring location (AAQ 2) was located within the project site at Invertor (2) Block -1.1 Area. The location is upstream of the pre-dominant wind direction i.e., West

Ambient Air Quality Monitoring	
	
AAQ1- Project Site	*AAQ2- Project Site*

Summary of Monitoring Results

Results for ambient air quality monitoring were analyzed on the basis of comparison with standards defined by CPCB & general EHS guidelines as mentioned in **section 3.3** for air quality parameters.

Table 4-2 : Ambient Air Quality Monitoring Results

Parameters	CPCB Standard (µg/m³) (24 hours)	General EHS Guidelines 2007 (µg/m³) (24 hours)	Monitoring Result (µg/m³)	
			(AAQ 1)	(AAQ2)
PM_{10}	100	50	56	54
$PM_{2.5}$	60	25	**62**	30
SO_2	80	20	22	20
NO_x	80	-	18	16

Analysis of Monitoring Results

The pollutant concentrations in the ambient air in the study area were compared with National Ambient Air Quality Standards (NAAQS) of Central Pollution Control Board (CPCB). Refer **Table 4-2**.

The 24-hour average concentration of PM_{10}, NOx and SO_2 monitoring in the study area were observed to be well within National Ambient Air Quality Standards (NAAQS) except $PM_{2.5}$ at AAQ1. However, $PM_{2.5}$ concentration for AAQ1 was found to exceed NAAQS standard by a small margin although AAQ2 concentration was found well within the limit.

This minor deviation at AAQ1 was attributed to its location, which was surrounded by anthropogenically disturbed land within the project site and lack of vegetation. Conversely, the

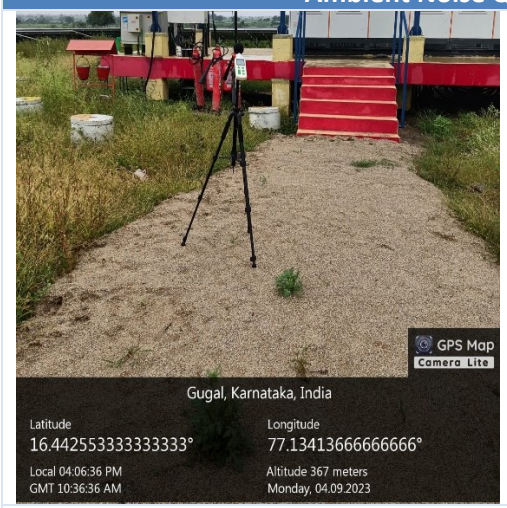
upstream station, AAQ2, reported a concentration that was only half of that observed at the downstream station, as it was surrounded by agricultural land.

The results for ambient air quality parameters were also compared with World Bank Group's EHS Guidelines. The 24-hour average concentration of PM_{10}, $PM_{2.5}$ and SO_2 at both the locations exceeded General EHS guideline standards .

4.1.2 Ambient Noise Level

The baseline ambient noise (N) Levels were monitored at four locations for 24 hours. Siting was carried out based on source of noise generation around the project site. All monitoring stations for ambient noise monitoring were placed within project boundary. Noise attenuates rapidly with distance and its influence becomes minimal beyond 500 meters. Since there were no sensitive receptors within a 500-meter radius, monitoring stations for noise were established both upstream and downstream from the noise sources in the project. The criteria for selection of monitoring station are presented below. Refer **Figure 4-2** for locations of noise monitoring stations.

Monitoring Locations	Criteria for selection
N1 – Invertor (1) Block -1.3 Area [16°26'15.06"N 77°7'57.07"E]	The monitoring location (N1) chosen was within 1 km of project site towards East direction. It was located at Invertor (1) Block -1.3 Area. The location was present downstream of source of noise.
N2 – Invertor (2) Block -1.1 Area [16°26'15.44"N; 77°7'25.76"E]	The monitoring location (N2) chosen was within 1 km of project site towards West direction. It was located at Invertor (2) Block -1.1 Area. The location was present upstream of source of noise.
N3 - Invertor (2) Block -2.2 Area [16°26'15.8"N; 77°7'47.18"E]	The monitoring location (N3) chosen was within 1 km of project site towards South direction. It was located at Invertor (2) Block -2.2 Area. The location was present downstream of source of noise.
N4 - Invertor (1) Block -3 Area [16°26'33.19"N; 77°8'2.89"E]	The monitoring location (N4) chosen was within 1 km of project site towards North direction. It was located at Invertor (1) Block -3 Area. The location was present upstream of source of noise.

Ambient Noise Quality Monitoring	
	
AN1- Project Site	*AN2- Project Site*

Ambient Noise Quality Monitoring	
	
AN3 - Project Site	*AN4 - Project Site*

Summary of Monitoring Results

Results for ambient noise quality monitoring were analyzed on the basis of comparison with CPCB & general EHS guidelines for noise quality standards.

Table 4-3 : Noise Level Monitoring Results

Receptor	Parameters	CPCB Standards	General EHS Guidelines 2007	Monitoring Result			
				N1	N2	N3	N4
Residential Area	Noise Level Day dB(A)	55	55	**60.2**	**61.8**	**59.2**	**62.6**
	Noise Level Night dB(A)	45	45	**50.2**	**51.6**	**48.4**	**49.2**

Analysis of Monitoring Results

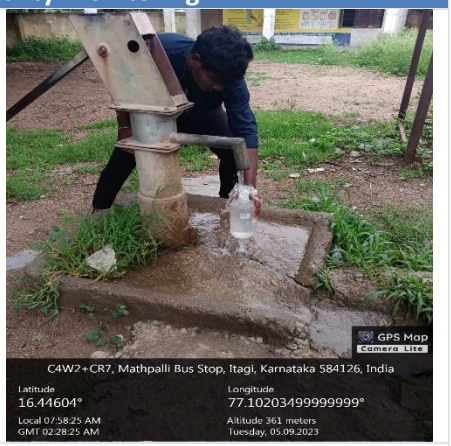
The ambient noise levels monitored at site were compared with CPCB standards for ambient noise (for residential zones) and World Bank Group's EHS Guidelines (Refer **Table 4-3)**. The average ambient noise levels obtained for all the four locations were observed to exceed the permissible limits for both day & nighttime.

The exceedance of noise recorded was not because of any source present at the project site but due to the cyclone & rainy conditions during noise monitoring.

4.1.3 Ground Water Quality

Following were the criteria for selection of monitoring locations (**Figure 4-3)**

Monitoring Locations	Criteria for selection
GW 1 – Handpump water of Gugal Village [16°28'6.84"N; 16°28'6.84"E]	The location chosen was in Gugal village. It was located at a distance of 2.45 km towards north direction of project site. A handpump water was selected for sampling and was being commonly used by most of the villagers in the surrounding settlement.
GW 2 – Handpump water of Matpalli Village [16°26'45.74"N; 77 6'7.32"E]	The location chosen was Matpalli village. It was located at a distance of 2.26 km towards west direction of project site. A handpump water was selected for sampling and was being commonly used by most of the villagers in the surrounding settlement.

Ground Water Quality Monitoring	
	
GW1- Gugal Village	*GW2- Matpalli Village*

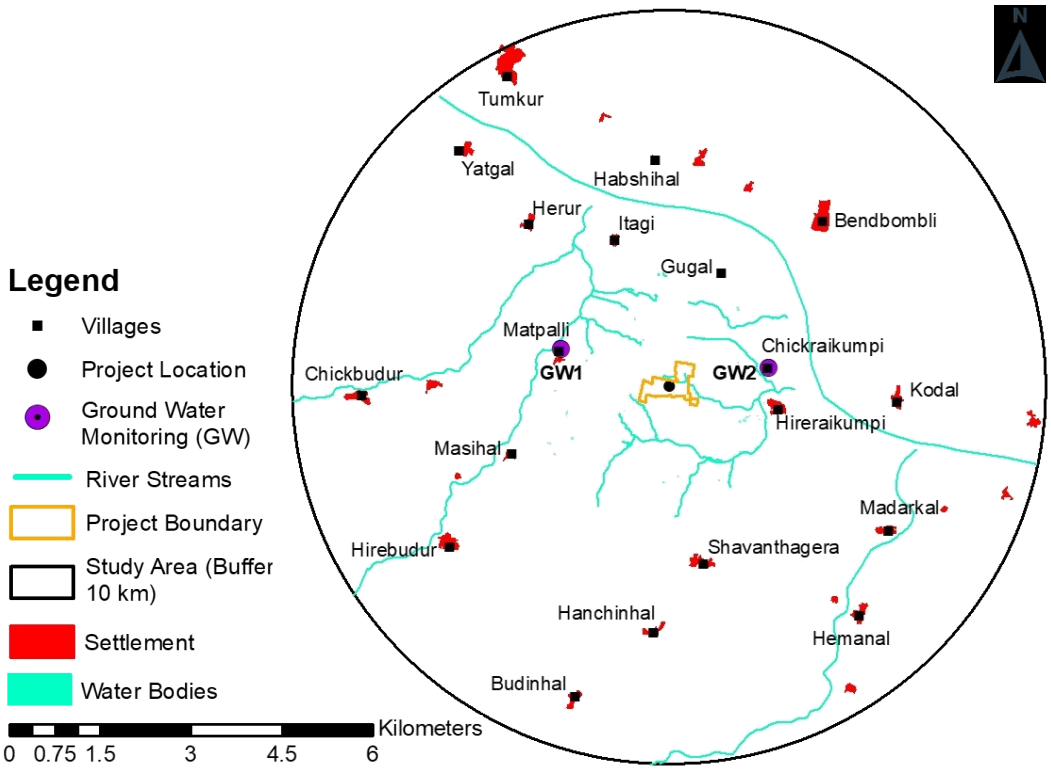


Figure 4-3 : Ground Water Quality Monitoring Locations

Summary of Monitoring Results

Results for ground water quality monitoring were analyzed on the basis of comparison with standards defined in IS 10500:2012 & World Bank Group's General EHS Guidelines for water quality parameters.

Table 4-4 : Ground Water Quality Monitoring Result

Parameter	IS 10500:2012		General EHS Guidelines 2007	Result	
	Acceptable Limit	Permissible Limit		GW 1 Gugal village	GW 2 Matpalli village
1. Color (Hazen)	5	15	-	1.0	1.0
2. Odor	Agreeable	Agreeable	-	Agreeable	Agreeable
3. Electrical Conductivity (µs/cm)	-	-	-	1948	2530
4. Total Alkalinity (as $CaCO_3$)	200	600	-	**552**	**624**
5. pH at 25 °C	6.5-8.5	No relaxation	6-9	**8.69**	**8.73**
6. Total Hardness (as $CaCO_3$)	200	600	-	316	436
7. Total dissolved solids (mg/L)	500	2000	-	1130	1460
8. Biochemical Oxygen Demand (3 days 27°C)	30	30	30	< 5.0	< 5.0
9. Chemical Oxygen Demand	250	250	125	< 10	< 10
10. Ammoniacal Nitrogen	-	-	-	< 1.0	< 1.0
11. Iron	0.3	No relaxation	-	0.27	0.24
12. Calcium (mg/L)	75	200	-	72.14	56.11
13. Magnesium (mg/L)	30	100	-	33.04	71.92
14. Chloride as Cl- (mg/L)	250	1000	-	264	386
15. Sodium (mg/L)	-	-	-	298	374
16. Sulphate as SO_4 (mg/L)	200	400	-	109	165
17. Nitrate (as NO3)	45	No relaxation	-	40.6	43.6
18. Potassium (as K)	-	-	-	8.0	12
19. Fluoride as F (mg/L)	0.1	1.5	-	0.98	0.98
20. Silica	-	-	-	2.16	2.68
BLQ – below limit of quantification, LOQ – limit of quantification					

Analysis of Monitoring Results

The ground water sample was compared with IS 10500:2012 drinking water standards and World Bank Group's EHS Guidelines. Refer **Table 4-4.** After analyzing it was observed that the ground water is alkaline and hard in nature. The results for parameters like alkalinity, hardness, total dissolved solids, pH, magnesium, and chloride exceeded the acceptable limits specified in IS 10500:2012. However,

they remained within the permissible limits, except for alkalinity and pH. All the remaining water quality parameters for ground water were found to be within acceptable and permissible limits. It was observed that the pH parameter exceeded the general EHS guideline standard. The pH has been reported at the range of 8.9 to 7.65 (pH as of 2016 - 8.24) for the village of Devadurga as per the baseline water quality mentioned in the ESIA Report. This suggests that the area has a high pH value in general.

4.1.4 Soil Quality

The project site is characterized by black cotton soils. The soil monitoring was conducted at project location **(Figure 4-2).**

Criteria for Selection

Monitoring Locations	Criteria for selection
S1 – Block-3 Project Site Area [16°26'33.23"N, 77°8'1.4"E]	The location chosen was project site and represents the current project site condition.

Soil Quality Monitoring

S1 – Project Site

Summary Table of Monitoring Results

Results for soil quality parameters were compared with standard method reference as mentioned in **Table 4-5** for analysis.

Table 4-5 : Soil Quality Monitoring Results

Parameter	Method Reference	Unit	Result
			On-site (S)
1. pH (1+5) Suspension	FAO 1976, Sec.IU,1, Page No.65	-	**8.35**
2. Electrical Conductivity	IBM Manual Page. No. 264 WL-II-Pa9e No.9	ms/cm	0.106
3. Moisture Content	IS 2720 (Part II): 1973, M 2002, Ed. 3.1	%	9.68
4. Cation Exchange Capacity	FAO Sec. III .7-2, Page No. 104	meq/ 100g	56

Parameter	Method Reference	Unit	Result
			On-site (S)
5. Water holding capacity	IBM Manual Page 264	%	62
6. Organic Carbon	Manual of Soil Testing, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. India, Sec.4-17, Paqe No 83.	%	0.96
7. Available Nitrogen	Manual of Soil Testing, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. India, Sec.4-17, Paqe No 89	mg/kg	58
8. Available Copper	Manual of Soil Testing, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. India, Sec.4-17, Paqe No 105	mg/kg	22
9. Available Boron as B	Manual of Soil Testing, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. India, Sec.4-17, Paqe No 115	mg/kg	48
10. Total Cadmium	USEPA/SW 846 Method 30508, Rev.2: Dec.1996 and 70008, Rev.2, Feb 2007	mg/kg	14.8
11. Available Iron	Manual of Soil Testing, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. India, Sec.4 -17, Paqe No 105	mg/kg	0.38
12. Available Manganese	Manual of Soil Testing, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. India, Sec.4 -17, Paqe No 105	mg/kg	7.26
13. Total Lead	USEPA/SW 846 Method 30508, Rev.2: Dec.1996 and 70008, Rev.2, Feb 2007	mg/kg	0.28
14. Total Nickel	USEPA/SW 846 Method 30508, Rev.2: Dec.1996 and 70008, Rev.2, Feb 2007	mg/kg	0.66
15. Available Calcium	FAO Sec.IU.8-1, Page No. 115	meq/ 100qm	24
16. Available Magnesium	FAO Sec.IU.8-1, Page No. 115	meq/ 100qm	52.4
17. Available Potassium	FAO Sec.IU.8-1, Page No. 115	meq/ 100qm	**104**
18. Available Sodium	FAO Sec.IU.8-1, Page No. 115	meq/ 100qm	86
19. Grain Size (Texture) Sand	Manual of Soil Testing Department of Agriculture & Cooperation, Ministry of Agriculture Govt. India, Sec 4.-L7 Page No 68 & 105.	%	18
20. Grain Size (Texture) Silt		%	26
21. Grain Size (Texture) Clay		%	56
22. Grain Size (Texture)		-	Sand Clay
23. Available Phosphorous	FAO Sec. III .12-1, Page No. 157	mg/kg	28.6
24. Mercury	USEPA/SW 846 Method 30508, Rev.2: Dec.1996 and 747!8, Rev.2, Feb 2007	mg/kg	0.18

Analysis of Monitoring Results

The soil analysis (**Table 4-5**) has been carried out as per the different set method reference. It is observed that the project site has a high pH value (8.35) and potassium was found to be present in soil at 104 mg/kg.

4.2 Biodiversity Profile of Study Area

The biodiversity was studied for a buffer of 10 km around the project site boundary that included the transmission line alignment.

Different types of habitats were identified during the desktop review that were verified during the site visit. These included agricultural fields, ponds/ lakes, wetlands, woodland, riverbank, rural areas and peri rural areas.

The biodiversity in the study area was reviewed at site using line transect and spot surveys for floral and faunal biodiversity. Wetlands in the 10 Km buffer were reviewed using spot surveys. Random sampling plots were also reviewed during the survey for Avi-faunal species.

During the site survey it was found that the region is rich in species diversity and a home to species such as Small Clawed otters, Steppe Eagle, Cat Snake, Marsh crocodile, and various birds. Refer **Annexure 7** for observed species during survey.

4.2.1 Flora Profile

The floral diversity of the study area was recorded through visual observation during the site visit and prior identifications as per various research papers and reports. All the information that dealt with the floristic diversity in the region was collated and considered in the survey. A total of 43 floral species belonging to 22 families were observed from the 5 km buffer of the project site. Refer **Table 4-6** for the floral profile. Fabaceae was the most dominating family in the area with 12 species. None of the species identified in the region are rare, endangered or threatened. There were also no religious/sacred trees in the study area.

Table 4-6 : Floral Profile of Study Area

#	Scientific Name	Family	Life Form
1	*Abutilon indicum* (L.) Sweet	Malvaceae	Herb
2	*Acacia nilotica* (L.) Delile	Fabaceae	Tree
3	*Acacia senegal* (L.) Willd.	Fabaceae	Tree
4	*Aegle marmelos* (L.) Corrêa	Rutaceae	Tree
5	*Aerva lanata* (L.) Juss. ex Schult.	Amaranthaceae	Herb
6	*Agave americana* L.	Agavaceae	Herb
7	*Ailanthus excelsa* Roxb.	Simaroubaceae	Tree
8	*Albizia procera* (Roxb.) Benth.	Fabaceae	Tree
9	*Argemone mexicana* L.	Papaveraceae	Herb
10	*Azadirachta indica* A.Juss.	Meliaceae	Tree
11	*Bauhinia purpurea* L.	Fabaceae	Tree
12	*Calotropis gigantea* (L.) Dryand.	Apocynaceae	Tree
13	*Calotropis procera* (Aiton) Dryand.	Apocynaceae	Shrub
14	*Cassia fistula* L.	Fabaceae	Tree
15	*Celosia argentea* L.	Amaranthaceae	Herb
16	*Chloris barbata* Sw.	Poaceae	Grass
17	*Commelina benghalensis* L.	Commelinaceae	Herb
18	*Croton bonplandianus* Baill.	Euphorbiaceae	Herb
19	*Cryptostegia grandiflora* Roxb. ex R.Br.	Apocynaceae	Climber
20	*Cyperus compressus* L.	Cyperaceae	Herb
21	*Dactyloctenium aegyptium* (L.) Willd.	Poaceae	Grass

#	Scientific Name	Family	Life Form
22	*Datura innoxia* Mill.	Solanaceae	Herb
23	*Datura metel* L.	Solanaceae	Herb
24	*Euphorbia hirta* L.	Euphorbiaceae	Herb
25	*Ficus benghalensis* L.	Moraceae	Tree
26	*Ficus religiosa* L.	Moraceae	Tree
27	*Ficus virens* Aiton	Moraceae	Tree
28	*Lantana camara* L.	Verbenaceae	Shrub
29	*Mangifera indica* L.	Anacardiaceae	Tree
30	*Moringa oleifera* Lam.	Moringaceae	Tree
31	*Parthenium hysterophorus* L.	Asteraceae	Herb
32	*Peltophorum pterocarpum* (DC.) K.Heyne	Fabaceae	Tree
33	*Pithecellobium dulce* (Roxb.) Benth.	Fabaceae	Tree
34	*Pongamia pinnata* (L.) Pierre	Fabaceae	Tree
35	*Prosopis cineraria* (L.) Druce	Fabaceae	Tree
36	*Prosopis juliflora* (Sw.) DC.	Fabaceae	Tree
37	*Senna auriculata* (L.) Roxb.	Fabaceae	Shrub
38	*Tamarindus indica* L.	Fabaceae	Tree
39	*Tectona grandis* L.f.	Lamiaceae	Tree
40	*Tridax procumbens* (L.) L.	Asteraceae	Herb
41	*Typha domingensis* Pers.	Typhaceae	Herb
42	*Xanthium strumarium* L.	Asteraceae	Herb
43	*Ziziphus mauritiana* Lamk.	Rhamnaceae	Tree

4.2.2 Fauna Profile

Faunal species from the study area were recorded based on direct sightings, indirect evidence such as dung, droppings, scats, pugmarks, scratch signs, burrows, calls, nests etc. Refer **Table 4-7** for the same. Consultations with local communities were carried out by displaying pictorial representations of species anticipated in the area to confirm whether there have been any recent sightings. Refer **Annexure 7** for detailed list of faunal species present in study area identified based on primary & secondary assessment.

- **Avifauna**

The avifaunal survey method focused on key habitat features, preferred time of day to ensure maximum bird activity. The birds were surveyed around ponds during the coolest parts of the day (morning and evening); along motorable roads and in high-density vegetation areas during the hottest parts of the day. Nikon DSLR with 70-300 lens and standard field guides were used for avifaunal identification. Apps like Merlin and e-bird were used to identify and count species.

During the site survey Aves from 69 different species, totaling to 383 Individuals were spotted. Additionally, 63 species of birds were also reported in the region as per various sources such as E-bird, EIA/ ESIA of projects in neighbouring areas. Three Schedule 1 species (as per Wildlife Protection Act 1972) were spotted in the project influence area.

- *Aquila nipalensis* commonly known as Steppe Eagle (IUCN- EN) was spotted near the project site. The species has a wide home range and can be spotted across the Indian Subcontinent. As per the State of Indians Birds 2023, the species has a stable annual trend and large distribution range. The primary habitat of the species is in the Northern Part of India along the Himalayas. The presence of the same would not have any adverse impact on the project site due to its large home and primary habitat.
- *Pavo Cristatus* commonly known as Indian Peafowl (IUCN-LC) was spotted about 4 km away from the project location. As per the State of Indians Birds 2023, the Indian Peafowl species

are rapidly increasing, have a very large distribution range and are endemic to the Indian Sub-Continent.

- *Sterna aurantia*, commonly known as River Tern (IUCN- VU) was spotted as a fly-by about 4 km away from the project location near Krishna River. As per the State of Indians Birds 2023, River Terns annual trend is inconclusive, have a very large distribution range, are found in wetland habitats, is resident and local migratory to India and is not an endangered species. The project team had not spotted any River Terns near the project area. Hence the project is not expected to impact the species.

- **Reptiles**

Reptile presence was determined by targeting rocks and logs located around water bodies or recently dried streams, hedges and along the trunks of higher vegetation. Muggers (*Crocodylus palustris (IUCN-VU)*) or fresh water crocodiles are known to occur in the ponds and water bodies as understood in consultation with the communities. They are commonly seen in Indian rivers. The nearest such waterbody is about 3 kilometers downhill from the site. The access roads are not smooth and hence would not be favorable for the movement of Muggers. As the project site is fenced with security guards continuously patrolling the area the presence of the species would not have any adverse impact on the project site due to its primary habitat being on the riverbeds and not near agricultural fields.

Snake species were also spotted by the project staff near the site. Photographic evidence was used to identify the species. The project team had spotted *Boiga forsteni* commonly known as Reddish Peninsular Cat Snake. It is a mildly venomous rear fanged snake. From secondary sources it was reported that the following species were also reported in the study area: common krait snake – *Bungarus caeruleus* (highly venomous), Trinket snake – *Coelognathus helenae* (non-venomous) & Daudin's bronzeback – *Dendrelaphis tristis* snake (non-venomous). As per the H&S Policy of Radiance the staff needs to wear appropriate PPEs for self-protection and to prevent snake bites.

It is recommended that local hospital in the project area should be made aware of the Herpetofauna and Arachnida species present in the area and store anti-venom injections to treat snake bite victims. It is also recommended that a separate format should be established for snakes identified on site with details of species and photographs which can be displayed at the site office, so as to raise awareness. Training on safety measures to be taken when there is a near miss with reptilian species should also be conducted on a half yearly basis.

- **Mammals**

Mammal surveys were conducted along motorable roads, near ponds and rivers, agricultural lands and in open scrubs. Individuals were identified through direct (visual sighting) and indirect (pellets, tracks, paw marks and scat) methods. In regard to mammals, *Macaca radiata*, commonly known as a Bonnet Macaque *(IUCN-VU)*, and Aonyx cinereus *(IUCN-VU)* commonly known as Asian Small Clawed Otter were spotted near the banks of the Krishna River that is 4 km downhill from the project site. The presence of Otters has no impact on the project site as they prefer riverine and wetland habitats and are rarely found in the agricultural fields. Similarly, the presence of Macaques also has no impact as they prefer dwelling in peri-urban areas rather than rural agricultural fields.

Table 4-7 : Observed Species during Biodiversity Survey

	
Ashy Drongo	*Ashy Prinia*
	
Grey Heron	*Baya Weaver*
	
Little Cormorant	*Little Egret*

Marsh Harrier

Pond Heron

4.3 Stakeholder Consultation

To study the social, economic, biodiversity and educational profile of study area consultations were conducted with relevant stakeholders. A questionnaire for different stakeholders was developed. The mode of consultation varied from key person interview to group discussions. An excerpt of discussions with various stakeholders and conclusions are presented in the subsequent sub-sections. Refer **Figure 4-4** for a map of Social & Culturally Sensitive Receptors in Study Area.

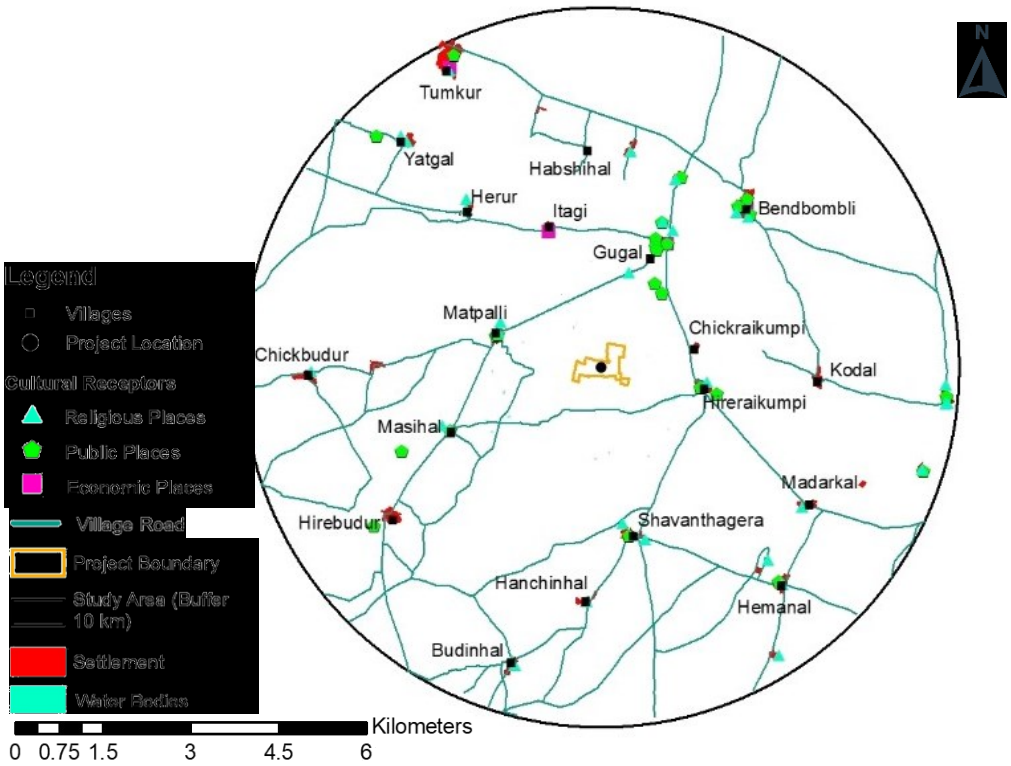


Figure 4-4 : Social & Culturally Sensitive Receptors in Study Area

4.3.1 Summary of Stakeholder Consultation

Summary of Consultation with Villagers

A stakeholder consultation was conducted with villagers in the Gugal, Chickraikumpi, Hireraikumpi, Matpalli and Masihal villages within the study area. The objective was to understand the existing local social needs, social structure, local sensitive receptors and availability of amenities. The input received from the discussion were used for assessing potential impacts of the project.

During the stakeholder consultation related to social needs e.g., infrastructure facilities (transportation, electricity, drinking water supply etc.), basic amenities provided (Bus stops, post office, training centers) social status (tribal areas, SC/ST population in villages, safety) economic activities (primary occupation, land transformation) etc. were discussed. Refer **Table 4-8** for a summary of stakeholder consultation conducted during site visit.

As reported by corporate team the project site has a separate 'Stakeholder Engagement Plan' (SEP) which specifies objective and scope of SEP, principles of stakeholder engagement, stakeholder identification & categorization, approach and analysis. In case of any concerns raised they will be addressed by the project as per established SEP. Refer **Annexure 2** for the same.

Table 4-8 : Summary of Socio-Economic Profile of Study Area

Topic	Result of Discussions
Infrastructure facilities	
• Electricity	– The power was being supplied by Karnataka State Electricity Board. Power cut issues were not reported in any of the villages. No alternative sources like, invertors, diesel generator sets in case of power failure were found.
• Drinking water supply	– Government water supply was the main source of water in all five villages. – Krishna river was the major source of surface water in the study area. – Handpump & borewells were secondary water sources of water supply.
• Healthcare facilities	– While interacting with villagers, it was found that medical facility such as, Primary Healthcare Centre (PHC) was available only in Gugal village. – No medical facilities were present in Chickraikumpi, Hireraikumpi, Matpalli and Masihal villages. Villagers had to travel to Gugal for medical facilities. (2-5 km distance)
• Educational facilities	– Primary school (1st to 7th standard) was found to be present in every village – Only three (Gugal, Hireraikumpi & Matpalli) out of five villages were facilitated with Anganwadi. – Higher secondary school (8th to 10th standard) was found to be present only in Hireraikumpi village.
• Transportation facilities	– The study area was connected with internal village roads. No railway station was present within the study area. The nearest railway station was located at *Krishna,* at a distance of 11.16 km from the study area. – Temporary bus stops were present in every village. The majority of villagers did not own any private vehicle. Villagers were found to travel by bicycle for accessing the nearest bus stop.
• Sanitation facilities	– Private toilets were found to be available in all five villages. – There was a dearth of public toilets
• Waste disposal	– Two out of five villages (Hirerayakumpi & Chickraikumpi) did not have any waste collection and disposal mechanism. The waste generated by each household, or a group of households was found to be collected and dumped in the in outskirts of the villages.

Topic	Result of Discussions
	– In the remaining three villages (Gugal, Matpalli & Masihal) it was reported that government owned vehicles collect the waste from each household for further treatment.
Public Amenities	– Public amenities like school, PHC, banks etc. were present in study area however no police station were found to be available within study area.
Social Status	– ST/SC population was absent in the study area. Majority of households were headed by a male member, and the women were not actively engaged in decision-making. – No major issues of vehicle accidents or crimes were reported
Economic Status	– The primary occupation was farming and the majority of respondents in group discussion were engaged in farming activities. – Some villagers were reported to be working in urban areas.
Photograph and location map of social survey	Refer **Figure 4-5** for photographs and **Figure 4-6** for social survey locations.

Table 4-9 : Details of Stakeholder Consultation

#	Date	Time	Profession	Age	Location	Gender
1	05-09-2023	11:10 am	Priest- Local Temple	23	Gugal	Male
2	05-09-2023	03:50 pm	School Principal	68	Chickraikumpi	Male
3	05-09-2023	11:48 am	Farmer	27	Hireraikumpi	Male
4	05-09-2023	01:20 pm	Anganwadi Worker	40	Hireraikumpi	Female
5	05-09-2023	4:49 pm	Farmer	70	Matpalli	Male
6	05-09-2023	04:30 pm	Farmer	26	Masihal	Male

Refer **Table 4-9** for stakeholder consultations conducted with villagers of the Gugal, Chickraikumpi, Hireraikumpi, Matpalli & Masihal villages present in the study area with the objective to understand the existing concerns in the village related to the solar energy project. The input received from the discussion were used for assessing potential community impacts of the project. Refer **Table 4-10** for summary of consultation with villagers in study area and **Annexure 9** for questionnaires used during the consultation.

Table 4-10 : Summary of Community Concerns on the Project

Result of Discussions	Resolution by Radiance Renewables
Expectation of local employment was seen as a positive affirmation of the project.	According to the site manager, the recruitment of workers for both the construction and O&M phases will primarily favor local residents. Only roles within the project that require specialized training or technical expertise will be hired from outside the local region.

Farmers residing in the close proximity of the project site in Hirerayakumpi expressed their concerns regarding the use of herbicides for managing and controlling unwanted vegetation along the project's perimeter.	As reported by site manager surrounding villagers were made aware that herbicides that will be used at project site and that these are organic in nature and do not contain any harmful chemicals that will affect their agricultural fields or yield in and around the project site.

Summary of Consultation with Institutional Expert

An *Anganwadi*[4] worker from the Hirerayakumpi Anganwadi reported that 25 children attend the *Anganwadi* daily. Children up to 6 years old attended it for education. *Anganwadi* was open daily from 9:30 in morning to 4:00 in afternoon. Breakfast and lunch were also served for students in *Anganwadi*. It was also reported that the women in study area were involved in a small group called 'Shree Shakti Mahila Sangh'. Under this group women were engaged in tailoring business and had small finance savings scheme for women empowerment. Moreover, farmers in the study area were benefiting from the Pradhan Mantri Krishi Yojna, which provided them with low-cost fertilizers. However, it was also reported that the overall social and physical infrastructure development for women and children needed more focus so as to bring about an inclusive development.

Social Survey with Gugal villager

Social Survey with Hirerayakumpi villagers

Social Survey with Matpalli villagers

Social Survey with Chickraikumpi villagers

[4] Rural child care center

Social Survey with Anganwadi Worker

Social Survey with Landowners

Figure 4-5 : Photographs of Stakeholder & Landowners Consultation

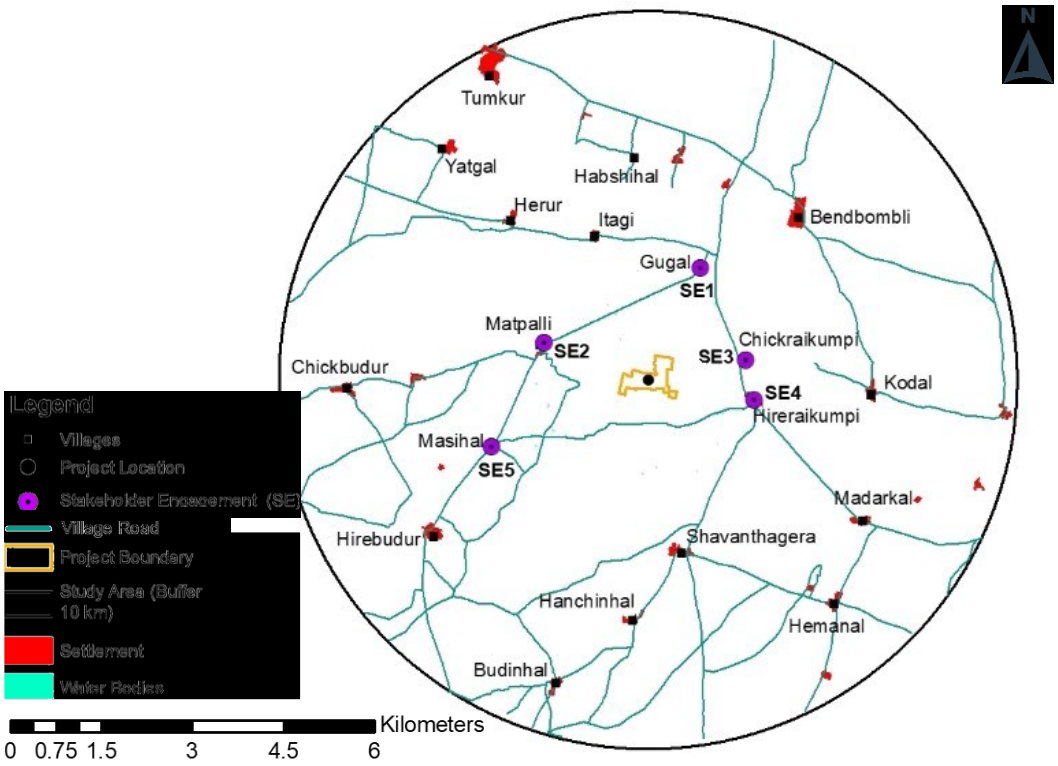


Figure 4-6 : Stakeholder Consultation Locations

5 E&S Impact Assessment

5.1 Analysis of Alternatives

The ESIA Report dated 05/01/2023 presents analysis of alternatives for the project as a whole considering the following scenarios:

- Project v/s No Project Scenario
- Alternate source for power generation
- Alternate location for project site

These are summarized below:

- No Project Scenario: It is well established that a power project is required to meet the energy demand. A survey conducted by the World Energy Council states that as the population increases and as the growing rate of electrification places huge requirements on energy supplies, the total primary energy demand of India is expected to increase by almost 150% by 2035.
- Alternative Power Source Scenario: A solar power project is in alignment with the national targets of achieving 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. The greenhouse gas emissions from a coal-based power plant are significantly higher than a solar power project. The GHG emission sources for a solar power project are limited to the emissions from fossil sources used in the production and manufacturing of equipment, transportation of equipment to site, construction & installation activities, etc.
- Alternative Location: As published by National Renewable Energy Laboratory (NREL) in March 2016, the project site selected is a high solar power potential site with irradiation of 5.5 - 6.0 kWh/m2/day and availability of 250-300 sunny days in a year. The project influence area does not have any sensitive receptors such as protected areas, and archaeologically important areas. The project area is also free of structural obstacles around the site, such as tall buildings, that could lead to near shading.

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5.1.1 Analysis of Alternatives for Transmission Line

The alternatives assessed for transmission lines are based on location and technology.

A. Alternate Transmission Line Conductors

Selecting the appropriate conductor is one of the most important components of overhead transmission lines. A good conductor should have the following properties:

- high electrical conductivity
- high tensile strength to withstand mechanical stresses
- relatively lower cost for given design requirements
- lower weight per unit volume

Copper was the preferred material for overhead conductors in earlier days, but, aluminum has replaced copper because of the much lower cost and lighter weight of the aluminum conductor compared with a copper conductor of the same resistance.

The types of conductors used in transmission lines are:

- AAC: All Aluminum Conductor
- AAAC: All Aluminum Alloy Conductor
- ACSR: Aluminum Conductor, Steel Reinforced
- ACAR: Aluminum Conductor, Alloy Reinforced

The project has adopted ACSR conductors for the transmission lines. ACSR conductors consist of a solid or stranded steel core with one or more layers of high purity aluminum (aluminum 1350) wires wrapped in spiral. The core wires may have a thin coating of zinc (galvanized) steel or aluminum (aluminized) steel to protect from corrosion. The central steel core provides additional mechanical strength and, hence, sag is significantly less than all other aluminum conductors. ACSR conductors are available in a wide range of steel content - from 6% to 40%. ACSR with higher steel content is selected where higher mechanical strength is required, such as river crossing. ASCR conductors are very widely used for all transmission and distribution purposes, especially for long spans and high voltage transmission. The project has thus adopted the best available conductor while fulfilling project design and budget requirements.

B. **Alternate Transmission Tower Design**

A transmission tower is a tall steel lattice tower used to support an overhead power line. In electrical grids, they are used to carry high voltage transmission lines that transport bulk electric power from generating stations to electrical substations.

The design of transmission tower needs to consider the following criteria:

- The minimum ground clearance of the lowest conductor points above the ground level.
- The length of the insulator string.
- The minimum clearance to be maintained between conductors and between conductor and tower.
- The location of a ground wire with respect to outermost conductors.

The midspan clearance required from considerations of the dynamic behavior of the conductor and lightning protection of the power line. The higher the voltage of the transmission line, the higher the ground clearance and vertical spacing between the top and bottom conductors.

The transmission line traverses as per available corridors. Due to the unavailability of the shortest distance straight corridor transmission line has to deviate in case of an obstruction. In the total length of a long transmission line, there may be several deviation points. According to the angle of deviation, there are four types of transmission towers

- A – type tower – angle of deviation 0^o to 2^o.
- B – type tower – angle of deviation 2^o to 15^o.
- C – type tower – angle of deviation 15^o to 30^o.
- D – type tower – angle of deviation 30^o to 60^o.

Based on the force applied by the conductor on the cross arms, the transmission towers are categorized as:

- Tangent suspension tower and it is generally A – type tower.

- Angle tower or tension tower. All B, C and D types of transmission towers come under this category.

The project will deploy B, C, and D types of transmission towers. Thus, the project has adopted the most suitable transmission tower technology based on the available corridor and design criteria for transmission of 110 KV.

C. **Alternate TL Location Scenario**

A total of 13 transmission towers are required for the project between the pooling sub-station and grid sub-station in Gugal. Four transmission towers will be present within the project site area & remaining nine towers would be situated in cultivated agricultural fields of cotton and paddy crops. There are no structures (permanent or temporary) within the setback distance of the transmission towers and transmission line.

The TL route has the following location advantages:

- No ecological sensitive receptor such as National Parks, Wildlife Sanctuary, within 10 km radius;
- No reserve or protected forest within 5 km radius;
- No cultural heritage property of archaeological importance within 5 km radius; and
- There is no vehicular movement along access roads (paved or unpaved) situated between the setback distance of the transmission towers.

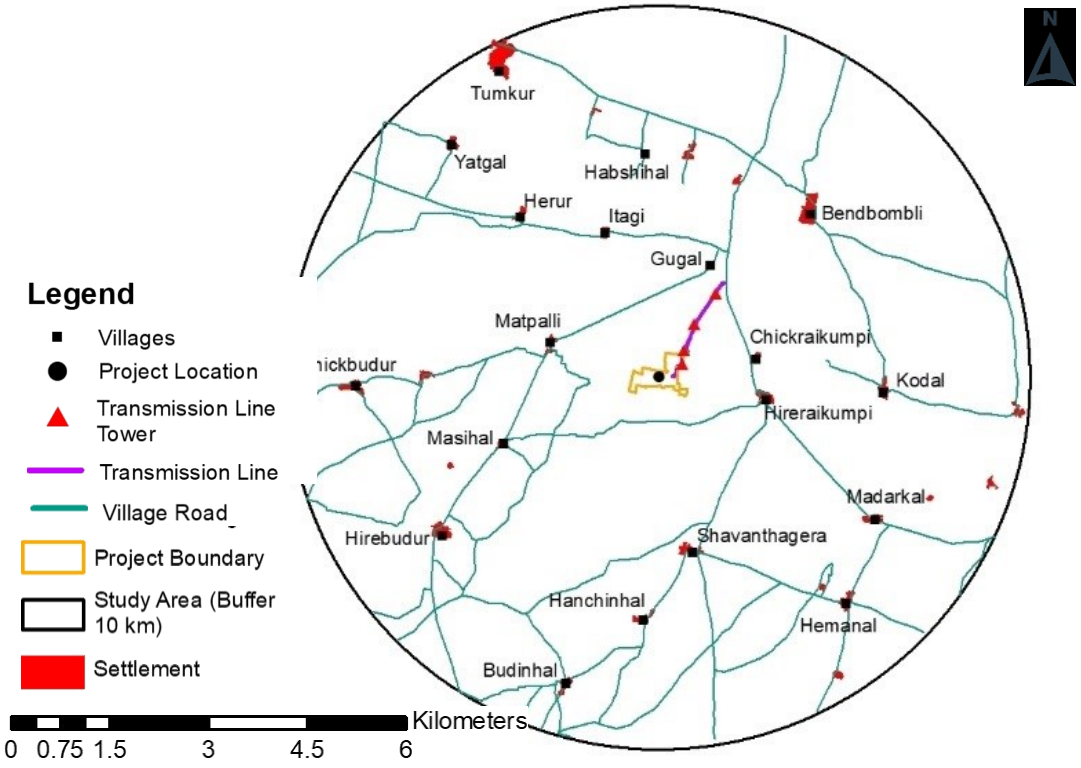

Figure 5-1 : Location of Transmission Line and the Project Site

5.1.2 Analysis of Alternatives - Access Road

The access road to the site (of approx. 1 km) connecting to the Hirerayakumpi - Masihal village road is being specifically developed for the project. This new access road traverses along the boundaries of

agricultural fields and is the shortest route to the project site. The road alignment thus results in least amount of disturbance and land procurement.

The access road does not result in splitting of agricultural land parcels, does not enable access to undisturbed areas or forests and does not result in severances to any of the neighbouring communities or to the landowners. Movement of project team along this road will not result in nuisance for any habitations as it has agricultural farmlands to towards its east and west, the solar PV project towards the north and the Hirerayakumpi - Masihal village road to the south with no habitations nearby.

To prevent pollution from bituminous material, the access road is being developed using material from the project site, compacted, levelled with a layer of stone aggregate without a black top. The layer of aggregate will prevent the generation of fugitive dust during vehicle movement on the access road.

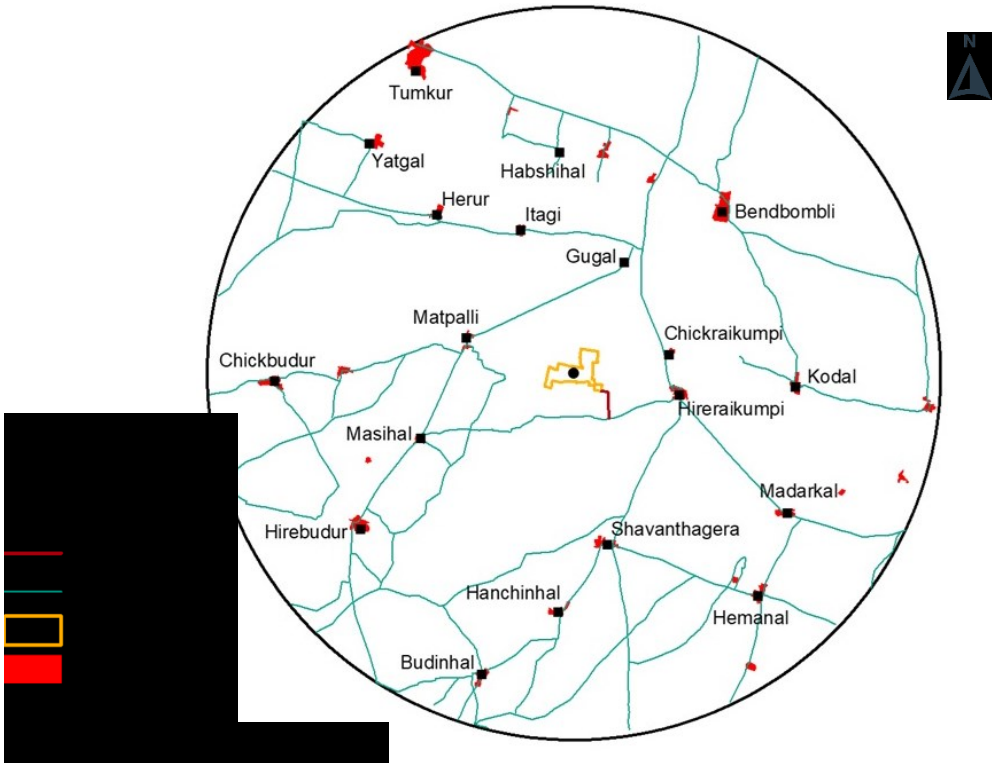

Figure 5-2 : Location of Access Road

5.2 Impact Assessment - Transmission Line

For assessment of the E&S impacts, the process presented in the ESIA Report dated 05.01.2023 has been followed to maintain consistency.

Different phases of the project involve various activities associated with transmission line & access road. Refer **Figure 5-1 & Figure 5-2**.

Table 5-1 : Project Phase and Associated TL & Access Road Activities

Project Phase	Project Activity
Pre- Construction	Identification of land parcels suitable for TL alignment and access roads
	Survey of TL and access road route alignment

Project Phase	Project Activity
	Obtaining necessary approvals/clearances
	Completion of land procurement
	Land preparation including clearance of existing vegetation
Construction	Operation of heavy vehicles/machinery
	Transportation of raw material and construction spoil
	Excavation for foundation for TL
	Erection of TL
	Stringing of TL
	Movement of construction equipment along access roads
Operation & Maintenance	Inspection & maintenance of TL
	Inspection & maintenance of internal pathways & access road
Decommissioning	Removal of all components of TL including foundations & internal roads
	Restoration of TL & access road alignment to pre-construction state

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5.2.1 Impact Assessment Criteria

The interaction of project activities for transmission line and access roads with receptors present in the project influence area that are likely to lead to potentially significant impacts are presented below.

Resource/ Receptor	Potentially Significant Impacts		
	Planning Phase	Construction Phase	O&M Phase
Land use	• Permanent change in land use due to development of access road and installation of transmission towers	• Temporary change in landuse due to construction corridor for stringing of transmission line	• None
Topography & Drainage	• None	• None	• None
Soil environment	• None	• Soil erosion during monsoon season and windy periods • Sedimentation into nearby water bodies due to soil erosion and run-off • Soil contamination from poor management of hazardous waste and solid waste	
Ambient Air Quality	• None	• Fugitive dust emissions from movement of machinery & vehicles • Air emissions due to operations of diesel generator sets and construction equipment	• Fugitive dust emissions from movement of machinery & vehicles
Water environment	• None	• Use of ground water/ tanker water for construction activities and cleaning of PV modules	

Resource/ Receptor	Potentially Significant Impacts		
	Planning Phase	Construction Phase	O&M Phase
		• Surface and ground water pollution due to improper disposal of sewage generated at site and spillage of hazardous waste and hazardous materials (lubricants, oils)	
Ambient Noise Quality	• None	• Noise generation due to movement of vehicles, machinery, and operation of DG set	• Noise generation due to movement of vehicles
Biodiversity	• None	• Clearance of vegetation along construction corridor and transmission tower base	• Avifauna and terrestrial fauna electrocution/ deaths
Occupational Health & Safety	• None	• OHS hazards from exposure to dust & noise • Safety risk due to wrong handling of machinery, work at height, poor housekeeping	• Worker exposure to electromagnetic field while working in proximity to charged electric lines • Exposure to live lines during O&M activities, work at height • Exposure to chemicals (PCBs in transformers & electrical equipment)
Community Health & Safety	• None	• Conflicts with construction labour, safety and privacy issues of the women in the surrounding villages, spread of various communicable diseases, nuisance from improper sanitation facilities • Increase in traffic and resultant hazards due to transportation of construction material • Misbehavior by project security personnel • Health hazards from exposure to dust & noise	• Misbehavior by project security personnel • Exposure to EMF for communities located/ working in close proximity to TL • Structural failure of transmission tower
Viewscape	• None	• None	• None

The assessment criteria for sensitivity (low, medium, high) and magnitude (negligible, small, medium, large) will remain the same as presented in the ESIA Report dated 05/01/2023.

5.2.2 Construction Phase Impacts

The construction phase impacts for setting up the solar PV project are similar to those experienced for transmission lines and access roads. Hence the assessment of construction phase impacts presented in Section 7.3 of the ESIA Report dated 05/01/2023 fulfils the impact assessment requirement for TL and access roads as well.

5.2.3 O&M Phase: Occupational Health & Safety Impacts - TL

1. **Context**

The power generated from the project would be evacuated via 110/11KV Gugal substation (KPTCL) through a 110 KV transmission line of 3.2 km length. Refer **Figure 5-1** for transmission route alignment. Transmission lines carry high-voltage electricity, posing a risk of electric shock or electrocution to workers. Maintenance activities of transmission lines involves working at height posing a risk of falling from height.

2. **Embedded/In-Built Control**

Radiance Corporate OHS Procedures and SOPs will be deployed in the project that included safety measures for working on live wires, preventive maintenance schedules for solar project and transmission line, incident management, use of PPE, protection from EMF

3. **Impact Significance**

Considering the adequate measures taken on site and the scale of the plant (50 MW capacity) with a 3.2 km transmission line the impact on workers will be '**Negligible**'.

4. **Additional Mitigation Measures**

Considering adequate measures are being taken on site no additional measures are required.

5. **Residual Impact Significance**

The residual impact significance due to the transmission line infrastructure has been retained as **Negligible** after consideration of in-built mitigation measures.

Impact	**Occupational Health & Safety**				
Impact Nature	Negative	Positive	Neutral		
Impact Type	Direct	Indirect	Induced		
Impact Duration	Temporary	Short-term	Long-term		Permanent
Impact Extent	Local	Regional	International		
Impact Scale	Project area and vicinity				
Impact Magnitude	Positive	Negligible	Small	Medium	Large
Resource/Receptor Sensitivity	Low	Medium	High		
Impact Significance	Negligible	Minor	Moderate	Major	
	Significance of impact is considered **Negligible**				
Residual Impact Magnitude	Positive	Negligible	Small	Medium	Large
Residual Impact Significance	Negligible	Minor	Moderate	Major	
	Significance of impact is considered **Negligible**				

5.2.4 O&M Phase: Community Health & Safety Impacts - TL

1. **Context**

The risks from the 50 MW solar project on community health & safety include structural failure of transmission towers, unauthorized public access and resulting exposure to electrocution hazards, engagement of project personnel (including security guards) with the local community, and movement of vehicles along access road and TL.

2. **Embedded/In-Built control**

The following control measures are embedded/in-built in the project:

a) The solar energy project is enclosed by a boundary wall, and access in and out of the site is restricted.
b) Unarmed security guards will be stationed at the entrance of the project, appointed from local community. The security guards will be instructed on appropriate behaviors with the local community.
c) Prior intimation will be given to the neighbouring community in case of conduct of any project activity that might impact their activities
d) A grievance register will be made available with the security guards to record external grievances
e) An 'Emergency Response Plan (ERP) inclusive of details of emergency response team aligned with Appendix H of GGEF ESGMS has been developed and will be communicated to local community.
f) The transmission towers and line will be built as per the guidelines set by Ministry of Power[5].
g) As part of the CSR program, training of local youth for skills required in the project will be explored on a case-to-case basis. Neighboring village heads would be informed about job opportunities at the solar project, as and when required.
h) In case of any emerging trend, H&S training modules incorporate the same. The information is disseminated through the App based Learning Management system as well as on site trainings.

3. **Impact Significance**

The impact on community health and safety during the operation phase is evaluated to be **Negligible** as the nearest village form the transmission line is Gugal, that is more than 500 m away from the alignment. The Corporate ESMS will be deployed in the project that has procedures to ensure adequate safety measures are adopted by the project team.

4. **Additional Mitigation Measures**

Considering that adequate measures will be taken on site no additional measures are required.

5. **Residual Impact Significance:**

After the implementation of the above mitigation measures, the residual impact significance is anticipated to remain **Negligible**.

Impact	**Community Health and Safety**				
Impact Nature	Negative	Positive	Neutral		
Impact Type	Direct	Indirect	Induced		
Impact Duration	Temporary	Short-term	Long-term	Permanent	
Impact Extent	Local	Regional	International		
Impact Scale	Project area and vicinity				
Impact Magnitude	Positive	Negligible	Small	Medium	Large
Resource/Receptor Sensitivity	Low	Medium	High		
Impact Significance	Negligible	Minor	Moderate	Major	
	Significance of impact is considered **Negligible**				
Residual Impact	Positive	Negligible	Small	Medium	Large

[5] https://powermin.gov.in/sites/default/files/uploads/RoW_Guidelines_15102015.pdf

Magnitude					
Residual Impact Significance	Negligible	Minor	Moderate	Major	
	Significance of impact is considered **Negligible**				

5.3 Impact Assessment: Biodiversity

1. **Context**

For the assessment of impacts on biodiversity, 'Integrated Biodiversity Assessment Tool' (IBAT) was run on 28.07.2023 for the project influence area in a 10 KM buffer and the results were taken into consideration. It includes a detailed list of species found in the region along with the protected areas and key biodiversity areas. IBAT uses datasets from various sources such as the Red List of Threatened Species by the International Union for Conservation of Nature (IUCN), the World Database on Protected Areas by Protected Planet, and the World Database on Key Biodiversity Areas.

Within the buffer of 10 m, there were no Protected Areas or Key Biodiversity Areas. As per the report, 31 species fall under the threatened category in a buffer of 50 Km from the project site. These comprise of 7 Critically Endangered (CR) species (1 Reptile species, 5 Aves species, 1 Actinopeterygii sp.), 6 Endangered species (EN) (2 Mammal species, 3 Aves species, 1 Actinopeterygii species), and 18 Vulnerable species (EN) (7 Mammal species, 2 Reptile species, 4 Aves species, 4 Actinopeterygii species, and 1 Liliopsida species). The IBAT report has been presented in **Annexure 7**.

Refer **Section 4.2** for a detailed profile of flora and fauna observed during the site visit. The project is not expected to impact any of the Schedule 1 species (as per Wildlife Protection Act 1972) that were spotted in the project influence area due to their large distribution, stable annual trends and attraction to particular habitats that were located more than 4 km from the project site.

2. **Embedded/In-Built Control**

The following measures will be implemented in the project:

a) The crossing over of transmission wire conductor at the poles is insulated
b) The distance between transmission wires is wider than the wingspan of the heaviest flying birds found in the region such as (Peafowl and Painted Storks – i.e., 1.6 Meters)
c) The project site will maintain a carcass register to record any bird carcasses.
d) Anti-venom kit will be maintained at the project site to address snake bite incidents.
e) A near miss register will be maintained at the project site.
f) A format will be maintained at site to capture information about snakes identified on site with details of species and photographs which can be displayed at the site office, so as to raise awareness.

3. **Impact Significance**

The project is not expected to impact any of the Schedule 1 species (as per Wildlife Protection Act 1972) that were spotted in the project influence area due to their large distribution, stable annual trends and attraction to particular habitats that were located more than 4 km from the project site.

The avifauna tend to get injured from transmission lines. Based on design improvements implemented in the transmission lines, the impact is assessed to be **Minor**.

4. **Additional Mitigation Measures:**

The following mitigation measures will further reduce the impact significance on species:

a) Local Hospital in the area should know about the existence of the venomous Herpetofaunal (Snakes) and Arachnida (Scorpions) species present in the project area.

b) Photo identification chart and danger/ Safety chart to be put up on the site, to raise awareness.

c) Training on safety measures to be taken when there is a near miss with Herpetofauna species

5. **Residual Impact Significance:**

The residual impact significance due to the transmission line infrastructure has been assessed as **Minor** after consideration of applied & additional mitigation measures

Impact	**Impact on Biodiversity**				
Impact Nature	Negative	Positive	Neutral		
Impact Type	Direct	Indirect	Induced		
Impact Duration	Temporary	Short-term	Long-term		Permanent
Impact Extent	Local	Regional	International		
Impact Scale	Project influence area				
Impact Magnitude	Positive	Negligible	Small	Medium	Large
Resource/Receptor Sensitivity	Low	Medium	High		
Impact Significance	Negligible	Minor	Moderate		Major
	Significance of impact is considered **Minor**				
Residual Impact Magnitude	Positive	Negligible	Small	Medium	Large
Residual Impact Significance	Negligible	Minor	Moderate		Major
	Significance of impact is considered **Minor**				

5.4 Impact on Labour & Working Conditions

5.4.1 Impact Assessment - Human Resource Management

1. **Context**

The construction and O&M phase of the solar project requires hiring of skilled and semi-skilled workers. This necessitates the establishment of a work culture that is both safe and positive.

Radiance Renewables has implemented HR policies that are in accordance with relevant national and local labor laws. Following is the list of HR policies:

1. Anti-Money Laundering Policy
2. Code-Prevention for Prevention of Insider Trading
3. Declaration of Fidelity and Secrecy
4. Employee “Fair Play” And “Equal Opportunities” Code
5. Care and Dignity Policy
6. Whistleblowing Policy
7. Framework for Managing Conflicts of Interest
8. Anti-Corruption Policy
9. Human Capital Management (People Policy Handbook)
10. Grievance Redressal Mechanism (GRM)
11. Code of Conduct for Prevention of Insider Trading
12. ESG Policy Statement

13. Quality, Health, Safety & Environment Policy
14. Social Responsibility Policy

2. **Embedded/In-Built control**

Radiance Renewables has designed and implemented measures to ensure the organization's strict adherence to all pertinent labor laws, regulations and standards, thereby proactively averting any potential legal disputes or penalties associated with labor practices.

a) The company maintains project-specific labor compliance checklists and conducts labor audits. Refer **Annexure 11** for the labor compliance checklist & HR Policies.
b) Radiance Renewables has implemented HR policies that are in accordance with relevant national and local labor laws. These policies also meet the standards set forth by investors of Radiance renewables including adhering to the core labor standards of the International Labour Organization (ILO).
c) Contractor agreements include a clause on compliance to labour law.
d) Age of workers is checked for legal working age before hiring the workers
e) Employment contracts are fair & transparent aligned with national labour laws & regulations

3. **Impact Significance**

Considering the measures taken by Radiance Renewables the impact of labour management & HR policies is **Minor.**

4. **Additional Mitigation Measures:**

The following mitigation measures will further reduce the impact significance:

a) Establish a separate contract labour management plan and ensure cascading down to the contractors.
b) Contract workers should be made aware of their rights under labour law.

5. **Residual Impact Significance:**

After the implementation of the above mitigation measures, the residual impact significance is anticipated to lower down to **Negligible.**

Impact	**Human Resource Management**				
Impact Nature	Negative	Positive	Neutral		
Impact Type	Direct	Indirect	Induced		
Impact Duration	Temporary	Short-term	Long-term		Permanent
Impact Extent	Local	Regional	International		
Impact Scale	The site involves hiring of skilled & semi-skilled labours for project activities				
Impact Magnitude	Positive	Negligible	Small	Medium	Large
Resource/Receptor Sensitivity	Low	Medium	High		
Impact Significance	Negligible	Minor	Moderate	Major	
	Significance of impact is considered **Minor**				
Residual Impact Magnitude	Positive	Negligible	Small	Medium	Large
Residual Impact Significance	Negligible	Minor	Moderate	Major	
	Significance of impact is considered **Negligible**				

5.4.2 Impact Assessment - Sexual Exploitation, Abuse & Harassment (SEAH)

1. **Context**

The construction and O&M phase of the solar project requires hiring of skilled and semi-skilled workers. The presence of female workforce may give rise to potential risks related to Sexual Exploitation, Abuse, and Harassment (SEAH).

2. **Embedded/In-Built control**

Following measures are implemented by Radiance Renewables at project site:

a) Radiance Renewables has a separate 'Care & Dignity Policy' to promote a gender-sensitive safe work environment applicable to the entire business operations of the Company. This specific policy combats discrimination / sexual harassment of men and women in the workplace. Policy has been framed in accordance with the provisions of "The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013".
b) The policy defines sexual harassment, grievance redress mechanism and internal complaints committee (ICC) composition. An ICC has been constituted under the POSH Act 2013 inclusive of external members. A separate email-id for the Internal Complaints Committee is made available.
c) The policy has laid down the procedure to report any sexual harassment incident to the ICC which will be resolved within ninety (90) days from the date on which the inquiry commenced. The policy was adopted in November 2020 by Radiance Renewables.
d) The project manager is responsible for the effective implementation of the policy and consistently reports and communicates site concerns and incidents to the corporate office on a daily basis.

3. **Impact Significance**

Considering the measures in-built in the company operations, the impact significance is assessed as **Minor.**

4. **Additional Mitigation Measures**

The following mitigation measures will further reduce the impact significance:

a) Make the reporting & external grievance mechanism more accessible
b) Provide specific training for supervisors and managers on preventing and addressing sexual harassment.
c) Conduct regular site inspection to assess the work environment and identify potential issues related to harassment.
d) Collaborate with local community organizations and authorities to address issues related to harassment and promote awareness within the community
e) Regularly review and assess the effectiveness of anti-harassment measures and make necessary adjustments based on feedback and incident reports.

5. **Residual Impact Significance:**

After the implementation of the above mitigation measures, the residual impact significance is anticipated to lower down to **Negligible**

Impact	**Sexual Exploitation, Abuse & Harassment**		
Impact Nature	Negative	Positive	Neutral
Impact Type	Direct	Indirect	Induced

Impact Duration	Temporary	Short-term	Long-term		Permanent
Impact Extent	Local	Regional		International	
Impact Scale	Female laborers will not be hired				
Impact Magnitude	Positive	Negligible	Small	Medium	Large
Resource/Receptor Sensitivity	Low	Medium		High	
Impact Significance	Negligible	Minor	Moderate	Major	
	Significance of impact is considered **Minor**				
Residual Impact Magnitude	Positive	Negligible	Small	Medium	Large
Residual Impact Significance	Negligible	Minor	Moderate	Major	
	Significance of impact is considered **Negligible**				

5.4.3 Impact Assessment of Labour Risks

1. **Context**

Radiance as part of its sustainability focus and associated transparency and disclosure requirements has taken an informed business decision to procure solar modules from manufacturers in southeast Asia (Vietnam) and USA. Radiance plans to transition its entire supply chain to India by end of FY 2025. This strategic move underscores the company's commitment to ethical sourcing and sustainable practices

2. **Embedded/In-Built Control**

Radiance Renewables has implemented several measures to demonstrate **strong commitment to address forced risks** within the solar panel industry and is actively exploring alternatives to minimize the impact.

The in-built control measures are as mentioned below:

a) Radiance has evaluated module suppliers in southeast Asia and USA in terms of their adherence to applicable local labour laws, occupational health and industrial welfare benefits provided to the work force engaged in the manufacture of solar panels.
b) Radiance Renewables, in alignment with GGEF ESGMS, commits to uphold human rights standards throughout its operations, ensuring the prevention of child and forced labor concerns.
c) As reported all the vendors are screened during onboarding and the critical vendors are required to give an undertaking as per **Radiance's supplier 'Code of Conduct'.**
d) For the onboarding of suppliers and contractors, Radiance utilizes a comprehensive Self-Assessment Questionnaire focused on Health, Safety, and Environmental (HSE) as well as Environmental, Social, and Governance (ESG) criteria. This questionnaire covers key aspects such as company details, employee data, legal compliance, labor practices, contractor HSE protocols, and performance data related to injury and illness.
e) Radiance also requires suppliers and contractors to complete a vendor prequalification form as part of the onboarding process. This form assesses key aspects such as the company & its financial background, manufacturing and technical capabilities, and includes a list of projects and clients to facilitate a thorough background check prior to onboarding. The Company does not adopt forced labour or penalty labour practices (such as retaining original certifications, retaining caution money from employees, signing bonds) in its operations. The same is communicated to the contractors engaged in the projects.

3. **Impact Significance**

Radiance has implemented a series of proactive measures during the vendor onboarding process itself. These include a Self-Assessment Questionnaire, a vendor prequalification form, and a mandatory submission of an undertaking aligned with the supplier's code of conduct. Additionally, Radiance uses a supplier scorecard based on specific evaluation criteria to assess and manage suppliers, ensuring higher standards of transparency and accountability. Considering all these in-built measures the impact significance has been identified as **Negligible**.

4. **Additional Mitigation Measures**

As the Company is indirectly associated with labour risks, this is a residual impact. The Company will adopt the following measures to minimize this impact.

a) Procurement team of Radiance may track internationally recognized institutions tracing and disclosing solar companies associated with labor issues..

b) Procurement team of Radiance may identify solar module suppliers sourcing solar components ethically and necessitating an exclusion process for solar module suppliers that are publicly recognized for their association with supply chains with potential labor risks.

5. **Residual Impact Significance:**

Significance of residual impact is retained as **Negligible** considering the steps being taken by company to minimize the impact.

Impact	**Labour Risk**				
Impact Nature	Negative		Positive		Neutral
Impact Type	Direct		Indirect		Induced
Impact Duration	Temporary		Short Term	Long Term	Permanent
Impact Extent	Local		Regional		International
Impact Scale	The company in line with its sustainability and transparency commitments is now procuring Solar panels from Southeast Asia (Vietnam) and USA.				
Impact Magnitude	Positive	Negligible	Small	Medium	Large
Resource/Receptor Sensitivity	Low		Medium		High
Impact Significance	Negligible		Minor	Moderate	Major
	Significance of impact is considered **Negligible.**				
Residual Impact Magnitude	Positive	Negligible	Small	Medium	Large
Residual Impact Significance	Negligible		Minor	Moderate	Major
	Significance of impact is considered **Negligible**.				

5.5 Impact Assessment on Water Resources

1. **Context**

The solar project will require 1,05,000 solar modules. During construction, water will be required for civil works related to foundation of the solar panel installations and the transmission tower. The O&M phase of the solar project would involve periodical cleaning of solar modules for better efficiency. Across the project lifecycle, water will also be required for domestic purposes such as drinking and sanitation, more so during construction phase when number of workers is generally higher than O&M phase.

As reported by the project manager water for both construction and operational phases will be sourced from a third-party supplier through water tanker.

There is one major perennial river (Krishna River) & minor waterbodies (lakes & ponds) present within the study area. The study area experiences a semi-arid climate[6]. Dryness and hot weather prevail during the major part of the year. It receives medium rainfall. The monsoon season spreads from June to September. The highest levels of precipitation are experienced in the month of September (87 mm).As per drought vulnerability assessment in Karnataka[7] conducted by Karnataka State Natural Disaster Monitoring Centre, the study area falls in drought vulnerable area.

The ground water development in Devdurga Tehsil in which the project is located is assessed as 'Safe' by Central Ground Water Authority through its publication Dynamic Ground Water Assessment 2022.

Considering the importance of water resource efficiency, the plant employs both the module cleaning methods dry and wet.

2. **Embedded/in-built control**

As reported the following embedded/in-built control measures have been implemented at project site by Radiance Renewables to ensure efficient water consumption.

a) Two types of module cleaning methods, dry & wet are employed in the project.
b) During the O&M phase dry module cleaning would be performed after every two days. Dry robotic cleaning of modules requires 20 robots.
c) While wet module cleaning would be occurring on a quarterly basis throughout the year. Wet module cleaning requires a period of 20-30 days for the entire solar plant. This activity requires 2,000-6,000 liters of water per day. A maximum of 54 KL of water is consumed on an annual basis.

3. **Impact Significance**

Considering baseline status of the project influence area and the water requirement during construction and O&M phase, the impact has been categorized as '**Moderate**'.

4. **Additional Mitigation Measures**

The following mitigation measures will further reduce the impact significance:

a) Optimal utilization of water to be ensured throughout the lifecycle of the project.
b) Leaks and losses to be checked frequently to enhance utilization.

5. **Residual Impact Significance:**

Significance of residual impact is reduced to '**Minor' considering** above mentioned mitigation measures

Impact	**Source of Water**				
Impact Nature	Negative		Positive		Neutral
Impact Type	Direct		Indirect		Induced
Impact Duration	Temporary	Short-term	Long-term		Permanent
Impact Extent	Local		Regional		International
Impact Scale	The company uses dry & wet cleaning module cleaning methods.				

[6] http://cgwb.gov.in/cgwbpnm/publication-detail/610
[7] 183-Article-561-1-10-20210407%20(4).pdf

Impact Magnitude	Positive	Negligible	Small	Medium	Large
Resource/Receptor Sensitivity	Low		Medium		High
Impact Significance	Negligible	Minor	Moderate		Major
	Significance of impact is considered **Moderate**				
Residual Impact Magnitude	Positive	Negligible	Small	Medium	Large
Residual Impact Significance	Negligible	Minor	Moderate		Major
	Significance of impact is considered **Moderate**				

6 E&S Management Plan

6.1 Capabilities and Performance

Construction Phase

It is reported that the manpower requirement during the construction phase would include approximately 80 skilled, semi-skilled and unskilled labourers. The labourers will be hired by the local contractor. A 3rd Party vendor would be hired for labour related compliance. The vendor would be sending in reports on a monthly basis to the compliance officer with Radiance Renewables. A safety supervisor (Owner's Engineer) would be appointed by a 3rd party contractor for the project during construction phase.

Project management team would be reporting on a monthly basis and conducting regular visits during the construction of the plant. The Project Management team would be reporting the developments to the Operation's Head of Radiance Renewables. The dedicated Project Manager would be responsible for the complete ownership of the project. The project Manager would be responsible for the following:

- Would have the overall responsibility to manage and administer all aspects of the EPC contract and assist with negotiations of the EPC contract as well as preparation of technical exhibits.
- Would drive execution of the project, keeping it on schedule and on budget, while maintaining relationships with clients, stakeholders, and vendors.
- Would maintain responsibility for the project budget, risk management, safety, and quality.
- Would be responsible for managing cost and schedule goals of assigned projects through project closeout.
- Would ensure the design review process for the EPC basic design is performed and actioned at the right time before the execution of the contract or the activity.
- Would be responsible for obtaining, monitoring and expediting all statutory permits & approvals required under Open Access as well as solar park development.
- Would coordinate with site team members to establish project schedules for the execution and management of the Work. Effective coordination and follow-ups for land acquisition, solar park development and evacuation infra-activities by EPC partners.

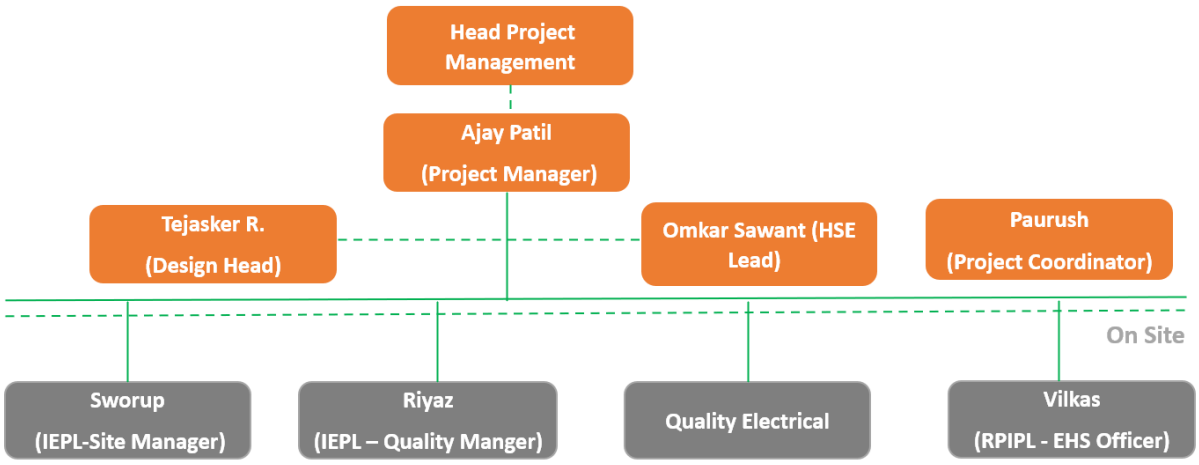


Figure 6-1 : Organisation Structure for the Construction Phase

O&M Phase

It has been reported that approximately 35 technicians will be deployed at site by Radiance Renewables. Refer **Figure 6-1 & Figure 6-2** for organization structure during construction & operation phase respectively. As reported by the corporate team, EHS head of Radiance Renewables will ensure that EHS induction training and job specific trainings are being identified and provided to the concerned personnel for operation of the solar plant. It was also mentioned that a safety supervisor would be appointed by the contractor for the project during operation phase.

Additionally, the site team will be actively encouraged to adopt environmentally responsible practices through the promotion of overall environmental awareness and compliance requirements of the project activities. This would help in minimizing adverse environmental impacts, compliance with the applicable regulations and standards and achieving performance beyond compliance.

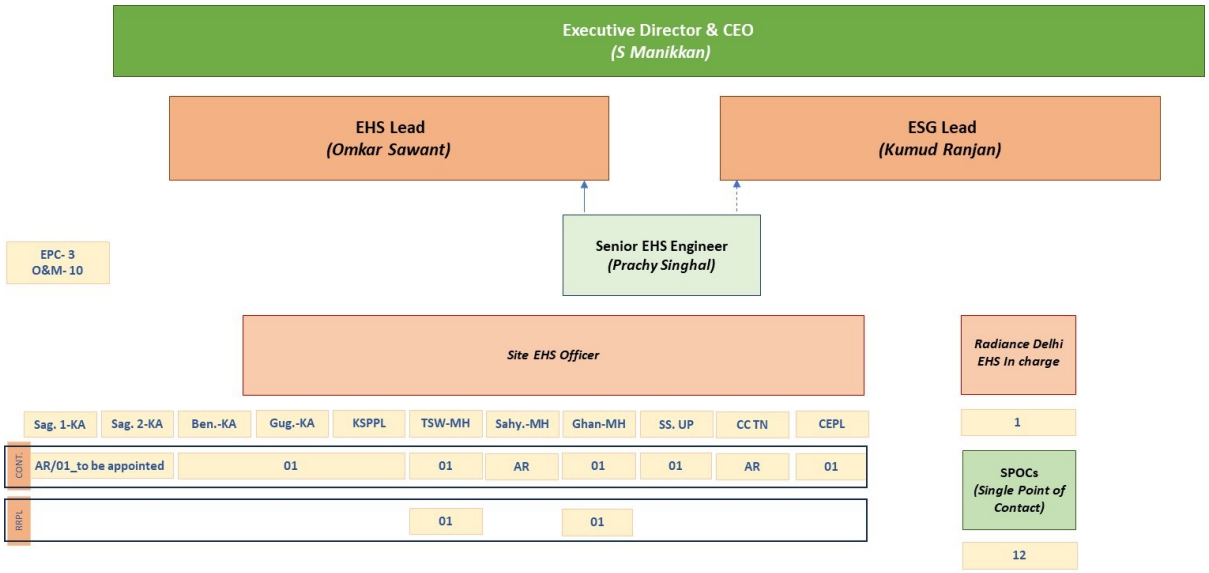


Figure 6-2: Organisation Structure for the O&M Phase

6.2 Radiance Renewables ESG-MS

The holding company (Radiance Renewables) is committed to ensuring that the projects are managed in a manner reflecting sound environmental, social and governance management practices. The Environmental, Social and Governance Management System (ESGMS) has been developed to formalize GGEF's commitment to environmental and social management. The ESGMS includes an ESG policy, risk and impact identification process and the tools, practices and procedures to implement the ESG commitments across the fund and portfolio.

The ESGMS implemented at Radiance Renewables is a dynamic document that will be periodically evaluated based on stakeholder feedback and to align with international E&S trends on an annual basis or otherwise, as agreed with key stakeholders. Based on the feedback provided and changes in global trends, the ESGMS will be updated from time to time. The project will implement the ESGMS and procedures developed under the holding company (Radiance Renewables). The ESGMS and underlying procedures were developed in conformance to World Bank Group's EHS Guidelines (General & Sector-specific).

6.3 Grievance Redress Mechanism

Radiance Renewables has a separate grievance redressal mechanism for internal & external grievances aligned with *Appendix L* of GGEF ESGMS. Refer **Annexure 10** for the GRM by Radiance Renewables. This GRM (Grievance Redressal Mechanism) is followed at the level of the subsidiaries/SPVs of Radiance Renewables and the project site.

6.4 Monitoring & Reporting Procedures

6.4.1 Monitoring Procedure

Radiance Renewables follows a monitoring procedure aligned with GGEF ESGMS *Appendix G & J*. It defines an indicative minimum monitoring criterion which has been provided in the table below. In the case of any accidents or incidents, the minimum monitoring frequency will be increased in commensuration on a case-to-case basis:

Project Categorization	Monitoring Frequency (minimum)
Category A	At least one visit during the construction phase of the project Quarterly visits to the operational assets
Category B	At least one visit during the construction phase of the project Annual visits to operational assets
Category C	Desk-based review of the project on an annual basis

6.4.2 Reporting Frequency

Radiance Renewables has monitoring & reporting procedures in place aligned with GGEF ESGMS. The company submits reports as per following time intervals:

- Monthly Reporting
- Quarterly Reporting
- Annual Reporting
- Events based Reporting.

6.4.3 Reporting Parameters

a) <u>Monthly Reporting:</u>

An indicative list of matrices and indicators considered in monthly reporting includes:

- Greenhouse gas (GHG) emissions avoidance.
- Operational parameters – renewable energy generated, total waste processed, total water saved and total e-miles powered;
- Leading HSE indicators including near misses, unsafe conditions, commendations, toolbox talks, health and safety meetings, workplace audits and internal/external trainings; and
- Lagging HSE indicators including fatalities, loss time injuries, medical treatment, vehicle accidents, property damage and environmental incidents.

b) <u>Quarterly Reporting:</u>

Radiance Renewables report on ESG & HSE (Unsafe acts, unsafe conditions, near misses and significant injury or fatality (SIF) initiatives undertaken in the quarter, gender-disaggregated data for the workforce (permanent + contractual) and ESAP closure progress.

c) <u>Annual Reporting:</u>

The annual reports encompass information about the greenhouse gas emissions associated with the portfolio companies, their progress in meeting the UN Sustainable Development Goals (UN-SDGs)

relevant to Eversource's priorities, and their adherence to the IFC Performance Standards, accidents/incidents that have occurred in the quarter and corporate social responsibility expenditure.

d) Event-based Reporting:

Radiance Renewables reports within 48 hours of being made aware of any serious incident. The definition of serious incident has been provided below:

- An incident resulting in death or permanent injury to any person(s).
- An incident that has a material negative impact on the environment including without limitation any spill, explosion or environmental contamination.
- An incident that has a material negative impact on the health, safety and security including without limitation any explosion, hazardous material spill or workplace accident resulting in death or multiple injuries.
- An incident of social nature impact without limitation violent labour unrest, significant dispute with local communities or serious accident/incident to local community/person due to company activities which can result in material negative effect on the social and cultural context.

6.4.4 Oversight of Corporate on Project Site

The Site Manager is responsible for reporting the project related aspects to corporate office daily.

1. Solar Project Components
    - PV Blocks: Module Cleaning & Area of vegetation cut
    - Structure: Missing/Damaged modules & Loose & Damaged cables
    - Transformer: Any abnormalities, seepage/leakage, winding & oil temperature, oil level, silica gel, oil in cup
    - Inverter: Ventilation fans, invertor doors & temperature, smooth running of all units
    - Panel structure: Working of lights & panel lamps. Check for water ingress in room
    - Power/Aux Transformer: Any abnormalities, seepage/leakage, winding & oil temperature, oil level, silica gel, oil in cup
    - CTR Panel & Breaker Gas level

2. Other Concerns
    - Grievances/Incidents
    - Trainings Conducted

ESG Committee: Radiance Renewables has established an ESG committee that meets on a quarterly basis to apprise the Board of ESG performance and improvement. The committee is observed by the ESG team of the Eversource Fund. The ESG team of the fund then apprises the senior management of the Fund on a monthly basis.

Events occurring at the Fund and Radiance Renewables are reported to the investors within 72 hours of occurrence. The root cause analysis report identified the root case and corrective/preventive actions are submitted within 14 days of the incident.

6.5 Schedule and Cost of ESMP

Refer to **Annex 12** for updated ESMP and associated cost after conduction gap closure assessment for Gugal solar project.

Annexures

Annexure 1: Emergency Response & Preparedness Plan

A1.1 Emergency Response Plan

The emergency response plan has been attached as a PDF separately.

A1.2 Snake Bite SOP

The Snake Bite SOP has been attached as a PDF separately.

A1.3 Carcass Register Format

The carcass register format has been attached as an Excel file separately.

Annexure 2: Stakeholder Engagement Plan

The Stakeholder Engagement Plan has been attached as a PDF file separately.

Annexure 3: GGEF ESGMS

The Green Growth Equity Fund (GGEF), Environmental Social governance Management System (ESGMS) has been attached as a PDF file separately.

Annexure 4: Primary Land Due Diligence Checklist

The Primary land due diligence check list has been mentioned below:

Preliminary Land Due Diligence Checklist

Please refer to the following indicative list of documents required for conducting the title due diligence in respect of the project land.

S.No.	Particulars
1.	Land Aggregator to provide land schedule containing details, description and extent of the target lands (including properties comprised thereupon), in accordance with the revenue records issued by the relevant revenue authorities.
2.	To obtain the certified copies of title documents (including title deed, sale deed, lease deed, gift deed, settlement deed, wills, court orders, partition deeds, assignments) in relation to land parcels for the last 30 (thirty) years. Wherever the documents above have been executed by the attorney of the owner/lessor of the lands, to get the copies of the power of attorney/POAs.
3.	To obtain latest certified copy of current revenue records (Record of Rights such as property card, village forms 7/12 (old and new), form 8A, form 6, mutation entries etc.), orders, mutation entries, etc. issued by the competent authority pertaining to the target lands to ascertain that the name of the current owner has been properly mutated in the revenue records.
4.	In the event that any of the lands have been allotted by/acquired from the central/state government or any other government authority/body, To obtain the: (a) public notifications issued for the acquisition of the lands; (b) allotment/grant letters for the allotment of the land; (c) copies of the acquisitions orders under the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 or the Land Acquisition Act 1894; and (d) copies of any lease or sub-lease deeds in connection with the grant of the lands.
5.	Wherever the flow of title depends upon intestate succession, to obtain copies of relevant death certificates and legal heirship certificates (issued by the jurisdictional Tehsildar). In case of property which has been inherited by the vendor, to obtain the copies of registered partition deed. to the extent that such property which is ancestral in nature.
6.	Wherever sale of a minor's/lunatic's lands is done through a guardian, to obtain the copy of court orders in this regard.
7.	Conversion orders issued in respect of the lands, for change in the land use pattern, as applicable.
8.	Where the previous owner of the lands was a corporate body or a trust or a society or a partnership firm, to obtain copy of the constitutional documents of such entities and documents (such as board resolutions, etc.) evidencing relevant authorisations to transfer land owned by such entities.
9.	Village map in respect of the land parcel.

10.	To confirm whether there are any outstanding dues or taxes, including development charges, property tax/urban development, and water, electricity and other utility charges in relation to the target lands or developments thereupon and to obtain the copy of the receipts evidencing payment of the same for the last three years.
11.	Possession certificate, if any, issued in respect of the lands.
12.	Encumbrance certificates in respect of the lands for the last 30 (thirty) years.
13.	Any agreements affecting title and marketability of the lands, such as lease deeds, charge creation documents, etc
14.	Proof of discharge of all mortgages upon the lands.
15.	Details of all litigations, court cases, departmental proceedings, etc., pending in respect of the lands or which have been concluded within the last three (3) years.
16.	To confirm whether there are any land ceiling proceedings pending or threatened in respect of the lands or an explanation as to why the landholding is not subject to applicable ceiling laws, if the land in excess of the ceiling limit (as prescribed under the Maharashtra Agricultural Land (Ceiling on Holding) Act, 1961) is held by a single entity.
17.	Whether the properties are subject to any acquisition or requisition proceedings; and if so, copies of notifications/correspondences in respect of such acquisition.
18.	Whether there are any waterbodies, common ways, public religious institutions, burial grounds, or other common areas, located within the lands proposed to be conveyed.
19.	Right of way agreements and approvals for access to the lands.
20.	Hissa, Gut, Tippani and Sketch
21	Following confirmations to procure – (a) Whether the target lands pertaining to the proposed transaction have been part of any reserved lands, public utility lands and/or gauchar lands and if any permissions, consents or approvals have been obtained in respect thereof. (b) No High-Tension Power Line (HTL) passing the proposed land parcels. (c) The target land not falling under retention area (water logging) (d) The target land does not form part of any eco-sensitive zone, national conservations zone, forest area, protected area, buffer zone etc.; (e) To confirm if there are any water bodies, common ways, public religious institutions, burial grounds, or other common areas, located within the target lands proposed to be conveyed; (f) if the land or any structure thereupon has ever been notified as a protected monument in the official gazette by the concerned authorities under the provisions of Ancient Monuments and Archaeological Sites and Remains Act, 1958. Also, to confirm if any part of the target land has been notified as a heritage site as per applicable law; (g) There is no samadhi on the target land; and (h) There are no protected or reserved categories of trees or shrubs present over the target lands

Annexure 5: Socio Economic Primary Profile Sheet Template

The Socio Economic Profile Sheet Template has been attached as an Excel separately.

Annexure 6: Questionnaire for Landowners

The Questionnaire for landowners is presented below.

Stakeholder Consultation with Land Owners

Task: To get feedback from land owners.

Objective: Questions to be asked.

#	Questions	Feedback
1.	Did you know about the project at the time of selling/ leasing the land?	
2.	Who approached you for purchasing/ renting the land?	
3.	What was the process?	
4.	How did you go about taking the decision to sell// leasing the land?	
5.	Are you satisfied with the amount received for the land?	
6.	Do you feel that you were paid fairly?	
7.	What are your and your family's sources of income?	
8.	How much did the land parcel that was sold contribute to your household income?	
9.	Do you have any other parcels of land? What is your total landholding?	
10.	Check with the site manager whether land has been purchased from any SC or ST family.	

Signature

Annexure 7: IBAT list and Biodiversity Reports

A7.1 IBAT Report

The report that was generated by IBAT for the project site has been attached as a PDF separately.

A7.2 IBAT List of species

The Excel file generated by IBAT for the project site has been attached as an Excel separately.

A7.3 Faunal Species Reported List

The sightings of species identified on sight and reported during the discussions with stakeholders has been attached as an Excel file separately.

Annexure 8: Environmental Monitoring Reports

The baseline environmental monitoring reports are attached separately as a pdf file.

Annexure 9: Questionnaire for Stakeholder Consultation

The questionnaire used during the time of stakeholder consultations is presented below:

Questionnaire - Socio-Economic Survey & Stakeholder Consultation

---

A. General Details

1. Name of village: ……
2. Location: ……
3. Name of Respondent: …….. Sex: …… Age: ……

B. Infrastructure:

i. Electricity Supply
   1. Electricity: Y / N
   2. Load Shedding: Y / N (if 'Yes', no. of hours……)
   3. Alternate source of power: ……

ii. Water Supply
   1. Source of drinking water: ……
   2. Quality: Good / Average / Bad
   3. Alternative source: ……
   4. Depth (wells and Tubewells): ……
   5. Availability (Seasonal Changes if any): ……
   6. Rainy season: ……
   7. Water borne diseases: ……

iii. Connectivity
   1. Transportation infrastructure
   2. Condition of roads
   3. Mode of transportation: Public Vehicle……Private Vehicle……
   4. Street lights: Y / N (If 'Yes', working condition:……)

iv. Waste Management
   1. Collection of waste: ……
   2. Segregation of waste: ……
   3. Disposal mechanism: ……
   4. OD Status: ……
   5. Public toilets: ……
   6. SBM(Swachh Bharat Mission): ……
   7. Employment generation if any: ……

v. Health and Medical facilities:
   1. Availability of medical facilities: Y / N
   2. Type (Distance):
      - ☐ Primary Health Centre
      - ☐ Dispensaries
      - ☐ Government Hospitals
      - ☐ MMUs
      - ☐ Childcare centre
      - ☐ Veterinary hospitals
   3. Diseases:
      - ☐ Water borne diseases
      - ☐ Air borne diseases

vi. Education:
1. Availability of Educational institutes:
2. Type (Distance):
- ☐ Pre-school
- ☐ Primary school
- ☐ Higher Secondary school
- ☐ Colleges
- ☐ Anganwadi

3. If 'Yes', whether Public or Private

vii. Physical and Cultural Heritage
1. Is there any significant physical and cultural heritage present Y / N
2. Any natural resource (lakes, ponds, forests) presence Y / N
3. If 'Yes', it's condition Good / Average / Bad

viii. Public Amenities
- ☐ Bus Stops
- ☐ Railway Stations
- ☐ Police Station
- ☐ Post Office
- ☐ Training Centres
- ☐ Financial institutes (Banks, ATMs)

C. Socio-Economic

i. Social
1. Tribal area: Y / N
2. SC/ST proportion in Villages

ii. Economic
1. Prevalent Primary Occupation: ……
2. Other prominent economic activities: ……
3. Land transformation (Conversion of agricultural field into other uses): Y / N
4. If 'Yes', to what: ……
5. Main crops: ……
6. Source of irrigation:
   - ☐ Surface water
   - ☐ Ground water

   If groundwater, at what depth: ……
   Quality: ……
7. Any other irrigation schemes: ……

iii. Public Safety
1. Are there any incidences of crimes?
2. Incidences of road accidents, especially with heavy goods vehicles?

iv. NGOs and SHGs

v. Local Monsoon Pattern
1. Pattern of rainfall
2. Duration of monsoon
3. Problem of Waterlogging

vi. Other Issues if any

Annexure 10: Grievance Redressal Mechanism

A10.1 Grievance Redressal Mechanism

The GRM for the project site has been attached as a PDF separately.

A10.2 GRM Tracker Format

The GRM tracker format has been attached as an MS Excel sheet separately.

Grievance Redressal Mechanism (GRM)

Version: 03
Date: 16 February 2024

DOC NO: RAD/ESGMS/APPENDIX J/GRM	**Rev No:** 02	**Rev Date:** 16 Feb 2024
Prepared By	Kumud Ranjan (Sr. Manager – ESG)	06 June 2021
Verified By	Suneera Tandon (Assistant General Manager – Legal)	18 June 2021
Reviewed by	Amit Kumar Mittal Head Operations	6 July 2021
Approved By	S Manikkan Executive Director & CEO	9 July 2021
Revision Approved by	S Manikkan Executive Director & CEO	16 Feb 2024

Contents

DOCUMENT HISTORY

Revision no.	Details	Effective Date	Initiator
00	Initial Adoption	09-July-2021	Kumud Ranjan
01	Document no. alignment with ERSM	06-Sep-2021	Kumud Ranjan
01	Addition of document history table	06-Sep-2021	Kumud Ranjan
02	Addition of Annexure C SOP for Community Conflict Resolution	16-Feb-2024	Kumud Ranjan

1. INTRODUCTION

Grievance redressal mechanism ('GRM') is an integral part of stakeholder engagement process. The implementation of a project may have implications on both the environment as well as the people around the project site. People may have apprehension about the impact of the project during the construction and operational phase. **Radiance Renewables Private Limited** (herein after referred as 'Radiance') and Eversource Capital (the fund manager to GGEF (*hereinafter defined*) which owns 100% of Radiance) seek to build strong relationships with such stakeholders and manage the impact of its business activities on affected communities.

GRM allows stakeholders to reach out to **Radiance** and raise their questions or concerns in a fair environment free from fear and prejudice while helping **Radiance** in impartial and prompt redressal/ disposal of such grievances. **Radiance** aims to address all complaints, grievances, disagreements received, regardless of whether they stem from real or perceived issues. Any stakeholder who considers himself/ herself affected by activities of projects owned and operated by **Radiance** will have access to this procedure. The statutory rights of the complainant to undertake legal proceedings remain unaffected by participation in this process and the GRM shall be transparent, easily accessible, considerate of gender, social and cultural diversity and capable of encompassing the risks associated with all stages of the project that may have an impact on the people and surrounding environment. Radiance seeks to foster trust in the GRM process and its outcomes. To this end, **Radiance** will communicate its GRM procedure in an understandable manner to all concerned stakeholder groups. Confidentiality will be respected, and **Radiance** will take all reasonable steps to protect the interest of concerned parties. For the sake of brevity complaints, conflicts, issues, grievances, disagreements, feedbacks have been collectively referred as "**grievances**" in the subsequent sections.

2. PURPOSE

GRM establishes the process for addressing grievances raised by internal or external stakeholders in connection with activities of projects owned, developed or operated by **Radiance**. It describes the scope and procedural steps for the grievance handling and specifies roles and responsibilities of the parties involved. The purpose of this GRM is to respond to project requirements better by establishing it earlier in the project cycle as a measure to pre-empt rather than to react after escalation of an issue. This GRM also aligns the grievance management practices followed at the level of the subsidiaries/SPVs of Radiance and project site with the requirements laid down in the **APPENDIX L** of the latest version of Environmental Social Governance Management System (ESGMS) of Green Growth Equity Fund (**GGEF**).

The purpose of GRM is to also address grievances from local community regarding environmental and social impacts during planning, land acquisition, construction and operation phases of the project. GRM will also help receive and facilitate the resolution of concerns and grievances of affected people about physical and

economic displacement and other project impacts, including impacts on the vulnerable groups. It will be revised and updated periodically based on experience and feedback from stakeholders.

3. OBJECTIVES

This procedure has the following objectives:

- Establish a prompt, consistent and transparent mechanism for receiving, investigating and responding to complaints from stakeholders.
- Ensure proper documentation of complaints and any corrective actions taken.
- Identify and manage stakeholder concerns and thus support effective risk management/ mitigation.
- Contribute to continuous improvement in performance through feedback and lessons learned.
- To have a multi-level process for addressing grievances from project-affected communities.

4. GRIEVANCE RECEIPT AND ACKNOWLEDGEMENT

Manned Sites:

- One can register a grievance/feedback/concern by filling the contact form on Radiance Website https://www.radiancerenewables.com/contact/ by selecting 'Issues or Feedback' from dropdown under 'Subject'.
- Radiance, at the corporate level also maintains a feedback/concern mail id complaints@radiancerenewables.com on its website for registering any grievances by external stakeholders.
- In addition, project site shall maintain a complaint/suggestion box (under lock and key) for workers and visitors. Box shall be kept at a conspicuous place which is easily accessible. In addition, following text in vernacular and English language shall be displayed on the box:
  "You can also share your grievance by emailing it to complaints@radiancerenewables.com."
- The project site shall maintain a community grievance register in the format provided in **Appendix B**.

Unmanned Sites:

- Grievances can be shared by emailing it to complaints@radiancerenewables.com.
- One can register a grievance/feedback/concern by filling the contact form on Radiance Website https://www.radiancerenewables.com/contact/ by selecting 'Issues or Feedback' from dropdown under 'Subject'.

Radiance Office:

- Internal stakeholders such as on roll and on contract employees of Radiance can reach out directly to HCM department representatives or their respective department head to register their grievances. They can also reach out by writing to respective recipients on specific issues below:

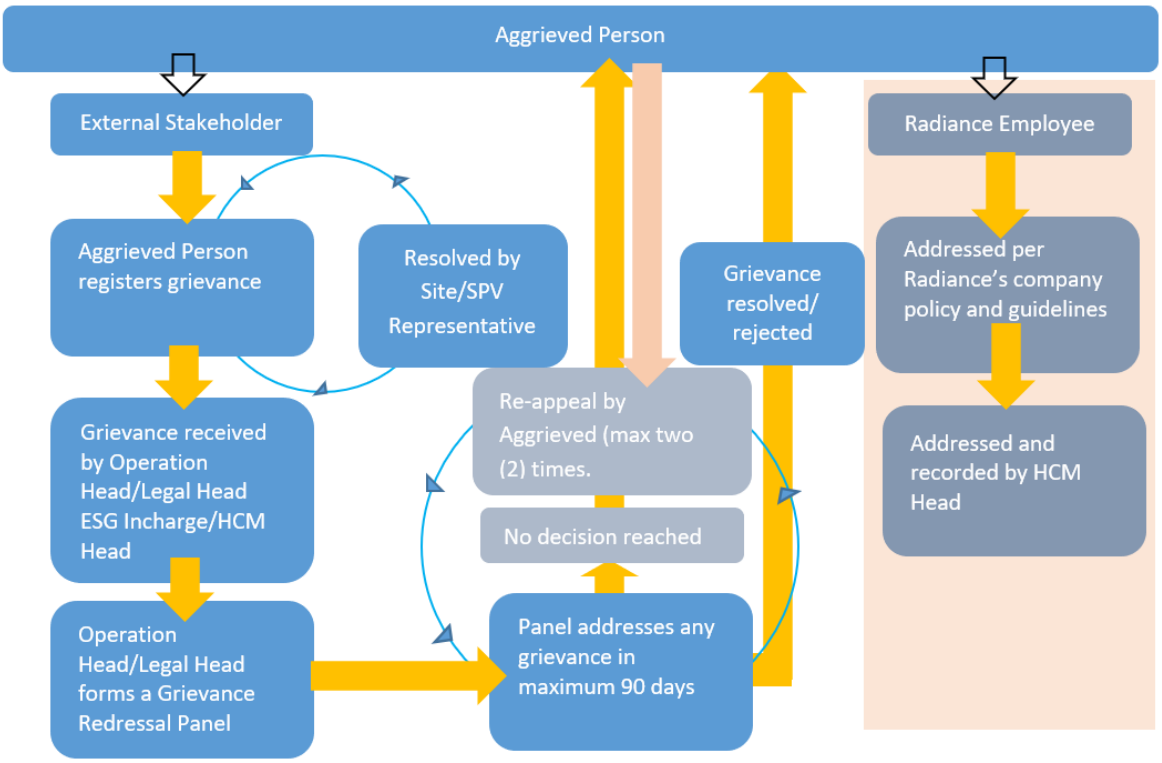
Issues	Recipient Email IDs
Discrimination, harassment or sexual harassment (POSH)	care@radiancerenewables.com
Whistle Blowers	designatedofficer@radiancerenewables.com

Note: The suggestion box should either be completely transparent or at least should have a transparent see-through portion to allow peek from outside.

5. INVESTIGATING AND ADDRESSAL OF GRIEVANCES

- Receipt of any grievance shall be acknowledged and reported to the complainant with reference number and estimated timeline for investigation. Grievances and feedbacks registered through any of the aforesaid channels shall be recorded and archived. Grievances shall be kept confidential and handled discretely.
- Grievances received in the complaint/suggestion box: At manned sites the project site/SPV designated representative shall empty complaint/suggestion box every fortnight. Project site/SPV representative attending to grievances shall assess the legitimacy of the grievance and if possible, shall resolve the grievance at hand, immediately. All grievances and grievance redressal response shall be registered in the format provided in **Appendix A**. All completed grievance forms shall be scanned and emailed to complaints@radiancerenewables.com on a fortnightly basis.

- Grievances registered at site by aggrieved in-person: The project site/SPV representative registering the grievance shall assess the legitimacy of the grievance and if possible, shall resolve the grievance at hand, immediately. All grievances and grievance redressal response shall be registered in the format provided in **Appendix A**. All completed grievance forms shall be scanned and emailed to complaints@radiancerenewables.com on a fortnightly basis.
- In case it is adjudged that the grievances require escalation, the project site/SPV representative shall register grievances in the format provided in **Appendix A** and report immediately by writing an email to Legal Head, Operations Head, ESG Incharge or HCM Head with cc to complaints@radiancerenewables.com. Site representative shall attach the grievance form with the email.
- In case it is adjudged that the grievance addressal requires participation of additional company representatives, the Operations Head in consultation with Legal Head will form a Grievance Redressal Panel (GRP), and a meeting of the panel members would be convened at an appropriate time with or without the participation of the aggrieved person as deemed necessary by the panel. The grievance would be mutually discussed by panel members.
- The GRP may comprise of at least four members, may have representation from following departments heads: ESG Incharge, Operations Head, Legal Head, HCM Head, EHS Incharge, ESG Incharge, Site-Manager/Site Incharge; and any independent member if relevant, among others. The panel may decide to invite Head ESG of Eversource if required on a need (s) basis.
- The panel shall resolve the grievance /complaint received before 90 days or as agreed in business agreement with authorities. In cases where additional time is required to resolve, the same may be noted in the grievance database (providing reason for delay) and practical/implementable timelines should be fixed.
- The decision taken by GRP would be forwarded to Executive Director & CEO (CEO) for further approval. Once approval from CEO is received, the decision would be communicated to the aggrieved accordingly.
- In case no decision is reached, the same shall also be communicated back to the aggrieved person. The aggrieved person/party may approach and may re-appeal with the company for a maximum of two (2) more times.
- In case the grievance is still not resolved, the aggrieved person is free to register the grievance with statutory authorities having necessary power and authority to resolve the grievance.
- In case a grievance is received at the fund level, Head of ESG (at Eversource), ESG in charge (Radiance), the Head of Operations, Head of legal and compliance shall analyse the issue and sees the legitimacy of it and accordingly assigns it to concerned person.



6. RECORDS

- The Human Capital Management (HCM) department will have the accountability for maintaining records of all the grievances along with the reference number.
- Records of all grievances, including those resolved at project site level shall be maintained in a database having the following minimum information. The database shall be maintained at the portfolio level by the HCM Department. All grievances received, their subject and status of closure along with the reference number shall be maintained in the database. A summary of all feedback/concern/ grievance shall be maintained by ESG Incharge (at Radiance).
    i. date of grievance
    ii. name of aggrieved party and any affiliation/organization
    iii. contact details of aggrieved party
    iv. category of grievance (environmental, social, governance, others)
    v. whether the grievance is directed at fund level or an investee (if investee, its name should be listed)
    vi. summary of the issue
    vii. whether the grievance is an appeal to an earlier grievance management outcome
    viii. relevant parties to engage at Fund level and any applicable investee of GGEF
    ix. recommended investigation of issue

x. outcome of investigation and actions taken
xi. date of closure and information provided to aggrieved party

- It will be the responsibility of the ESG Incharge (at Radiance) to ensure that:
  i. Any grievance which is found to be legitimate, a response would be provided to the aggrieved party for information about next steps with a timeline or directly with the resolution.
  ii. Discussions and effort is initiated at fund level and/or investee level to evaluate the grievance and determine if any action should be taken to rectify the root cause.
  iii. Investigations into grievances can vary depending on the nature of the grievance, but best efforts are made to ensure that grievances are handled promptly. Most investigations should not last more than 90 days subject to promptness on the aggrieved party's response to any queries from the Fund's side.
  iv. Aggrieved party is appropriately engaged if required either through writing, conference call and/ or meeting during investigation and any such engagement with an aggrieved party be noted in the grievance log.
  v. Aggrieved party is informed of outcomes of the investigation and any action being taken or reasons for not acting.
  vi. The investigation outcomes are recorded in the grievance log, including a summary of actions taken or rationale for not acting and the date of response to the aggrieved party.
  vii. The contents of the grievance log and its management are maintained with confidentiality of the aggrieved party where relevant, and there is no unfair practice like retaliation, threat or intimidation against aggrieved parties or whistle-blowers.

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ANNEXURE A GRIEVANCE REGISTRATION FORM

GRIEVANCE REGISTRATION FORM		
Grievance No.:	**Date:**	
First Name:	Surname:	
Village/Taluka/District:		
Phone no.		
Category of grievance: ☐ Major ☐ Minor ☐ Feedback ☐ Internal Grievance ☐ External Grievance		
Whether the grievance is an appeal to an earlier grievance management outcome?	☐ Yes ☐ No	**If yes, provide grievance no. of the** earlier grievance
Summary		
Name of person recording grievances:		
Designation of recording person:		
Proposed date of response to grievance:		
Signature of recording person	**Signature of complainant**	
ACKNOWLEDGEMENT RECIEPT		

This receipt is acknowledgement of grievance registration by_____
_____, resident of village
_____ on date _____. His case number is _____
and the date for response is _____.

Name of the person recording grievances:

Designation of the recording person:

GRIEVANCE REDRESSAL RESPONSE

Date of redresses:

Decision of person disposing the grievance (give full details):

Claimant accepts the outcome:	**Accepted** ☐	**Not accepted** ☐
Signature of claimant		

Signature of Legal Head	**Signature of HCM**	**Signature of Head Operations**	**Signature of ED**

Note:

Please note, if at any time the grievant is unsatisfied with the resolution of the grievance, they may choose to ask for an escalation to the next level or may resort to legal redress.

ANNEXURE B COMMUNITY GRIEVANCE REGISTER

S. No	Date	Village	Topic of grievance	Summary of grievance	Stakeholder Group	Acknowledgement date	First response date	Follow-up (if applicable)	Unique Grievance ID	Status
1.										
2.										
3.										

ANNEXURE C SOP FOR COMMUNITY CONFLICT RESOLUTION

Annexure 11: Labour Management & HR Policies

The HR policies have been subdivided into the following. These policies have been attached as PDF files separately.

- Anti- Money Laundering Policy
- Code-Prevention for Prevention of Insider Trading
- Declaration of Fidelity and Secrecy
- Employee “Fair Play” And “Equal Opportunities” Code
- Care and Dignity Policy
- Whistleblowing Policy
- Framework for Managing Conflicts of Interest
- Anti-Corruption Policy
- Human Capital Management (People Policy Handbook)
- Grievance Redressal Mechanism (GRM)
- Code of Conduct for Prevention of Insider Trading
- ESG Policy Statement
- Quality, Health, Safety & Environment Policy
- Social Responsibility Policy
- Checklist for Labour Compliance

Annexure 12: Cost & Schedule of Gugal O&M ESMP

Gap Closure Recommendation			
#	Operation	Timeline	Cost
1	**Mitigation Measures for Transmission Line & Access Road Impact - Construction Phase**		
a)	All workers (regular and contracted) should be provided with training on Health and Safety management system of the EPC contractor during construction stage	Periodic monitoring	Part of regular activity. No additional cost.
b)	Obtain and check safety method statements from contractors	Periodic monitoring	Part of regular activity. No additional cost.
c)	Monitor health and safety performance, and have an operating audit system	Periodic monitoring	Part of regular activity. No additional cost.
d)	Appropriate safety harnesses and lowering/raising tools should be used for working at heights	Periodic monitoring	Part of regular activity. No additional cost.
e)	All equipment should be turned off and checked when not in use	Periodic monitoring	Part of regular activity. No additional cost.
2	**Mitigation Measures for Transmission Line & Access Road Impact - Operation Phase**		
a)	Considering adequate measures are being taken on site, no additional measures are required.	-	-
3	**Mitigation Measures for Avifauna Collision/Electrocution Impact - Operation Phase**		
a)	Local Hospital in the area should know about the existence of the venomous Herpetofaunal (Snakes) and Arachnida (Scorpions) species present in the project area.	Periodic monitoring	PPEs already provided. No additional costs
b)	Photo identification chart and danger/ Safety chart to be put up on the site, to raise awareness	Already implemented.	No additional cost.
c)	Training on safety measures to be taken when there is a near miss with Herpetofauna species should also be conducted on a half-yearly basis	Periodic monitoring	Part of regular activity. No additional cost.
4	**Mitigation Measures for Human Resource Management - Operation Phase**		
a)	Establish a separate contract labour management plan and ensure cascading down to the contractors.	Part of regular activity	No additional cost.
b)	Contract workers should be made aware of their rights under labour law.	Part of regular activity	No additional cost.
5	**Mitigation Measures for Sexual Exploitation, Abuse & Harassment (SEAH) - Operation Phase**		

Gap Closure Recommendation			
#	Operation	Timeline	Cost
a)	Make the reporting & external grievance mechanism more accessible	1 month	No additional cost.
b)	Provide specific training for supervisors and managers on preventing and addressing sexual harassment.	Periodic monitoring	Part of regular activity. No additional cost.
c)	Conduct regular site inspection to assess the work environment and identify potential issues related to harassment.	Periodic monitoring	Part of regular activity. No additional cost.
d)	Collaborate with local community organizations and authorities to address issues related to harassment and promote awareness within the community	Periodical activity	No additional cost.
e)	Regularly review and assess the effectiveness of anti-harassment measures and make necessary adjustments based on feedback and incident reports.	Periodic monitoring	Part of regular activity. No additional cost.
6	**Mitigation Measures for Labour Risks- Operation Phase**		
a)	As the Company is indirectly associated with labour risks, this is a residual impact. The mitigation measures to minimize this impact are being explored.	-	-
7	**Mitigation Measures for Water Resource Impact - Operation Phase**		
a)	Optimal utilization of water to be ensured throughout the lifecycle of project	Periodic monitoring	Part of regular activity. No additional cost.
b)	Leaks and losses to be checked frequently to enhance utilization.	Periodic monitoring	Part of regular activity. No additional cost.

Annexure 13: Gram Panchayat NOC

The 'No Objection Certificate' received from the Gram Panchayat (local body) is attached separately as a pdf document.

Disclaimer

This assessment was performed according to professionally accepted principles. Professional judgments expressed herein are based on the information currently available within the limits of the existing data, scope of work, budget and time. This report is prepared to aid the Client in identifying and addressing environmental and social risks and may not be relied upon by any other person or entity without the written authorization of Envint.

Envint has assumed where reasonable to do so, that the information provided is true and accurate. If information to the contrary subsequently is discovered, our conclusions and recommendations may not be valid.

Envint makes no other representations whatsoever, including those concerning the legal significance of its findings or as to other legal matters touched upon in this report. Except as otherwise may be requested by the Client, Envint disclaims any responsibility to update the report for events taking place after the time which we conducted our assessment. The conclusions and recommendations describe only the conditions present at the time of our assessment, in areas that were observed. The scope of this report is limited to matters expressly covered.