

# Environmental and Social Monitoring Report

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Project Number: 44932-054  
July 2015

## INDIA: 145 MW Grid Connected Solar Project Sand Land Real Estate Private Limited Safeguards Monitoring Report (April 2013 to March 2014)

Prepared by Sand Land Real Estate Private Limited for the Asian Development Bank

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# Environment and Social Safeguard Provisions & Compliance Management

<b>Company</b>	Sandland Real Estates Private Limited
<b>Project</b>	25MW Solar Photovoltaic Power Plant
<b>Location</b>	Banaskantha District, Gujarat State, India
<b>Commissioning Date</b>	1 <sup>st</sup> April 2012
<b>Reporting Period</b>	01 April 2013- 31 March 2014

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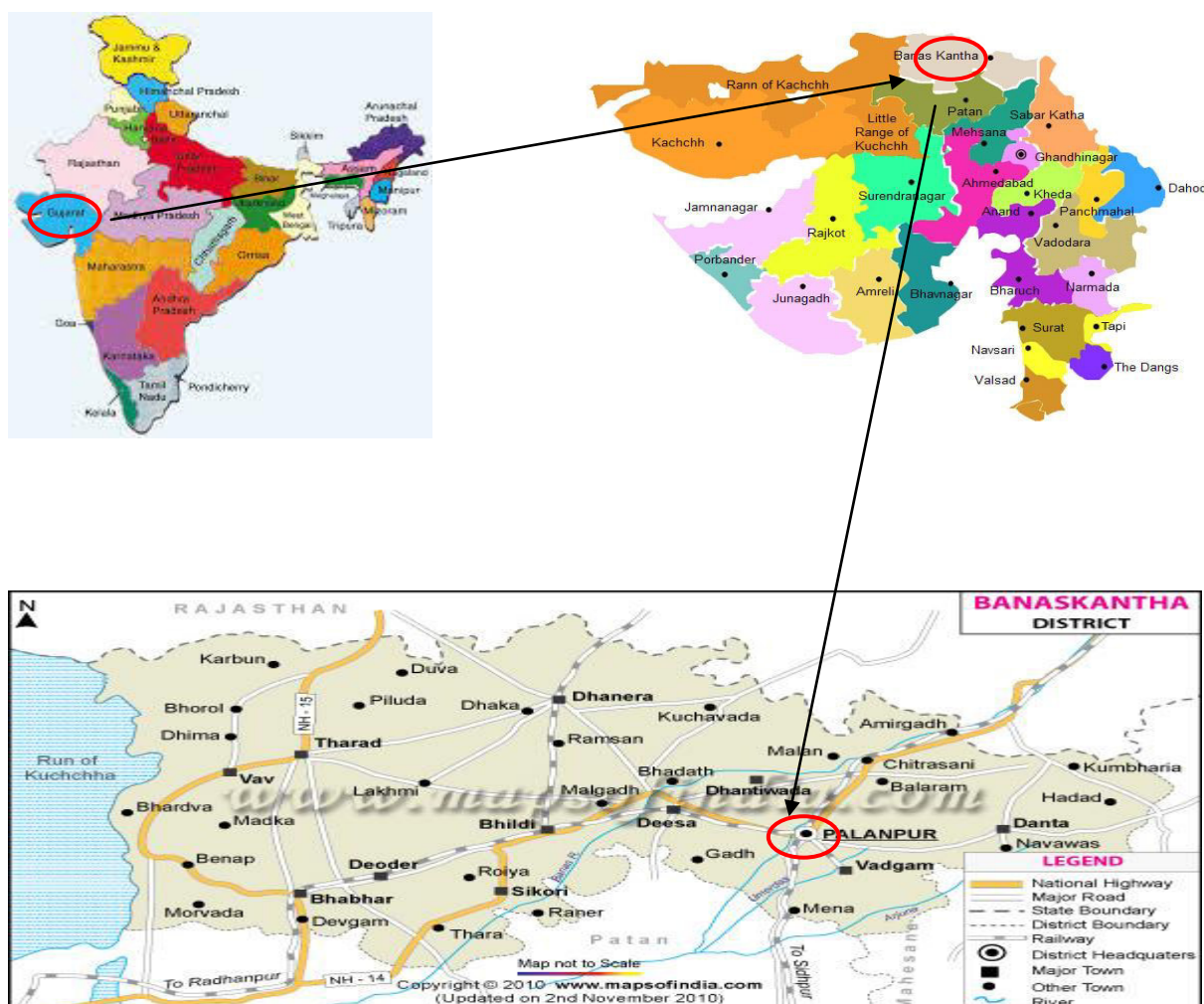
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## Chapter 1- Project Summary

Sandland Real Estate Private Limited (SREPL), the company incorporated on February 04, 2010 has setup a 25 MWp solar photovoltaic power project at village Alwada, District Banaskantha in the state of Gujarat (India). The project got commissioned on 1<sup>st</sup> April 2012. The other relevant details of the project is given below

S. No	Particulars	Descriptions
1	Project site	Sandland
2	Village Name	Alwada & Khimat
3	District Name	Banaskantha
4	Name of the state	Gujarat
5	Latitude	24°31'27.1"North
6	Longitude	72°12' 12.27" East
7	Road Accessibility	Road connectivity via Ahmedabad
8	Nearest Airport	Ahmedabad
9	Nearest City	Ahmedabad
10	Land available (Acres)	212
11	Water requirement (LPD)	15,500
12	Power Purchase Agreement (25 Yrs)	Gujarat Urja Vikas Nigam Limited
13	Annual Global Irradiance (kWh/m2)	2035
14	Type of PV module	Thin Film
15	Capacity (MW)	25 MWp
16	Project Cost (Million INR)	3628.4



**Purpose/Objectives of Safeguards Monitoring Report**

The purpose and Objective of Safeguard Monitoring Report is prepared in accordance with the Safeguards Requirements, for monitoring and measuring the progress of implementation of the Environmental Management Plan and including any corrective and preventative actions.

The Annual report for period from fiscal year 2013-14 is prepared on its compliance with the measures identified for social protection requirement and safeguard policy statement of ADB. As per the requirement, the company shall provide annual social safeguard report on its compliance to ADB pursuant to Safeguard Policy Statement

## Chapter 2- Environmental Permits and Compliances

The company has already taken all necessary permits and clearance for operation and maintenance of the project under national and local statutory regulations. The details of requisite compliances are given below

<b>Compliance</b>	<b>Consent No</b>	<b>Validity</b>
Consent to Operate	W-12580, Dated 03/03/2012	01/02/2017
Registration under Factories Act	Regd no. 422/ 40106/2012 dated 19 <sup>th</sup> April 2012	31/12/2015
O&M Labour License	Regd No. 4134	26/08/15
Registration under Contract Labour Act	Registration dated 16/07/2011	One time registration

It's also pertinent to mention here that Ministry of Environment and Forests (MoEF) in its Office Memorandum No. J-11013/41/2006-IA.II (I) dated 13th May, 2011 stated that the Solar Photovoltaic Power Projects are not covered under the ambit of EIA Notification, 2006 and hence, no environmental clearance is required. Hence, the Solar Power PV Project does not require preparation of Environmental Impact Assessment Report and pursuing Environmental Clearance from Central Government or State Level Environmental Impact Assessment Authority.

## **Chapter 3- Grievance Redressal Mechanism**

A Grievance Redressal Committee is already in operation at project site. The GRC comprises the following members:

- Project Head
- Site In Charge /Admin (Liaisoning Officer)
- Land Seller /Local Community representative

The Grievance Redressal Committee (GRC) was formed at the project site to ensure affected person's grievances on both environmental and social concerns are adequately addressed and facilitate timely project implementation.

### **Handling grievances**

The company representative regularly visits nearby villages to capture project affected families grievances on continuous basis and record the same through public and individual meetings. Grievance Redressal registers are maintained at project site

In the reporting period, there were no grievance reported at the project site

## Chapter 4- Occupational and Community Health & Safety

There are no occupational hazards expected in the solar power plants during operational phase of the project. We have identified three key safety key issue areas and developed our Safety theme on these areas:

The Three Key safety issues are:

1. Safety from Fire
2. Safety from Electrocution
3. Safety from Reptiles

Few of the identified occupational Health & safety hazards are enlisted below along with respective mitigation measures:

Identified Hazards	Mitigation Measures
Safety from Fire	<ul style="list-style-type: none"><li>• Replaced all Non-ISI fire Extinguisher with ISI marked.</li><li>• Regularly providing basic training on “Fire Safety &amp; Preventions” Conducting Quiz programme on fire safety &amp; overall EHS Awareness.</li><li>• Conducting regular audit of Fire Extinguishers</li><li>• Prepared &amp; distributed guideline for effective execution of Fire Extinguishers refilling and upkeep.</li><li>• Conducting regular check &amp; refilling of Sand Buckets and other major firefighting equipment's.</li><li>• Sensitizing associates towards importance of fire hazards and precautions</li></ul>
Safety from Electrocution	<ul style="list-style-type: none"><li>• Provided rubber insulation mats across control room and LT room</li><li>• Developed and circulated “Standard Operating Procedure for electrical Isolation”</li><li>• Circulated an article on “Electrical Equipment in Hazardous Areas” at all Solar Farms</li><li>• Organizing regular training Programme on safety protocols.</li><li>• Sensitizing associates towards importance of electrical safety</li><li>• Plant Head are regularly organization training programme on basic operational understanding of various equipment's (Transformer, Invertors etc)</li><li>• Plant Head are advised to inculcate a habit of following safety protocols among site personals</li><li>• Regular training to bottom line personal for safety measures during cleaning and maintenance on Shock sensitive zones</li><li>• Ascertained availability &amp; maintenance of PPE's at solar site.</li><li>• Stringent protocols developed for adherence to Safety (Like LOTO, WP, etc)</li></ul>
Safety from Reptiles	<ul style="list-style-type: none"><li>• Regular spray of Carbolic acid is performed at HT, LT and Control Rooms</li><li>• Regular conducting removal of overgrown grass around the snake prone areas</li><li>• Ascertained availability &amp; maintenance of anti-snake venom &amp; syringe at site</li><li>• Snake Caution notices are displaced at Snake prone areas.</li><li>• Made tie ups with local medical practitioner, Hospitals &amp; doctor's for support during nay emergency in plants.</li></ul>



	<ul style="list-style-type: none"> <li>• Conducting regular training programme for precaution to be taken while entering snake prone zone.</li> </ul>
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There were no incidents reported of any safety event or outreach activities during the reporting period.

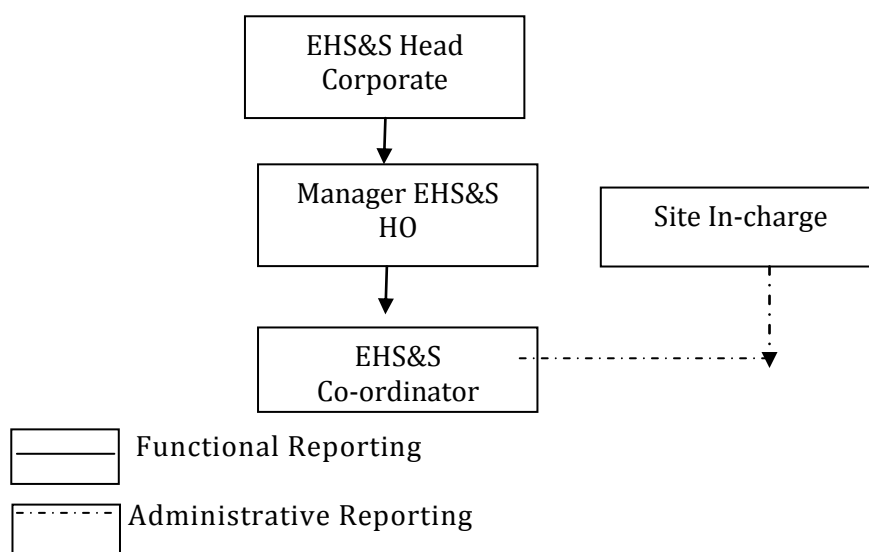
### **EHS & S Training**

During the reporting period, several training program related to Environment, Health & Safety were conducted at Sandland solar project site. Few of the training topics are listed below

1. Fire & Safety (Live firefighting training session).
2. Electrical hazard
3. Safety hazard specific to solar plant
4. Do's & Dont's during fire in electrical circuit
5. PPE
6. EHS policy of the company
7. EHS & 5S
8. First Aid training

## Chapter 5- Environmental Management Capacity

The company has an EHS department at corporate and business unit level, headed by EHS&S Head Corporate. Following organizational structure is in place for the EHS team:



The Company is fully committed to its environmental and social responsibility and discharges this responsibility in adherence to principles of good corporate governance guidelines. Its staff and contractors are fully committed to their environmental responsibility and discharge their responsibility within company's EHS guidelines and operational framework. The duties of the EHS department at site level are to:

- Implement the EHS manual guidelines and environmental good practices at site.
- Advise and coordinate the contractor(s) activity towards effective management of environment, health and safety aspects.
- Train all company employees including contract workers at site to make them aware on various EHS practices and guidelines to be followed at site.
- Carrying out internal EHS audits at defined intervals, identify the existing EHS gaps at the site and report the findings of the audit to the EHS head.

Furthermore, two separate meeting namely EHS Core Committee and EHS Apex Committee meetings are being held every month. The participants include Corporate Head (EHS), Vice President (O & M) along with the site head and the EHS coordinator to discuss on the EHS perspective of the site. Furthermore, Weekly EHS report has also been compiled at site level and submitted to Corporate for review

<b>EHS Committees</b>	<ol style="list-style-type: none"> <li><b>EHS Core Committee</b> (HO Team)</li> <li><b>EHS Apex Committee</b> (HO Team &amp; Site Personals)</li> </ol> <p><i>(Monthly review meetings are conducted among Core members &amp; Apex committee members, Meeting are chaired by VP-Operations)</i></p>
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<b>Weekly EHS Status</b>	<ol style="list-style-type: none"> <li>1. Sandland solar site send <b>Weekly EHS report</b> to HO team</li> <li>2. The report contains following section: <ul style="list-style-type: none"> <li>• Training provided</li> <li>• Work permit &amp; LOTO Implemented</li> <li>• Accident/Incident/Near Miss reporting (If any)</li> <li>• Weekly EHS Observations and status</li> <li>• Plantation &amp; Hazardous waste management details</li> <li>• Status or update on compliance, PPE's, Fire Extinguisher, etc</li> <li>• Weekly EHS site meeting details</li> </ul> </li> </ol>
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The company has also developed standard procedures and manuals to ensure the implementation of any E&S Concerns namely

- 1- Procedure for Waste Material Handling and HSD/ Transformer oil/ chemical storages
- 2- Procedure for Restriction / Identification of Child labour deployment
- 3- On site emergency and Disaster control plan
- 4- Grievance Handling Mechanism
- 5- Aspect – Impact Study
- 6- Social and Environment Management Plan
- 7- Work to Permit Procedures
- 8- EHS Manual & Policy
- 9- Isolation Procedure – Electrical
- 10- Copy of Contractor EHS Clause Agreement

## Chapter 6- Social Safeguard Initiatives

As the Sandland solar project has already been commissioned and in operation phase, there shall be no new land requirements/acquisition for this project. Also, during the year, following social safeguard activities were conducted at Sand land solar power project.

<p><b>Maintenance of village street lighting</b></p>	<p>Maintenance of village street lighting are under the purview of local municipal corporation, however we on need basis follow up with the concern agencies all grievance of local community for street lighting related issues. If any minor electrical maintenance is required, we engage specific electrical personal available at site. Sandland Team has also taken initiative &amp; on 04 April 2014 has repaired the street solar light at village “Khimat” Govt. hospital nearby Sandland site (Approx-3 KM). Pics of the same are attached</p> <div> </div> <div> </div>
<p><b>Women Empowerment Programme</b></p>	<p>On need basis, we engage approx. 5-6 local women labours for any non-technical works (like grass cutting, cleaning etc). We are committed to give preference to Women for any non-technical Labour requirements at site. We on timely basis also conduct informal training session on various health related or any other hygiene related activities</p>
<p><b>Imparting Solar power knowledge to school children</b></p>	<p>Children for Gujarat Primary School were invited for a site visit at sand land solar site for an exposure &amp; general awareness imparting on operation and benefits of solar power plants. The visit was conducted on 20 Dec 2013. Pics of the same are attached</p> <div> </div> <div> </div>

## Chapter 7- Compliance with applicable Environmental and Social Requirements

Compliance status on the actual mitigation measures on each potential impact identified during Operation and Maintenance phase are given below.

### 1. Switchyard Operation

Potential Impact	Mitigation Action	Monitoring Frequency	Responsibility	Compliance Status
Safety risks	<ul style="list-style-type: none"> <li>Regular safety training are imparted to employee on electrical safety</li> <li>Rubber mats are being provided near all high voltage areas</li> </ul>	Continuous	Site O&M team	Ongoing process
Soil contamination	Regular maintenance and monitoring of the transformers shall be carried out to avoid leakage of transformer oil	Annually		Rubber mats provided Ongoing and followed

### 2. Use of Ground Water Resources

Potential Impact	Mitigation Action	Monitoring Frequency	Responsibility	Compliance Status
Depletion of Ground water	<ul style="list-style-type: none"> <li>Water meter is installed at water intake works to monitor total water consumption</li> <li>Water reduction measures through periodic checking of pipeline leakages</li> <li>Spills / wastages to be avoided and ensure optimal consumption</li> </ul>	Monthly  Weekly	EHS Team	Daily water consumptions record are maintained and followed.
Given below the water consumption record at Sandland during 2013-2014. A) Horticulture Water Consumption : 2826159 ltr B) Drinking water Consumption : 173300 Ltr <b>Domestic Water Consumption : 2999459 Ltr (A+B)</b> C) Module Cleaning : 5988096 ltr				

### 3. Handling of broken solar modules

Potential Impact	Mitigation Action	Monitoring Frequency	Responsibility	Compliance Status
Land Contamination	Broken or damaged solar panels are immediately shifted to a designated area in scrap yard to avoid any type of land	Continuous	Site in-charge and EHS team	Adherence to the procedure for waste material handling and

	contamination. A photograph is to be taken of the broken panel at the site to cater to Insurance settlement claims			HSD/ Transformer oil/ Chemical storages
Health Risk	<ul style="list-style-type: none"> <li>▶ Proper PPE are provided to the workers handling the broken solar panels</li> <li>▶ The workers at site are also on regular basis apprised about the potential health risks associated with handling of solar panels</li> </ul>	Continuous	Site in-charge, EHS and HR team	Followed

#### 4. Handling of Domestic Waste

There is no canteen/cafeteria facility at site; hence there is no domestic waste generation. Associates brought their own lunch. In case any negligible waste it is disposed in small pit.

## Site Photographs

### Plant



### EHS Policy



### Child Labour Policy



As per Company Policy: To Employee any person below the age of 18 years is illegal

### Waste Transformer Oil Storage



### HSD Storage





<b>Hazardous Waste Collection</b>	<b>EHS &amp; PPE Display</b>
 <p>A photograph showing a hazardous waste collection site. In the foreground, there are three small, colorful (red, blue, green) plastic chairs or stools. In the background, a red tractor is parked next to a large blue cylindrical tank. A yellow sign with black text is visible, partially obscured by the tractor. The ground is dry and dusty.</p>	 <p>A photograph of an EHS &amp; PPE display board mounted on a wall. The board is framed in red and contains various safety information, including a checklist and diagrams. Below the board, several pieces of PPE are displayed: three hard hats (yellow, white, orange), a pair of black gloves, and a pair of black boots. A window is visible on the right side of the board.</p>
<b>Broken Module Storage</b>	<b>Soaking Pit</b>
 <p>A photograph showing a storage area for broken solar modules. The modules are stacked in several rows, some covered with blue tarps. The area is surrounded by dry grass and a fence. A yellow sign is visible in the background.</p>	 <p>A photograph of a yellow sign that reads "SOAKING PIT" in black capital letters. The sign is mounted on a wooden post in a dry, dusty area.</p>
<b>Plantation at Sandland Solar Power Plant</b>	
<div>  <p>A photograph of a flowering plant with red flowers in a circular bed made of white bricks.</p> </div> <div>  <p>A photograph of a young tree in a circular bed made of white bricks.</p> </div> <div>  <p>A photograph of a small tree in a circular bed made of white bricks.</p> </div> <div>  <p>A photograph showing a row of trees in a circular bed made of white bricks.</p> </div> <div>  <p>A photograph showing a long row of trees in a circular bed made of white bricks.</p> </div>	