



ESRM Sector Guide on Off Grid Standalone Solar for Financial Service Providers

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ECOWAS CENTER FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY (ECREEE)

Abbreviations

BOAD	Banque Ouest Africaine de Developpement/ West African Development Bank
CFIs	Commercial Financial Institutions
E&S	Environment and Social
ECREEE	Ecowas Center for Renewable Energy and Energy Efficiency
ESAP	Environmental and Social Action Plan
ESCO	Energy Service Company
ESMS	Environment and Social Management System
ESRM	Environment and Social Risk Management
E&S	Environmental and Social
FIs	Financial Institutions
GBV	Gender Based Violence
HH	Households
HR	Human Resources
IFC	International Finance Corporation
IDP	Internally Displaced Persons
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
PV	Photovoltaic
ROGEP	Regional Off Grid Electrification Project
SHS	Solar Home Systems
SMEs	Small and Medium Size Enterprises
SSA	Sub-Saharan Africa
TA	Technical Assistance
OGS	Off Grid Sector
USD	United States Dollars

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1. Introduction

This E&S Due Diligence Guideline is prepared for CFIs, fund managers or similar entities that provide debt financing, grants, or technical assistance to the off-grid solar. Those institutions involved in financing and supporting the standalone solar businesses through lending, risk sharing, grant financing or technical assistance should apply this Guideline when assessing new clients, projects or transactions. The main focus of this Guideline is on ESRM, however the entities should also consider opportunities for E&S performance improvement beyond risk management.

The objective of the guidelines is to help CFIs, fund managers and entities acting in similar capacity (collectively, financial institutions) assess the potential E&S risks and opportunities associated with providing debt or grant financing to the solar off-grid standalone businesses and activities. The Guideline provides information on what is needed for FIs to assess the E&S risks, communicate requirements to solar businesses, as well as monitor and report on implementation.

2. Off-grid solar standalone energy: sector description, scope and applicability, and key stakeholders

2.1. Sector description

Solar PV technology has become a rational choice to contribute substantially to electricity access in Sub-Saharan Africa. Solar lanterns and Solar Home Systems have improved electricity access to about 17.3 million people in Africa¹. However, the market development has been asymmetric and faces a number of key barriers, namely, access to finance, poor regulatory framework to ensure the import of quality products, lack of business models that ensures proper financing for operation and maintenance, poor regulatory framework that promote quality products, and a lack of financial intermediaries to scale up. In Africa, the off-grid solar sector market is largely confined to East Africa. Statistics in West Africa show that is still a young market subject to high volatility in sales volume².

Standalone solar systems can be solar lanterns or solar home systems. The solar lanterns are usually of less than 10W in size and comes with one task light along with mobile phone charging facility. The solar home systems used by households in general range from 30W to 80W. However, at present plug and play standalone solar home systems can be up to 350W. Smaller solar home systems use a mobile solar panel to charge the battery. Larger solar home systems can have the solar panel installed in the household roof or mount on a pole near the house.

Standalone solar systems that could be used for shops and market places are similar to the ones used for households. With innovation in technology, standalone solar systems can be used to electrify small and medium enterprises (SMEs) such as solar powered egg incubation for poultry farms, solar milk chillers from dairy farms, solar power sewing machine, solar irrigation, etc. This could be of 1kW to 10 kW of size range. These systems will either install the solar panels on the roof of the SME building or on the ground adjacent to the SME building depending on convenience. The standalone solar systems that can be used to electrify public institutions could be of similar size as of the solar systems used for SMEs.

2.2. Scope and Applicability

This Guide is for use by all financial service providers working in the off-grid standalone solar sector. Financial institutions will facilitate access to debt and grant financing by providing short to medium term loans to the following three main categories of clients: (i) solar equipment distributors supplying products to households and productive end-users of solar equipment; (ii) households and productive end-users of solar equipment; and (iii) energy service companies electrifying public institutions. E&S risks, for the purposes of the guidelines, refer to potential E&S risks and impacts of FIs' clients (the solar off-grid businesses and activities).

¹ GOGLA – Off-Grid Solar Market Trends Report 2018

² GOGLA – Global Off-Grid Solar Market Report, Semi-Annual Sales and Impact Data, July-December 2017

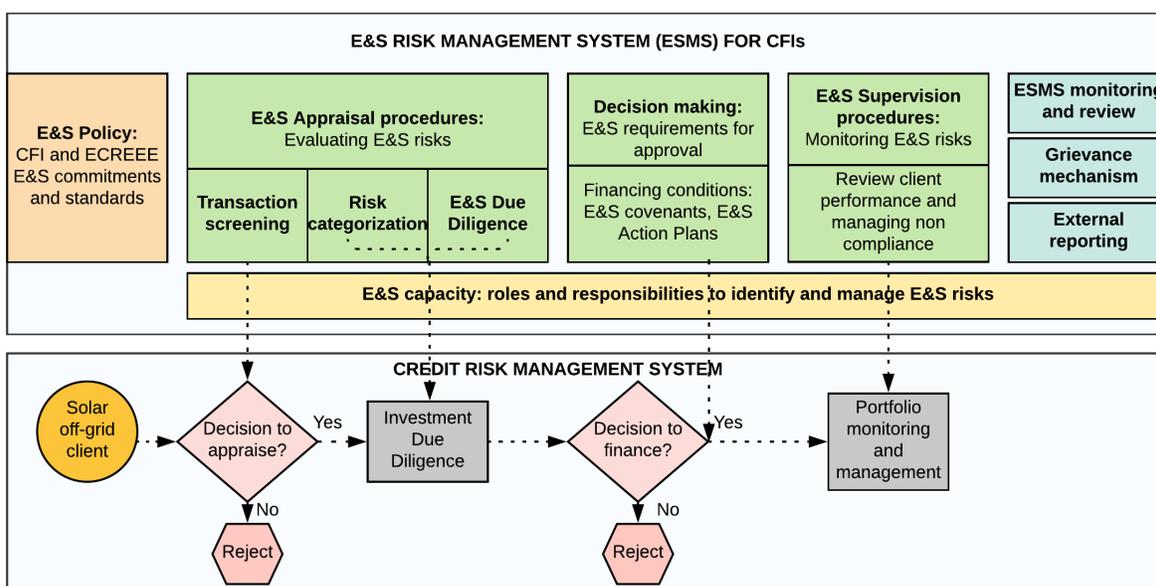
3. E&S Due Diligence Process for Financial Institutions

Commercial Financial Institutions (CFIs) and other entities acting in a similar capacity (collectively “financial institutions”) shall develop and implement a process that assists them in the identification, assessment, management and on-going monitoring of identified E&S risks associated with the solar off-grid sector. This shall be done as part of the overall credit assessment of the solar businesses they provide funding to. This process can be embedded into the FI’s overall Environmental and Social Management System (ESMS), where an institution has one. Where an FI does not have an institutional ESMS, the E&S due diligence process shall be internalized and applied by the FIs to the solar businesses as a requirement to access funding from [ECREEE/BOAD].

3.1. Environmental and Social Management System for Financial Institutions

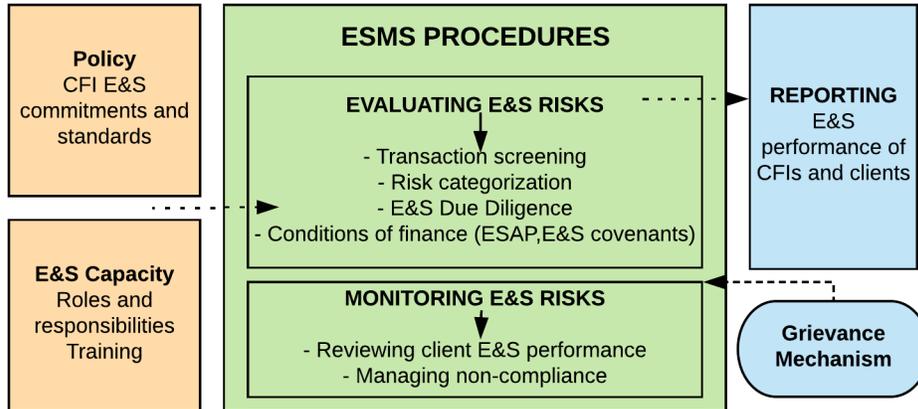
To manage potential E&S risks associated with loans/investments, E&S due diligence shall be conducted prior to client, project or transaction approval and also include adequate supervision of the business activities during the term of the loan/grant (**figure 1**). The financial institutions implementing ESMS should factor E&S risks into the decision-making process before proceeding with a transaction.

Figure 1. ESMS and integration into the credit risk management system



The key elements of the ESMS for CFIs are summarized in **figure 2**. The E&S Policy is the formal declaration that shows the commitment to manage the E&S performance of the clients. The procedures materialize this commitment into defined and guided actions. These are part of the evaluating and monitoring E&S risk management steps. A proper and regular reporting system on the E&S performance is necessary to comply with contractual arrangements, maintain good relationship with client and investors and ensure transparency. Finally, the ESMS will be based both in the high-level management commitment at the institutional level and the existence of a trained and capable capacity among credit staff with defined roles and responsibilities.

Figure 2. Key elements of an ESMS for Financial Institutions



3.2. E&S Policy for Financial Institutions

The E&S Policy is the formal declaration that shows the commitment to manage the E&S performance of the clients. It is a written commitment that must be approved and backed up from the highest management level of a financial institution. In addition, it needs to be properly communicated to all employees and stakeholders.

The policy should:

- Demonstrate credible commitment
- Indicate how this commitment is integrated into the CFI's priorities
- Clearly state the requirements that apply in implementing the policy
- Define the scope and objectives of the ESMS
- Be comprehensive and communicated to all stakeholders

3.3. Key Applicable E&S Requirements for Solar Businesses

As part of their ESMS, the following sector-specific requirements shall be applied to solar businesses by financial institutions:

a. E&S exclusion criteria:

1. Production or activities involving forced labor¹
2. Production or activities involving child labor²
3. Cross-border trade in waste and waste products, unless compliant to the Basel Convention and the underlying regulations³
4. Confirmed cases of occupational, health, and safety incidents or accidents⁴
5. Confirmed cases of Gender Based Violence/Sexual Exploitation and Abuse
6. Confirmed cases of discrimination of vulnerable groups, including gender and disability

Footnotes

1. Forced labor means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.
2. Employees may only be taken if they are at least 15 years old, as defined in the ILO Minimum Age Convention (C138, Art. 2), and ratified by each country. Children under the age of 18 will not be employed in hazardous work. Children will not be employed in any manner that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development.
3. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, usually known as the Basel Convention, is an international treaty that was designed to reduce the movements of hazardous waste between nations. Hazardous waste, as defined under the convention, will not be traded cross-border. Under Basel Convention, "hazardous wastes" are defined as (a) Wastes that belong to any category contained in Annex I, unless they do not possess any of the characteristics contained in Annex III; and (b) Wastes that are not covered under paragraph (a) but are defined as, or are considered to be, hazardous wastes by the domestic legislation of the Party of export, import or transit. National definition of hazardous wastes for Nigeria under Basel Convention can be found here: <http://www.basel.int/Countries/NationalDefinitions/NationalDefinitionsofHazardousWastes/tabid/1480/Default.aspx>
4. If the financial institution has a cause to believe that these issues have been duly dealt with according to their satisfaction then the business can be considered for financing

b. Minimum Environmental and Social System Requirements for Solar Businesses:

Each solar business shall be required to have an "ESMS" at its level to be comprised at a minimum of:

1. Policy/ procedure and records on occupational health and safety
2. Human Resource policy (including code of conduct for workers and grievance mechanism for workers)
3. Waste management policy or procedures
4. Stakeholder engagement plan and grievance mechanism
5. Solar businesses shall also be encouraged to put in place a formal environmental and social policy

Solar businesses that are classified as Tier 1 and 2 may not have all of these policies, procedures and tools in place. These are typically business less than 3 years old may have sold few units of SHS and have few employees. They will be required to develop an E&S Action Plan (ESAP) to implement these requirements within a year. Such plan shall be included in the financing agreement.

3.4. Evaluating E&S Risks and Impacts of Solar Businesses

E&S appraisal procedure is a review of the client's information to identify client's E&S potential risks and impacts, and mitigation measures (**Annex 1**). The three main steps in the evaluation area are part of the E&S appraisal procedures, and include: transaction screening, risk categorization and E&S due diligence. E&S screening questionnaire for financial institutions to apply to solar businesses is presented in **Annex 2**.

Transaction screening

Table 1. Transaction screening when assessing solar off-grid businesses

Transaction screening	Description
Type of transaction	<p>It will determine the FI's leverage in following up with corrective actions:</p> <ul style="list-style-type: none"> - Low risk: microfinance, short term trade finance, factoring - Medium risk: loans to SMEs, leasing - High risk: large and long term corporate or project financing
<p>E&S risk screening <i>(see Annex 2 for E&S screening questionnaire for solar businesses)</i></p>	<p>Business nature and characteristics</p> <ul style="list-style-type: none"> - Nature of the client's activity in the solar off-grid sector: manufacturer, distributor, retailer, installer, recycler, etc. - Project business plan - Any regulatory licenses/permits <p>Exclusions per the exclusion criteria (does the client have):</p> <ol style="list-style-type: none"> 1. Production or activities involving forced labor 2. Production or activities involving child labor 3. Cross-border trade in waste and waste products, unless compliant to the Basel Convention and the underlying regulations 4. Confirmed cases of occupational, health, and safety incidents or accidents³ 5. Confirmed cases of Gender Based Violence/Sexual Exploitation and Abuse 6. Confirmed cases of discrimination of vulnerable groups, including gender and disability <p>(I.e. check inspection reports, media reports, and notification of violations by labor and environmental authorities)</p> <p><i>If yes, the client might not be considered for financing.</i></p>
ESMS at the solar business level (see section 4)	<p>Does the client have:</p> <ul style="list-style-type: none"> - E&S policy for the solar business - Policy, procedure and records on OHS - Human Resource policy (including code of conduct for workers and grievance mechanism for workers) - Waste management policy or procedures - Stakeholder engagement plan and grievance redress mechanism (such a call centers to respond to users' issues) - Existence of any procedure or process to assess E&S risks - ESMS implemented - Voluntary management systems implemented (ISO 14001, OHSAS 18001 etc.)

³ If the solar business can demonstrate with reports and documentation that it has been able to adequately address the issues and this can be verified by the Financial Institutions, the business can be considered for financing among other requirements.

Risk categorization of solar businesses

Financial institutions shall categorize solar businesses based on the screening conducted. **Table 2** contains the key suggested considerations for E&S risk categorization when assessing solar off-grid businesses. **Annex 3** provides the E&S categorization memorandum template.

Table 2. E&S risk categorization when assessing solar off-grid businesses

Risk categorization	Description/Criteria
Category B1 (low risk)	Businesses with minimal or no adverse E&S impact will be required to have in place only minimum ESMS core components to address key risks and mitigation measures as stated in section 3.3 (b)
Category B2 (medium/ high risk)	Businesses that require – in addition to the above – an ESAP with specific measures and/or E&S covenants in legal/ loan agreements, as well as close monitoring, due to the severity of their potential adverse E&S impacts as a result of the size and/or characteristics of the solar business, and/or identified situations, such as occupational accidents or labor incidents that have not been adequately addressed, fair working conditions and terms of employment, or installers without applying safe installation measures

E&S Due Diligence

Transaction screening and risk categorization are the first steps before a more detailed due diligence process. Following those, the extent of E&S due diligence will be determined by the client risk categorization (**Table 3**).

Table 3. ESMS due diligence requirements

E&S Due Diligence	Description
E&S Risk Categorization Memorandum <i>(Annex 3)</i>	E&S Categorization Memorandum is based on the outcomes transaction screening and solar business E&S risk characterization. To be prepared by the financial institution and reviewed by the client.
Environmental and Social Action Plan (ESAP) <i>(Annex 4 contains a template for ESAP preparation)</i>	<p>Financial Institutions should ensure that category B2 businesses have prepared an appropriate E&S Action Plan (ESAP) to address, identify and mitigate E&S issues. The entities should ensure that the businesses have appropriate management plans and procedures with corrective actions to mitigate identified negative E&S impacts and reduce E&S risk levels.</p> <p>Financial Institutions can request solar off-grid sector clients to develop a systematic work plan or action plan to improve identified areas of poor or inadequate E&S performance. Also, to communicate the ESAP if necessary with affected communities. The plan should be credible, time-bound and documented.</p>

	ESAP is reviewed and approved by the client.
E&S Covenants in loan or grant agreements	Financial Institutions shall, where appropriate, include conditions and covenants in the transaction documentation to ensure identified E&S risks are adequately managed and that instances of non-compliance are addressed with the client or treated as events of default. Environmental and Social Action Plan (ESAP), where one is required, shall be included in the legal covenants for solar companies
Monitoring and Reporting	Financial Institutions shall monitor the performance of the clients on the ESAP agreed, and any other situation related to E&S risks and impacts of the activity. Financial Institutions will report on the outcomes of the E&S due diligence for solar businesses to [ECREE/ BOAD] (see annex 6)

3.5. Monitoring E&S risks

Where a solar off-grid sector transaction involving E&S risk issues has been approved, Financial Institution should monitor the client’s implementation of any agreed E&S action plans, E&S risk management plans, or other requirements, that have been included in the transaction documentation to ensure effective E&S risk mitigation. **Annex 5** provides the E&S monitoring form. The monitoring will provide updates or any changes in exposure for E&S risks and ensure that these risks are properly managed. Non-compliance management situations are presented below.

Table 4. Management of non-compliance situations

<p>Non-compliance situations:</p> <ul style="list-style-type: none"> - Unexpected E&S risk activities happening - Cases of accidents/fatalities in client’s operations - Client is not complying with the E&S terms agreed at approval
<p>Management actions depend on the severity of the situation:</p> <ul style="list-style-type: none"> - Request immediate action, including prepayment of the loan - If loan has several tranches, withhold next tranche until issue is resolved. If repeat business, factor it into next loan decision - Agree on a timeframe to resolve it

3.6. Grievance mechanisms

Financial institutions should also implement at their level a system/communication channel to receive inquiries from the public and provide responses. This system does not need to be specific to solar off-grid operations. These mechanisms allow early warning on potential reputational risks to the institutions.

3.7. Reporting

Financial institutions shall report at least annually about their E&S risk management processes and experience, including information of solar off-grid sector clients and transactions. The reporting should at a minimum include, but is not limited to, the following:

- Number of solar off-grid sector transactions screened
- Number of solar off-grid sector transactions approved
- Portfolio breakdown by sector activity and E&S risk category
- Compliance of solar businesses with key requirements:
 - o Policy/ procedure and records on occupational health and safety
 - o Human Resource policy (including code of conduct for workers and grievance mechanism for workers)
 - o Waste management policy or procedures
 - o Stakeholder engagement plan and grievance mechanism
 - o Solar businesses shall also be encouraged to put in place a formal environmental and social policy
- Cases of non-compliances and E&S incidents related to a transaction
- Progress in ESMS implementation

Reporting will contribute to maintain a good relationship with BOAD's stakeholders and comply with contractual arrangements. **Annex 6** provides the E&S reporting form for financial institutions.

3.8. E&S Capacity

Senior management commitment is necessary. Moreover, to document and implement the ESMS, financial institution should seek to build its capacity across relevant business functions with regard to E&S risk management, including provision of training, as well as recruiting and training specialized staff.

4. ESMS for Solar Businesses: Components, responsibilities and requirements

ESMS can also add value to solar off-grid businesses by helping to identify and mitigate E&S risks that could affect the viability or profitability of their businesses.

Table 5. ESMS components, responsibilities and requirements for solar companies⁴

Component	Responsibilities	Requirements
E&S Policy	Summarize the commitment of the company to manage E&S risks and impacts	Policy statement that according to the activity focus particularly on waste management (with an emphasis on e-waste) and OHS and labor risks ⁵
Identification of E&S risks and impacts	Identification of the potential E&S risks and impacts	Risk identification and assessment process in place
Management program	Action plan to avoid, minimize or compensate for the E&S risks and impacts identified	Documented action plan that must necessarily include according to the activity: <ol style="list-style-type: none"> 1. Policy/ procedure and records on occupational health and safety - guidelines on OHS requirements are found in Annex 7 2. Human Resource policy (including code of conduct for workers and grievance mechanism for workers) – guidelines on HR policy requirements are found in Annex 8 3. Waste management policy or procedures - guidelines on waste management requirements are found in Annex 9 4. Stakeholder engagement plan and grievance mechanism (Annex 10)
Organizational capacity and competency	Definition of the roles and responsibilities to implement the ESRMS	Internal procedures documents on the ESMS implementation, including internal training if necessary. In Annex 7 , indicative occupational health and safety guidelines for solar companies can be found
Emergency preparedness and response	To respond effectively to emergency situations	Internal training on first AID to mitigate occupational accidents

⁴ IFC (2015) – Environmental and Social Management System Implementation Handbook. This source provides information and toolkits for businesses to develop and implement ESMS.

⁵ Labor and HR policy requirements for solar companies are to implement an HR Policy that takes into consideration the relevant labor laws of the country in which the private business operates. In situations where there are no labor laws, international best practices should be adopted and this should be documented and explained to the workers.

Stakeholder engagement and grievance mechanisms	<p>Identification of key stakeholders at the strategic business and operating level</p> <p>To establish a way for individuals, groups or communities to contact if they have inquiries, concerns or complaints</p>	<p>Stakeholder engagement plan that address the e-waste management and gender issues and vulnerable groups risks</p> <p>Establishment of a stakeholder engagement plan and grievance mechanism</p>
Monitoring and review	To monitor compliance with the contractual obligations made with the Financial Institutions	Monitoring plan

5. Reporting system

Reporting is a very important element in the ESMS. Reporting will start from the solar businesses and then to the Financial Institutions, [ECREEE/ BOAD] and finally to the World Bank. Each institution will adapt the reporting form presented in **Annex 6**.

Financial Institutions should put in place a system for dealing with external communication on E&S matters, for example a point of contact for dealing with public enquiries and concerns.

Different types of E&S information may need to be disclosed to different stakeholders.

- Public reporting – [ECREEE/BOAD] encourages financial institutions to publicly disclose information on how the FIs address E&S issues in their operations and business activities. This may, for example, be in the form of a section in the Company’s Annual Report, a dedicated sustainability report, website or other public document, summarizing the Company’s commitment to, and implementation of, their E&S procedures in lending and investment activities.
- The FI is required to submit to [ECREEE/BOAD] periodic (typically annual) reports on the implementation of the procedures and the environmental and social performance of its investment/lending portfolio.

6. Capacity building

Financial Institutions and private solar businesses with gaps in their ESRM Plan will be provided Technical Assistance at a cost. These gaps will be based on the assessment conducted by BOAD on the CFIs. Whilst the CFIs assessments on the private businesses will determine the level of capacity building required to close the gap.

Annexes

Annex 1. E&S risks and mitigation measures in standalone solar off-grid sector

Key E&S risks in the standalone off-grid solar sector are presented in Figure 1-1 below.

Figure 1-1. Key Environmental and Social Risks in Standalone Off-grid Solar Sector

Waste management: Used panels, used batteries and units (both lead acid and lithium ion) >> hazardous waste	Solar Companies
Worker health and safety: Injuries, protective equipment	
Labor issues: No child or forced labor, proper grievance redress, fair terms of employment	
Gender and vulnerable groups risks: Gender-based violence, underserved female-headed households, exclusion of poorest groups and people with disabilities	
Supply chain: Awareness of E&S sustainability in the supply chains	
Consumer / user health and safety: Ensure safe installation	End Users
Water consumption: Sustainable use of water resources	
Land issues: Small-scale land management and use for installation of panels	

Based on the nature of business activities in this sector, key environment and social risks (Table 1-1) include waste management (disposal and recycling of solar panels, used SHS units, and especially lead acid and lithium ion batteries, which are considered hazardous waste), pressure on the water resource, safety of OHS practices for solar companies' workers, and labor issues (no child or forced labor, proper grievance redress, fair terms of employment).

The workers involved in installation, may have to climb the roof of consumers house, public building, or an industrial shop which could be about 10 feet to 20 feet high, using ladders or other climbing gears. No hazardous materials are involved in solar panel installation.

Land-related issues are not expected to be significant, apart from potential voluntary land donation that will require a proper protocol, as well as small-scale land management and use for installation of panels (if installed on the ground). As the PV systems will be installed mostly on public and private sector

buildings, written consent from the building users/owners will be taken and documented. Similar procedures would be adopted for ground mounted systems.

Additionally, some gender-related risks might involve gender-based violence, risk of underserving/excluding female-headed households, and the need to close gender gaps in income generating opportunities, access to credit, and in health services and outcomes in project countries.

Table 1-1. Summary of Potential E&S Risks and Impacts and possible mitigation measures

Type of risk	Description	Mitigation measures
Waste management (Electronic waste, chemical pollution)	<p>Used panels, used batteries and units (both lead acid and lithium ion) are hazardous waste⁶</p> <p>Improper recycling of lead acid batteries causes wide-scale lead pollution/poisoning, including air, soil, and water contamination; lead entry into the food chain resulting in diseases and fatalities</p> <p>Management of used batteries will be a significant risk</p> <p>Additional waste issues are related to plastic material, polystyrene residues, aluminum, copper, steel</p>	<ul style="list-style-type: none"> • Encourage incorporating the cost of the responsible management of waste into the business budgeting and financial prospections. Responsibly choose a waste management partner • Encourage common (regional or country) frameworks for recycling of batteries and need to be promoted • Engagement with industry, regulators, and NGOs to explore practical regional and country waste management solutions • Proper management waste systems and channel • Establishment of a reparation network and replacement parts channel • Communication and educational campaigns for end users and communities • Internal training on waste management processes • Promote reuse, recycling or energy recovery plastic treatment • Reuse, recycling or energy recovery in an equipped unit for polystyrene treatment • Promote recycling

⁶ When recycled:

- Used lead-acid batteries are broken open, acids are drained into the soil and the lead plates are removed
- Some of the lead are recycled (melted into other forms) while others are shipped abroad
- Most lead-acid recycling plants operate under conditions which are hazardous to human health and the environment

If disposed of in landfills or other places:

- Wide-scale lead pollution/poisoning
- Soil and fresh water contamination
- Lead entry into the food chain resulting in diseases and fatalities

		<ul style="list-style-type: none"> • Implementation of voluntary management systems such as ISO 14001⁷
Worker/ occupational health and safety	<p>Slips and trips, falls</p> <p>Manual handling issues</p> <p>Hazards of musculoskeletal disorders Injuries, lack of protective equipment etc.</p>	<ul style="list-style-type: none"> • Solar equipment needs to be installed safely • Workers shall wear protective gear and be trained in safe practices • Assessment of workplace hazards. Consult and involve workers in the workplace risk assessment as well as in the choice of prevention measures • Internal training on type of risks and suppression measures (safe working procedures) • Supply appropriate Personal Protective Equipment (PPE) and train on its use and ensure that is properly maintained • Maintain a fully stocked and accessible first aid kit
Labor issues	<p>Child or forced labor</p> <p>Improper grievance redress for workers</p> <p>Unfair terms of employment</p>	<ul style="list-style-type: none"> • No child or forced labor can be employed by companies • Develop and implement a proper grievance redress mechanism • Solar companies to have HR policies that articulate clear and fair terms of employment and provide for no discrimination and equal opportunity • Proper training and record on the system or working procedure • Fair employment practices can lead to better business and better workers • Employing women
Land and related issues (installation)	<p>If the installations need some on-the-ground space (as opposed to rooftops), ensure the areas are suitable for installation</p> <p>Key risks may be related to voluntary land donation in case of public / community buildings</p>	<ul style="list-style-type: none"> • Photovoltaic installations on the ground must take into account the protection of existing agricultural and forestry areas • Prioritize “degraded sites” (brownfield sites) Avoid areas subject to natural hazards

⁷ ISO 14000 is a family of standards related to environmental management to help companies, organisations, etc. to minimise how their operations negatively affect the environment. ISO 14001 defines criteria for an Environmental Management System. The company, organisation, etc. sets its own targets and performance measures, and the procedures to meet the goals and monitoring and evaluating the situation.

Consumer / user health hand safety	Safe installation and use of panels and batteries	<ul style="list-style-type: none"> • Ensure safe installation • Promote consumer education about proper and safe practices for use of equipment • Proper isolation of equipment • Proper signalization of the solar power system • E-waste generation and management raising awareness
Water consumption and resource efficiency	Solar irrigation: Water scarcity; social conflicts between community users	<ul style="list-style-type: none"> • Measures for resource efficiency • Communication campaigns and raising awareness on sustainable water management (especially for productive end users)
Gender-related risks	<p>Women are disproportionately affected by lack of reliable access to energy</p> <p>Gender-based violence</p> <p>Underserved female-headed households</p> <p>Social tension and decrease social cohesion</p>	<ul style="list-style-type: none"> • Women employment with solar businesses is part of fair labor practices • Gender-sensitive stakeholder engagement • Promote active participation of women entrepreneurs, women's organizations, civil society and non-governmental organizations working on gender and energy issues • Increase information and awareness of women's that will allow them to enter into renewable energy market • Ensure that women entrepreneurs in the energy sector will have equal access to finance • Capacity building and internal training on code of conduct; SEA to be reported and dealt with as per the law • Taking action for women to be seen and engaged as valuable partners along the entire value chain: design, marketing, sales, and after-sale services • Promote education approaches to reinforce social inclusion • Stakeholder engagement measures to identify and take into consideration possible social tensions and conflicts within communities
Supply chain	Awareness raising on E&S risks (e.g. child labor) in supply chains of solar equipment	<ul style="list-style-type: none"> • Awareness of CFIs, solar companies of supply chain E&S risks

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More information about the Environmental and Social risks and impacts associated to the solar off-grid businesses is presented below:

Environmental

Two main risks are identified: Electronic waste (e-waste) production and chemical pollution, and overexploitation of water resources. The sector should be proactive to identify non-expected risks and impacts that could appear due to the increase in the prosperity of communities⁸.

A. Electronic waste (e-waste) – chemical pollution

Main risks and impacts occur at the end of the life cycle of the PV products and materials⁹. These are in relation with the production of e-waste which contains hazardous materials. The e-waste generated by solar businesses is not a significant portion of the e-waste problem, but it is a significant issue¹⁰.

Some of the sources of pollution are used panels, used batteries (both lead acid and lithium ion), the plastic materials used in equipment, some residues from polystyrene, steel, and metal elements such as aluminum, copper or cadmium. The potential risks and impacts are on the soil and fresh water contamination, visual impact, local area degradation, health risk for workers of informal recycling sector and communities' population. Also the impact on air quality in areas close to informal recycling activities, and the brand risk exposure of solar products¹¹. The origin and causes can be classified as Political – lack of legislation on e-waste traceability and treatment, and economic viability of proper recycling activities is not clear without regulations. Other causes are sectorial such as:

- E-waste stream¹²
- Uncontrolled e-waste dumps and informal recycling
- Lack of expertise regarding proper e-waste management and limited existence of e-waste treatment companies
- Poor economic value in the products to insure proper waste management activities

⁸ Another issue to be taken into account is the population growth of the benefited communities. If in an area only one or a few communities receive electric power supply plus potentially potable water, it is probable that migration to those benefited communities will take place leading to a significant increase in the use of the provided services.

⁹ Hespul (2009); Systèmes photovoltaïques: fabrication et impact environnemental. The ESPACE project produced more results on life analysis cycle of PV systems (<http://espace-pv.org>)

¹⁰ Power PVTech – Life cycle management and recycling of PV systems

¹¹ If the off-grid solar sector does not responsibly choose its waste management partners, it is risking breaking its trust with customers. If a customer goes and buys a solar lantern from a third party that was sourced from an improper e-waste recycler, he/she will not differentiate that from buying it directly from the company itself. And often if these products which were meant for recycling get resold, they do not have the quality standards that are being marketed. This would lead to a loss of trust with customers which can quickly spread to genuine customers.

¹² It refers to the increase in the number of electronic products (radio, fans, refrigerators, etc.) used in non-connected areas as a consequence of increasing the access to electricity.

- E-waste management not considered in the business models of solar companies¹³
- Logistics issues. Lack of local market for many of the fractions resulting from proper treatment of solar off-grid products.

B. Over-exploitation of water resources

Due to a possible increase in the utilization of solar irrigation systems and other solar systems for productive uses with water resources consumption. In the case of irrigation, the common argument is that solar irrigation systems lead to free pumping and hence an overexploitation of groundwater reserves is very likely¹⁴.

Occupational Health and Safety (OHS)

Solar off-grid sector will promote the installation of different solar systems at different levels: domestic, public facilities and productive uses. Limited attention has been given to the associated OSH aspects so far¹⁵. Potential occupational injuries and accidents exist in all stages of the life cycle of the materials, from manufacturing, installation and maintenance to decommissioning and recycling, to many different worker’s groups in various types of workplaces and sectors.

Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers. Preventive and protective measures should be introduced according to the following order of priority:

- *Minimizing the hazard:* through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
- *Providing appropriate personal protective equipment (PPE)* in conjunction with training, use, and maintenance of the PPE.

The application of prevention and control measures to occupational hazards should be based on comprehensive job safety or job hazard analyses. The results of these analyses should be prioritized as part of an action plan based on the likelihood and severity of the consequence of exposure to the identified hazards.

Table 1-2. Examples of OHS key areas for solar off grid businesses

OHS identified areas for solar off grid ¹⁶	Description
General Facility Design and Operation	Fire Precautions

¹³ The recycling component has not been taken into account at business level. The off-grid solar is fast -moving retail good business, has slim profit margins and complex logistics.

¹⁴ ENERGYPEDIA – Do Solar Powered irrigation Systems (SPIS) contribute to the overexploitation of ground water reserves?

¹⁵ European Agency for Safety and Health at work (E-Fact 68). OSH and small-scale solar energy applications.

¹⁶ Based on IFC, EHS Guidelines, General EHS Guidelines: Occupational Health and Safety

	<p>Provision of manual firefighting equipment that is easily accessible and simple to use</p> <p><i>First Aid</i></p> <p>The employer should ensure that qualified first-aid can be provided at all times. Appropriately equipped first-aid stations should be easily accessible throughout the place of work.</p> <p>Remote sites should have written emergency procedures in place for dealing with cases of trauma or serious illness up to the point at which patient care can be transferred to an appropriate medical facility.</p>
<p>Communication and Training</p>	<p><i>OHS Training</i></p> <p>A basic occupational training program and specialty courses should be provided, as needed, to ensure that workers are oriented to the specific hazards of individual work assignments. Training should generally be provided to management, supervisors, workers, and occasional visitors to areas of risks and hazards.</p> <p>Training should adequately cover:</p> <ul style="list-style-type: none"> - Knowledge of materials, equipment, and tools - Known hazards in the operations and how they are controlled - Potential risks to health - Precautions to prevent exposure - Hygiene requirements - Wearing and use of protective equipment and clothing - Appropriate response to operation extremes, incidents and accidents
<p>Physical Hazards</p>	<p><i>Welding</i></p> <p>Welding creates an extremely bright and intense light that may seriously injure a worker’s eyesight. Measures include provision of proper eye protection such as welder goggles and/or a full-face eye shield for all personnel involved in, or assisting, welding operations.</p> <p><i>Ergonomics, Repetitive Motion, Manual Handling</i></p> <p>Use of mechanical assists to eliminate or reduce exertions required to lift materials, hold tools and work objects, and requiring multi-person lifts if weights exceed thresholds.</p> <p><i>Working at heights</i></p>

	<p>Fall prevention and protection measures should be implemented whenever a worker is exposed to the hazard of falling more than two meters. Fall prevention may include:</p> <ul style="list-style-type: none"> - Proper use of ladders and scaffolds by trained employees - Use of fall prevention devices - Appropriate training in use, serviceability, and integrity of the necessary PPE - Inclusion of rescue and/or recovery plans, and equipment to respond to workers after an arrested fall
<p>Personal Protective Equipment (PPE)</p>	<p>Personal Protective Equipment (PPE) provides additional protection to workers exposed to workplace hazards in conjunction with other facility controls and safety systems.</p> <ul style="list-style-type: none"> - Identification and provision of appropriate PPE that offers adequate protection to the worker - Proper maintenance of PPE, including cleaning when dirty and replacement when damaged or worn out. Proper use of PPE should be part of the recurrent training programs for employees - Selection of PPE should be based on the hazard and risk ranking described earlier in this section, and selected according to criteria on performance and testing established
<p>Monitoring</p>	<p>Occupational health and safety monitoring programs should verify the effectiveness of prevention and control strategies. The selected indicators should be representative of the most significant occupational, health, and safety hazards, and the implementation of prevention and control strategies. The occupational health and safety monitoring program should include:</p> <ul style="list-style-type: none"> - Safety inspection, testing and calibration - Surveillance of the working environment - Surveillance of workers health - Training <p><i>Accidents and Diseases monitoring</i></p> <p>The employer should establish procedures and systems for reporting and recording:</p> <ul style="list-style-type: none"> - Occupational accidents and diseases - Dangerous occurrences and incidents <p>All reported occupational accidents, occupational diseases, dangerous occurrences, and incidents together with near misses should be investigated with the assistance of a person knowledgeable/competent in occupational safety. The investigation should:</p> <ul style="list-style-type: none"> - Establish what happened - Determine the cause of what happened - Identify measures necessary to prevent a recurrence

Labor and working conditions

These are in relation with non-fair working conditions.

Land-related risks

For standalone off-grid solar systems, installation takes place mostly on rooftops. In some cases, however, such systems may also be installed on the ground. Where the systems are installed for use by medium and small businesses, the most common practice of land acquisition (if required) would be purchase or lease on willing-buyer-willing-seller basis.

In cases where such systems are installed on the ground for the use by public institutions/ buildings, it is possible that land is acquired from individuals, families, or communities on involuntary basis. However, practice of involuntary resettlement in standalone off-grid solar systems sector can be generally assessed as small scale and limited. Nevertheless, compensation for land, assets, or loss of access to assets shall be completed in line with national regulations by public entities involved, and where applicable, requirements of investors and funders.¹⁷ Economic displacement is possible (e.g. cutting of economic trees) and due compensation shall be provided by public entities involved.

Voluntary land donation (VLD)¹⁸ practices are also possible in cases where such systems are installed on the ground for the use by public institutions/ buildings. VLD by communities or individuals should not be encouraged except (a) it meets the criteria set out in the VLD guidelines below and (b) the process is verified and approved by the financial institution providing funding for such projects prior to finalization of the donation and in any case before any installation of solar equipment can take place.

Key VLD principles to be abided by are as follows:

VLD should only be authorized if they can (a) clearly document Informed Consent; (b) clearly document Power of Choice; and (c) meet the VLD guidelines of the project. The guidelines have been put into place to ensure that donations are indeed voluntary, that the donor is the legitimate owner of such lands, and that the donor is fully informed of the purpose of the donation and of the implications of donating the property.¹⁹ If the land is donated on a conditional basis, the terms and conditions for the temporary use

¹⁷ E.g. World Bank

¹⁸ Voluntary land donation is strictly defined in international practice as the ceding of a property by an owner who is: a) fully informed; and b) can exercise free will, i.e., can refuse to sell or to donate. "Fully informed" means that the owner has complete information regarding the proposed activity and its impacts, its land requirements and its alternate activity sites, as well as his or her rights to compensation. The owner has also been provided with sufficient time to consider his or her disposition of the property, and the owner has knowingly rejected the right to renege on his or her initial decision. "Free will" means that the owner can reject the possibility of giving up his or her land.

¹⁹ Voluntary land donation is strictly defined in international practice as the ceding of a property by an owner who is: a) fully informed; and b) can exercise free will, i.e., can refuse to sell or to donate. "Fully informed" means that the owner has complete information regarding the proposed activity and its impacts, its land requirements and its alternate activity sites, as well as his or

of the property must be clearly documented. Each instance of VLD in a sub-project must be documented. This requires written notification indicating the location and amount of land that is donated and its intended use and a formal statement of donation, establishing informed consent and signed by each owner or user involved. Taxes to be paid by the land donor for registration of the land transfer, if applicable, should be covered in full by the project proponent.

Gender and vulnerable groups risks

Women are disproportionately affected by lack of reliable access to energy²⁰. They have lower prospects for income generating activities, and limited access to finance. Women employment with solar business is part of fair labor practices. Gender Based Violence (GBV) is also a risk. Primarily, these may relate to the interactions between solar equipment installation workers/ teams and communities and households where these small-scale works would take place.

Prosperity could lead to social inequalities and discrimination. Excluding poorest groups in communities may create tensions. Also, lack of income opportunities can decrease social cohesion.

End users' health and safety

Risks are in relation with the safety of the installations and electrical equipment. Effective protection measures of the solar off grid installations will assure the safety of the end users. These include:

- Protective measures against electric shocks
- Protection against overcurrent
- Decoupling protection

Simultaneous presence of a DC generator and distribution network in AC, or storage battery will require the establishment of cut-off provisions and protections incorporating reinforced insulation of DC, also taking into account reverse currents, emergency shutdowns on both sides of the inverter, the automatic decoupling of the grid network, etc.

her rights to compensation. The owner has also been provided with sufficient time to consider his or her disposition of the property, and the owner has knowingly rejected the right to renege on his or her initial decision. "Free will" means that the owner can reject the possibility of giving up his or her land.

²⁰ ECREEE (2018) - ROGEP ESRM Strategy document

Annex 2. Environmental and social screening questionnaire for solar businesses

Environmental and Social Questionnaire for Assessing E&S Systems and Capacity of Solar Businesses

Date

Section A. Company details		
Company name:		
Company type:		
Year of establishment		
Short description of the company core business:		
Company Address: <i>(Name of the company / Street, Avenue, etc. name and number / Village / City / State/ Country/ Postal Code)</i>		
Contact person for E&S issues: <i>(Name and title / Phone /E-mail)</i>		
Name and title of the person filling the questionnaire		
Website <i>(if any)</i> :		
Section B. Business activities (solar sector)		
Total number and value of business transactions over the last year in the solar photovoltaic systems sector):		
Type of solar photovoltaic systems	Number	Value <i>(specify currency)</i>
Solar Home Systems		
Stand-alone Solar Systems – Pico PV products		
Solar Irrigation Power Systems		
Other <i>(specify)</i>		

Section C. Environmental and Social Risk Management		
What kind of environmental and social risks does the company currently have to manage?		
	Yes	No
<p>Has the company been found to be involved in activities meeting the E&S exclusion criteria:</p> <ol style="list-style-type: none"> 1. Production or activities involving forced labor¹ 2. Production or activities involving child labor² 3. Cross-border trade in waste and waste products, unless compliant to the Basel Convention and the underlying regulations³ 4. Confirmed cases of occupational, health, and safety incidents or accidents⁴ 5. Confirmed cases of Gender Based Violence/Sexual Exploitation and Abuse 6. Confirmed cases of discrimination of vulnerable groups, including gender and disability <p>Footnotes</p> <p>1. Forced labor means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.</p> <p>2. Employees may only be taken if they are at least 15 years old, as defined in the ILO Minimum Age Convention (C138, Art. 2), and ratified by each country. Children under the age of 18 will not be employed in hazardous work. Children will not be employed in any manner that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development.</p> <p>3. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, usually known as the Basel Convention, is an international treaty that was designed to reduce the movements of hazardous waste between nations. Hazardous waste, as defined under the convention, will not be traded cross-border. Under Basel Convention, "hazardous wastes" are defined as (a) Wastes that belong to any category contained in Annex I, unless they do not possess any of the characteristics contained in Annex III; and (b) Wastes that are not covered under paragraph (a) but are defined as, or are considered to be, hazardous wastes by the domestic legislation of the Party of export, import or transit. National definition of hazardous wastes for Nigeria under Basel Convention can be found here: http://www.basel.int/Countries/NationalDefinitions/NationalDefinitionsofHazardousWastes/tabid/1480/Default.aspx</p> <p>4. If the financial institution has a cause to believe that these issues have been duly dealt with according to their satisfaction then the business can be considered for financing</p>		
Labour-related risks (terms of employment, labor practices)?	<input type="checkbox"/>	<input type="checkbox"/>
Occupational health and safety of workers?	<input type="checkbox"/>	<input type="checkbox"/>
Waste management risks (e-waste, used batteries, other waste)?	<input type="checkbox"/>	<input type="checkbox"/>
Gender and vulnerable groups issues?	<input type="checkbox"/>	<input type="checkbox"/>
Land-related issues (customers need to purchase land, need land donation from communities, resettlement of households for installations on the ground for public buildings etc.?)	<input type="checkbox"/>	<input type="checkbox"/>
Interactions with communities where the company works?	<input type="checkbox"/>	<input type="checkbox"/>
Water/ resource efficiency issues?	<input type="checkbox"/>	<input type="checkbox"/>
End users' health and safety?	<input type="checkbox"/>	<input type="checkbox"/>

Environmental or social issues in supply chains (e.g. reputational risks due to well-known poor labor conditions of panel or other equipment manufacturers?)	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe)?	<input type="checkbox"/>	<input type="checkbox"/>
Environmental and / or Social Policy		
Does the company have an Environmental and / or Social Policy? <i>(If yes, please attach any documents that can serve as evidence of such policy)</i>	<input type="checkbox"/>	<input type="checkbox"/>
Does the company conduct any environmental, social, gender awareness training internally for its staff?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company conduct any E&S monitoring visits with its business customers?	<input type="checkbox"/>	<input type="checkbox"/>
Human Resources Policy		
Does the company have a Human Resources Policy? <i>If yes, please provide a brief description of key provisions of the HR policy and attach any documents that describe HR policy</i>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Does the company's Human Resources Policy explicitly provide for the following:</i>		
Compliance with country's labor laws and regulations	<input type="checkbox"/>	<input type="checkbox"/>
Clear terms and conditions of employment and worker's rights related to hours of work, wages, overtime, compensation, benefits, etc.	<input type="checkbox"/>	<input type="checkbox"/>
Non-discrimination and equal employment opportunities for women and vulnerable groups?	<input type="checkbox"/>	<input type="checkbox"/>
Prohibition of child labor	<input type="checkbox"/>	<input type="checkbox"/>
Prohibition of forced labor	<input type="checkbox"/>	<input type="checkbox"/>
Is there a workers' grievance mechanism in place	<input type="checkbox"/>	<input type="checkbox"/>
Occupational Health and Safety (OHS)		
Does the company have a policy or guidelines on occupational health and safety? <i>If yes, please provide a brief description of key provisions of such policy/ guidelines and attach any documents that describe this</i>	<input type="checkbox"/>	<input type="checkbox"/>

Does the company have qualified internal designated coordinators, officers, or other staff responsible to oversee OHS issues?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company provide Personal Protective Equipment (PPE) to its workers?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company conduct regular OHS training for its workers and employees?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company have a clear, documented workplace incident and accident tracking system?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company have a Code of Conduct for workers? <i>If yes, attach copy</i>	<input type="checkbox"/>	<input type="checkbox"/>
Does the company provide internal training on Gender Based Violence?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company have a monitoring system for workplace conditions and safety (e.g. regular internal audits, field visits by company OHS staff/ coordinators etc.?)		
E-waste and other environmental issues		
Does the company have any policy or process for collecting used batteries (both lead acid and lithium ion), as well as used units and equipment from customers <i>If yes, please describe the approach and process currently on place. What challenges does the company encounter with disposal and recycling of these products? Is the company contributing to proper reparation channels?</i>	<input type="checkbox"/>	<input type="checkbox"/>
Does the company have any policy or process for collecting, sorting, recycling and disposal of used lead acid and lithium ion batteries (or, units containing such batteries) or any other used material resulting from solar systems installation process and subsequent use?	<input type="checkbox"/>	<input type="checkbox"/>

<i>If yes, please describe the approach and process currently on place</i>		
Does the company have any buy-back agreements with equipment manufacturers as part of its waste management approach?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company systematically collect use batteries and/ or units from its consumers?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company inform end users on the e-waste issue and provide them with information on proper e-waste management	<input type="checkbox"/>	<input type="checkbox"/>
Does the company inform end users on other environmental issues? i.e. overexploitation of water resources*? <i>*Only in consideration in case of solar water pumping installation activities</i>	<input type="checkbox"/>	<input type="checkbox"/>
Stakeholder engagement and grievance mechanisms		
Does the company have a plan for engaging with stakeholders, communities, customers (including a mechanism to receive and address complaints)? <i>If yes, please provide a brief description of key provisions of such policy/ guidelines and attach any documents that describe this</i>	<input type="checkbox"/>	<input type="checkbox"/>
Does the company engage in consumer and public education about environmental and social aspects of solar energy?	<input type="checkbox"/>	<input type="checkbox"/>
Did the company identify key external stakeholders for its business?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company hold events or similar actions to engage with stakeholders relevant to its business?	<input type="checkbox"/>	<input type="checkbox"/>

Is there a written mechanism to receive and address complaints? <i>If yes, please attach a copy of the procedure, website link etc.</i>	<input type="checkbox"/>	<input type="checkbox"/>
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Any other relevant information

Section E. Environmental and Social Screening Outcome

Select from the following:

<input type="checkbox"/> NOT ELIGIBLE FOR FUNDING	Please specify the reasons for no funding (such as activities meeting exclusion criteria identified, minimum E&S risk mitigation policies, procedures, and tools):
<input type="checkbox"/> Category B1 ²¹ (Low risk)	Justification for category B1
<input type="checkbox"/> Category B2 ²²	Justification for category B2

²¹ Businesses with minimal or no adverse E&S impact requiring only simple ESMS with core components to address key risks and mitigation measures such as OHS procedures, HR manual, grievance redress mechanism, and a waste management policy
²² Businesses that require – in addition to the above – an ESAP and/or E&S covenants in legal/ loan agreements, as well as close monitoring, due to the severity of their potential adverse E&S impacts as a result of the size and/or characteristics of the solar

(Medium risk)	
For category B2: Environmental and Social Action Plan (ESAP)	<p>Please provide itemized action plan with specific actions, indicators of completion, timeline for completion, and verification methods (to be included in the loan/ grant agreement):</p> <ol style="list-style-type: none"> 1. 2. 3. 4. 5.

Date _____

Signature _____ (Credit/ loan / client/ relationship officer)

Verified by _____ (E&S coordinator)

business, and/or identified situations, such as occupational accidents or labor and GBV incidents, irregularities with regard to fair working conditions and terms of employment, or installers without applying safe installation measures

Annex 3. Environmental and social categorization memorandum

Environmental and Social Categorization Memorandum

Client:	
Country:	
Business activity:	
Project Task Manager/Alternate Task Manager:	
ESRM and Compliance Div. Staff Responsible for Category Validation:	
Date of categorization:	
1. Category validated	Not eligible for funding <input type="checkbox"/> B1 <input type="checkbox"/> B2 <input type="checkbox"/>
2. Environmental and social issues identified during review:	
3. Policies, Standards or legal requirements triggered:	
4. Type and scope of Due Diligence conducted	
5. Date of category validation or revision:	
6. Reason for category revision (if applicable):	

Annex 4. Environmental and social action plan template

The template below can be used to produce the Environmental and Social Action Plan (ESAP):

No.	Action required	Deliverable	Completion Indicator	Deadline
Environmental and Social Assessment and Management System				
Labor and Working Conditions				
Occupational Health and Safety				
E-waste management				
End users' health and safety				
Stakeholder engagement and grievance mechanisms				
Land-related issues (solar business to verify that end users have adequate mitigation measures in place)				
Other issues				

Date _____

Signature _____ (Credit/ loan / client/ relationship officer)

Signature _____ (Solar business representative, name, title)

Annex 5. Environmental and social risk monitoring form

ENVIRONMENTAL AND SOCIAL RISK MONITORING FORM FOR SOLAR COMPANIES

Please provide responses to the questions below. Please include additional sheets or attachments as required to provide details on questions that have been answered Yes.

Name of the company			
Completed by (name):			
Position in the company:		Date:	
Reporting period	From:		To:

Environmental & Social Management System (ESMS)

General	Yes/No	
Has the company developed and implemented an ESMS?		<i>If yes, please attach a copy of the ESMS to this report.</i>
Please provide the name and contact information of the main responsible who has the overall responsibility for the implementation of the company ESMS		
Please provide current staffing of other core ESMS persons in the organization involved with ESMS implementation		
Policies & Processes	Yes/No	
Has the company recently updated: <ul style="list-style-type: none"> - E&S policy - HR policy - OHS procedures - Stakeholder engagement plan - Grievance mechanism 		
Has management signed off on the required policies/procedures (E&S policy, HR policy, OHS procedures)?		<i>If yes, please provide the date and internal communication indicating the same.</i>

Is the Environmental and Social Action Plan (ESAP) being carried out?		<i>If yes, please provide information on the evaluation against the performance and processes indicators, including deadlines.</i>
Please state any difficulties and/or constraints related to the implementation of the ESAP		
If there is an ESMS already in place, have there been any updates to the ESMS or policy and procedures adopted by your company during the reporting period?		<i>If yes, please provide a copy of the updates including dates and reasons for the same.</i>
Please state any difficulties and/or constraints related to the implementation of the Environmental and Social procedures.		
Capacity	<i>Yes/No</i>	
Are the roles and responsibilities of the staff well defined and understood as per the implementation of the ESAP and/or ESMS?		<i>Please provide details about the definition of the roles and responsibilities. Please describe the training (if any) provided to the ESMS persons and other team members during year.</i>
Monitoring	<i>Yes/No</i>	
Do you have an internal monitoring and review plan?		<i>If yes, please describe the plan and its processes, also considering it against the performance and processes indicators</i>
Have you implemented an external communication and grievance mechanism?		<i>If yes, please describe the grievance mechanism</i>
Reporting	<i>Yes/No</i>	
Is there an internal process to report internally on Environmental and Social issues?		<i>If yes, please explain the process, reporting format and frequency and actions taken if any.</i>

Annex 6. Environmental and social reporting form for financial institutions (off-grid solar investments)

Annual Environmental & Social Report for Financial Institutions for Off-grid Solar Investments

This form serves as a supplement to the main Annual Environmental & Social Report for Financial Institutions as required by [ECREEE/ BOAD]. Where [ECREEE/ BOAD] is providing funding to a financial institution only in the form of the sector-specific credit line for off-grid solar, this annual reporting form is the only one required.

Background on the Financial Institution	
Name of Financial Institution:	
Address:	
Country:	
Authorized representative (e.g. Head of Credit Risk): I certify that the data contained in this report completely and accurately represents operations during this reporting period.	
Signature:	
Title:	Date:
Contact Details	
Telephone / Mobile:	
E-mail:	
Date of Report:	Reporting Period:
Is your institution involved in the due diligence of solar businesses at any stage?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <ul style="list-style-type: none"> • If Yes does the local branch receive results of due diligence? • If Yes who undertakes monitoring of clients/borrowers in such cases?
If possible please provide contact details of the person responsible for environmental and social due diligence at Group/Parent company Headquarters.	Name: Title: Phone/Mobile: E-mail:

Section 1: Compliance with E&S requirements for financial institutions

1.1 What is the name of the employee with primary overall responsibility for environmental and social matters within the Institution?

Name:

Title:

Phone/mobile:

E-mail:

Did the Institution nominate this position of responsibility as a result of [ECREEE/ BOAD] Requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
--	---

1.2 Breakdown of standalone off-grid solar sector portfolio by type of transaction and environmental and social risk categorization

1.2.1 Does the Institution finance any B2 clients according to the risk categorization in the off-grid solar guideline?	<input type="checkbox"/> Yes <input type="checkbox"/> No
--	---

1.2.2 Does the Institution prepare E&S screening questionnaire and E&S risk categorization memorandum?	<input type="checkbox"/> Yes <input type="checkbox"/> No
---	---

1.2.3. Does the Institution reject transitions with solar businesses due to (i) identification of activities meeting exclusion criteria for off-grid solar businesses and / or (ii) failure to meet minimum ESMS criteria	<input type="checkbox"/>
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Attach a list of all off-grid solar clients financed through support from [ECREEE/ BOAD] by loan size, transaction/loan type and E&S risk category (B1/ B2)

Attach a list of transitions rejected due to (i) identification of activities meeting exclusion criteria for off-grid solar businesses and / or (ii) failure to meet minimum ESMS criteria

1.3 Financial Institution’s Environmental and Social due diligence and Monitoring Procedures

1.3.1 If the Institution did have Environmental and Social Procedures prior to the Agreement, have you improved them as a result of [ECREEE/ BOAD] requirements?	<input type="checkbox"/> We have improved our Procedures <input type="checkbox"/> No changes made
---	--

1.3.2 Describe how environmental and social procedures have been integrated into the transaction approval process.	
---	--

<p>1.3.3 State any difficulties and/or constraints related to the implementation of the [ECREEEE/ BOAD] environmental and social requirements for standalone off-grid solar sector</p>	
<p>1.3.4 Confirm compliance with the [ECREEEE/ BOAD] exclusion criteria for standalone off-grid solar businesses?</p>	<p><input type="checkbox"/> We can confirm compliance with the [ECREEEE/ BOAD] exclusion criteria</p> <p><input type="checkbox"/> [No/ the following] transactions were rejected due to conflict with the exclusion criteria</p> <p><input type="checkbox"/> The following transactions have been financed following approval from [ECREEEE/ BOAD] :</p>
<p>Monitoring of clients/borrowers activities</p>	
<p>1.3.5 In the Legal Agreements with the Institution’s clients/borrowers, does the Institution specifically require the clients/borrowers to comply with local environmental and social regulations/standards?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
<p>1.3.6 Describe how the borrower’s environmental and social performance is monitored (e.g. site visit by bank staff; inspection by environmental/health authorities; copies of updated or renewed permits, reports from the borrower; other (please specify).</p>	
<p>1.3.7 Do the Institution’s clients receive visits by local environment and labour regulatory authorities to monitor their environmental and social performance?</p>	<p><input type="checkbox"/> Most receive visits at least once per year</p> <p><input type="checkbox"/> Most receive no visits</p> <p><input type="checkbox"/> Some receive visits, but not frequently</p>
<p>1.3.8 Give details of any bad loans due to environmental, health, safety, labour or other social grounds</p>	
<p>1.3.9 Give details of any transactions rejected on environmental, health, safety, labour or other social grounds</p>	
<p>1.3.10 Give details of any material environmental and social issues associated with borrowers during the reporting period: Any accidents/litigation/complaints²³</p>	<p><input type="checkbox"/> Yes/ No</p>
<p>1.4 Environmental Capacity and Support</p>	
<p>1.4.1Is the institution familiar with the Environmental and Social Risk Guidelines for Off Grid Solar Businesses (Guidelines) which is downloadable from ECREEEE/BOAD web-sites?</p>	<p><input type="checkbox"/> Yes, all operating staff are familiar with the ROGEP Off Grid Solar Business Guidelines and have access to it when carrying out their work</p> <p><input type="checkbox"/> The staff to whom environmental and social risk management has been delegated are familiar with the guidelines</p> <p><input type="checkbox"/> Not familiar</p>
<p>1.4.2 If the Institution has received the guidelines, or downloaded it from ECREEEE/BOAD web-sites, has the Institution incorporated the environmental and social components into its appraisals of clients?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>

²³ Any incidents of non-compliance with applicable environment, social and health and safety regulations and standards, such as fines, penalties or excess fees for non-compliance; Any incidents of non-compliance by borrowers with environmental and social covenants/conditionality imposed by the Bank

<p>1.4.3 Which aspects of the guidelines are most useful to your institution?</p> <p>Are there any areas in the guidelines which could be improved upon to assist your institution?</p> <p>Have there been any problems with the information provided in the guidelines or any technical difficulties in using the guidelines?</p>	<p><input type="checkbox"/> Yes /No - If yes please describe?</p> <p><input type="checkbox"/> Yes /No</p>
<p>1.4.4 Did investment / operating staff receive environmental and social training during the reporting period with regard to E&S risk management in off-grid solar sector?</p>	<p><input type="checkbox"/> Yes, all operating staff in all branches received environmental training</p> <p><input type="checkbox"/> Only a few staff, including the person with overall responsibility for environmental and social risk management.</p> <p><input type="checkbox"/> No training was provided</p>
<p>1.4.5 Who provided the environmental training?</p>	<p><input type="checkbox"/> ECREEE/BOAD</p> <p><input type="checkbox"/> Another Donor organisation or training organisation? Please provide name of organisation.</p> <p><input type="checkbox"/> In-house training provided by the Institution</p> <p><input type="checkbox"/> When was the last training provided? insert dates(s)</p>
<p>1.4.6 Does the FI require environmental and social due diligence training from ECREEE/BOAD with regard to E&S risk management in off-grid solar sector ?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
<p>1.5 Stakeholder Engagement</p>	
<p>1.5.1 Is there a point of contact for dealing with public enquiries and concerns related to environmental and social matters?</p>	<p>Name:</p> <p>Title:</p> <p>Phone/mobile:</p> <p>E-mail:</p>
<p>1.5.2 How many complaints or grievances did the Institution receive from members of the public or civil society organisations during the reporting period specifically with regard to E&S risk management in off-grid solar sector? Summarise any issues raised in the complaints or grievances and explain how they were resolved:</p>	
<p>1.6 Best Practice</p>	
<p>1.6.1 Has the FI signed any national or international agreements or declarations concerning environmental and social issues? (e.g. United Nations Statement by Banks on Environment and Sustainable Development or The Equator Principles)</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
<p>1.6.2 Does the FI have any environmental polices or procedures for good environmental management in its own offices/buildings?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> If yes, please describe</p>
<p>1.6.3. Does the FI apply its environmental and social policies/procedures to business lines other than off-grid solar?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> If Yes, please describe</p>
<p>Section 2: Compliance of the Financial Institution with Labour and Working Conditions Requirements</p>	

2.1 What is the name of the employee with primary overall responsibility for Human Resource Management in the Institution?

Name:

Title:

Phone/Mobile:

E-mail:

2.2 Human Resources Management

<p>2.2.1 Have there been any changes to the following policies or terms and conditions during the reporting period:</p> <ul style="list-style-type: none"> • Non-discrimination and equal opportunity policy • Employment of young persons under age 18 • Wages (wage level, normal and overtime) • Overtime • Working hours • Grievance mechanism for workers • Union recognition or negotiation • Health & safety 	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>	<p>If yes, please give details:</p>
<p>2.2.2 Does the company have policies and/or procedures for any of the following:</p> <ul style="list-style-type: none"> • Gender equality • Equal pay for work of equal value • Anti-harassment/bullying • Promoting family friendly work and the work/life balance 	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p>If yes, please give details:</p>
<p>2.2.3 Were there any collective redundancies during the reporting period?</p>	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>	<p>If yes, please describe the redundancy plan, including reasons for redundancies, number of workers involved, how they were selected, and consultation undertaken:</p>
<p>2.2.4 Are there any planned redundancies or additions to the workforce in the next year?</p>	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>	<p>If yes, please describe the redundancy plan, including reasons for redundancies, number of workers involved, and selection and consultation process:</p>
<p>2.2.5 Have employees raised any grievances with the institution during the reporting period?</p>	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>	<p>If yes, please state how many, summarise the issues raised in grievances (disaggregated by gender) and explain how the Institution has addressed them:</p>
<p>2.2.6 Have there been any strikes or other collective disputes related to labour and working conditions at the Institution in the reporting period?</p>	<p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>	<p>If yes, please summarise nature of disputes and how they were resolved</p>

2.2.7 Have there been any court cases related to labour issues during the reporting period?	Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, please summarise the issues contested and outcome.

Annex 7. Sample occupational health and safety guidelines for solar companies

Occupational Health and Safety guidelines for solar companies

You should adapt the checklist to your particular sector or workplace and to the characteristics of the workforce as specific workers' groups may have specific needs. Some extra items may need to be covered, or some points omitted as irrelevant.

For practical and analytical reasons, a checklist presents problems/hazards separately, but in workplaces they may be intertwined. Therefore, you have to take into account the interactions between the different problems or risk factors identified.

Solar company will provide a safe and healthy work environment, taking into account inherent risks in its particular sector and specific classes of hazards in the work areas, and specific threats to women. It will take steps to prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, as far as reasonably practicable, the causes of hazards. OHS Guideline will also include steps, as relevant, for SEA/SH and HIV/AIDS prevention.

Issues to be addressed:

- Are managers and workers aware of the potential risks related to solar power installations and committed to their prevention?
- Has the organization adopted a practical participative approach (worker involvement) to problem-solving?
- Have appropriately trained staff undertaken comprehensive risk assessments?
- Are all reported cases of accidents and incidents being managed?
- How is the effectiveness of the measures taken to prevent risks caused by solar power installations across their life cycle being evaluated and monitored?

Checklist for the prevention of Occupational Health and Safety Risks

For example:

- Does the hazard exist at the workplace?
- Are the hazards eliminated, and where not possible controlled to minimise negative influences on the safety and health of all people involved?

Answering 'NO' to one of the following questions indicates a need for improvements to be made in the workplace.

QUESTIONS		Yes	No
1. Installation, maintenance, decommissioning			
Work organization, psychosocial risks			
1.1	Is information on the solar system, the electrical installation and the building that is required to perform the work safely available to the workers?	<input type="checkbox"/>	<input type="checkbox"/>

1.2	Is training provided on safe working procedures?	<input type="checkbox"/>	<input type="checkbox"/>
1.3	Is there sufficient cooperation, communication and exchange of information among the different actors involved (for example building owner and the workers) in order to allow the safe performance of the work?	<input type="checkbox"/>	<input type="checkbox"/>
1.4	Are workers involved in the workplace risk assessment?	<input type="checkbox"/>	<input type="checkbox"/>
1.5.	Is appropriate PPE supplied according to the OHS risks identified and staff is trained in its use and maintenance?	<input type="checkbox"/>	<input type="checkbox"/>
Working at height, slips and trips, falls			
1.6	Can work at height in general, and in particular on slanting roofs be avoided?	<input type="checkbox"/>	<input type="checkbox"/>
1.7	When ladders are used to reach the place of work at height, has the appropriate ladder been chosen and is it used safely?	<input type="checkbox"/>	<input type="checkbox"/>
1.8	When roof work is necessary, has the condition of the roof been assessed to ensure that the roof is dry and free from slipping and tripping hazards such as moss, vent pipes, equipment lying around, etc.?	<input type="checkbox"/>	<input type="checkbox"/>
1.9	In the case of skylights or holes/cavities, are they safeguarded?	<input type="checkbox"/>	<input type="checkbox"/>
Electricity-related risks (PV), burns/scalds			
1.10	Are only qualified persons allowed to work on electrical equipment?	<input type="checkbox"/>	<input type="checkbox"/>
1.11	Are workers aware that low voltages can cause surprise shocks and thereby falls?	<input type="checkbox"/>	<input type="checkbox"/>
1.12	Are workers aware that small amounts of sunlight can produce a voltage potential in the PV system and shock or arc-flash hazards?	<input type="checkbox"/>	<input type="checkbox"/>
1.13	Are workers provided with suitable PPE when risk reduction measures at source are not sufficient?	<input type="checkbox"/>	<input type="checkbox"/>
1.14	Are workers accompanied always by at least one colleague when working on electrical systems, thereby eliminating lone working?	<input type="checkbox"/>	<input type="checkbox"/>
Hazards of musculoskeletal disorders			
1.15	Is work arranged so that manual handling operations, such as lifting and carrying are avoided and, where not possible, reduced to the minimum?	<input type="checkbox"/>	<input type="checkbox"/>

Annex 8. Requirements for HR policy for solar companies

HR Policy Requirements

Solar company will have in place an HR policy that expresses its commitments, at a minimum to:

- (1) comply with all relevant national labor laws and regulations;
- (2) promote the fair treatment, non-discrimination, and equal opportunity for workers;
- (3) establish, maintain, and improve the worker-management relationship;
- (4) allow workers' organizations and collective bargaining;
- (5) have in place a grievance mechanism for workers;
- (6) explicit commitment not to employ forced labor or child labor, including not hiring workers below minimum age, as defined by national law and not employ children in hazardous work.
- (7) include a code of conduct for workers that provides for rules of appropriate behavior, including prevention of sexual exploitation and abuse and sexual harassment and plan for training on and disseminating the code of conduct;
- (8) maximize women's employment by hiring women employees;

Solar company will adopt and implement human resources policies and procedures appropriate to its size and workforce that set out its approach to managing workers consistent with the requirements of national law. It will provide workers with documented information that is clear and understandable, regarding their rights under national labor and employment law and any applicable collective agreements, including their rights related to hours of work, wages, overtime, compensation, and benefits upon beginning the working relationship and when any material changes occur. It will provide and inform workers of an internal grievance process to raise their workplace concerns.

Code of Conduct for Workers on SEA/SH: Core Principles The following core principles should be at the center of the Code of Conduct adopted by the contractor, and apply to all its employees without exception:

- Solar companies are obliged to create and maintain an environment which prevents gender-based violence and promotes the implementation of the code of conduct. Managers at all levels have particular responsibilities to support and develop systems which maintain this environment.
- All codes of conduct to for the prevention and mitigation of GBV should contain clauses that state that:
 - i. Sexual Exploitation and Abuse and Sexual harassment constitutes an act of gross misconduct, providing grounds for sanctions, penalties and/or termination of employment – there will be zero tolerance for any gender-based violence case on the work site and in its surroundings.

- ii. Sexual interactions by employees at any level with individuals under the age of 18, , are prohibited. Mistaken belief regarding the age of the individual is not acceptable as a defense.
 - iii. .
 - iv. Exchange of money, employment, goods, or services for sex, including sexual favours or other forms of humiliating, degrading or exploitative behaviour, are prohibited.
 - v. Sexual interactions between contractors' employees at any level and members of the communities surrounding the work place that are not agreed to with full consent by all parties involved in the sexual act are prohibited. This includes relationships involving the withholding, promise or actual provision of a benefit (monetary and non-monetary) to community members in exchange for sex – such sexual activity is considered “non-consensual” within the scope of this Code.
- All managers and employees should receive a clear written statement of the company's requirements with regard to preventing gender based violence, and a mandatory training course should be provided for all employees before they commence work on site which ensures that they are familiar with these principles
 - The manager will ensure that the principles regarding gender based violence are displayed prominently at the work site in places where they will be seen by all employees.
 - The contractor also commits to raising awareness on the code of conduct and its associated grievance mechanisms within the project affected communities.
 - The code of conduct will outline procedures for community and staff members to lodge a complaint to the grievance and accountability mechanism to be established, should the code of conduct be violated.

Solar companies should also develop a Gender-Based Violence Action Plan, which shall include the following items:

- Operating Procedures related to the prevention and mitigation of Sexual exploitation and abuse and sexual harassment (SEA and SH). On the work site, as well as to the management of SEA/SH cases, including details of the internal reporting & sanctioning mechanisms that solar companies will put in place and reporting mechanisms for the community in which solar companies are working.
- An awareness-raising strategy should aim at sensitizing solar company employees on the provisions of the code. The strategy will also highlight how the affected communities will be made aware of the code of conduct and the grievance and complaint mechanism that they can use should the code be violated. The strategy shall be accompanied by a timeline, indicating the various sensitization activities through which the strategy will be implemented and also the related (expected) delivery dates.
- A monitoring strategy, aimed at measuring the knowledge and level of awareness possessed by solar company employees on the topics covered by the awareness-raising strategy, and indicating the instruments (e.g. perception surveys, random interviews with employees etc.) intended to be used for that purpose.

- Support measures to be made available for employees who are victims of GBV, including provisions for time off (to allow reporting at competent authorities, seeking of health/psychological assistance etc.), financial support (where and if applicable) etc.
- Support systems should be identified for referral of community members that experience violence at the hands of a solar company employee, if such a case should arise

Annex 9. Guidance on used battery collection and recycling

Introduction

Many countries and communities are already struggling with contaminated sites and soil pollution from unregulated car battery recovery and recycling. Unsound end-of-life management and recycling can cause severe and even fatal lead poisoning of people working in the battery recycling sector. Batteries used in solar systems can be of two main types – lead acid and lithium ion. Both present different challenges with disposal and recycling.

The health of people living around small and industrial-scale lead smelters, in particular children, are severely impacted for life. A recent report by the Lead Recycling Africa Project and Oeko-Institute revealed that already every year more than 1.2 million tons of used lead-acid batteries and 800,000 tons of lead require sound management in Africa.

Environmentally, when disposed alongside household trash, batteries end up in landfills/waste dumps. As the battery casing corrodes, chemicals leach into the ground water from where they contaminate the water bodies. Acid and lead particulates also contaminate the soil and become airborne when dry. Health-wise, cadmium and nickel are known human carcinogens, lead has been linked to birth defects and to neurological and developmental damage, and mercury is also highly toxic, especially in vapor form. Excessive levels of lead can affect a child's growth, cause brain damage, harm kidneys, impair hearing and induce behavioral problems, and in adults, lead can cause memory loss and lower the ability to concentrate as well as harm the reproductive system.

In terms of lithium ion batteries, the recycling value is generally considered to be low. Therefore, the emphasis would be on encouraging safe collection of used units and proper disposal. Recycling of lithium ion batteries is possible but, according to research and practice, makes little economic sense. Lithium ion batteries can be recycled, but only at specified locations. Projects are currently underway in Europe, the United States and Japan to develop effective and feasible recycling technologies with a complete life cycle analysis of recycling.

Guiding principles for recycling and disposal policy of a solar company

If solar company has an existing battery collection and/or recycling policy, this should be submitted with the loan application. It is preferred that batteries are recycled to potentially reuse some of its components, where economically and technically feasible. This would be equally applicable for expired batteries and the batteries that will be replaced within the warranty period due to manufacturing fault or reasons outlined in warranty conditions.

The company shall systematically collect used battery units and engage with communities on the importance of recycling, if such program is in place. The suggested options that can be considered are:

- A. **Collection of Batteries by solar companies:** Solar company representatives will make arrangement to collect the battery units from the consumer and store it in the local offices. Solar

company will take necessary measures to ensure safe storage of the batteries. It may be feasible for solar company to send the warranty expired batteries to a central location.

B. Potential battery disposal / recycling options can be as follows:

- **Buy-back arrangements with manufacturers:** Solar company can put in place buy-back arrangements with the battery manufacturers and ensure safe transportation of the batteries to the manufacturer. SHS company and manufacturers can mutually decide on cost sharing of collection and transportation of expired batteries, for example sign a Memorandum of Understanding signed between them;
- **Recycling at own facilities:** Larger solar companies may consider establishing their own recycling facilities;
- **Recycling at centralized locations in the country:** If recycling facilities for either lead acid or lithium ion batteries exist, solar companies must use those that are inspected the government and are considered safe and complainant with national regulations and World Bank standards;
- **Disposal:** Lead acid batteries are hazardous waste. Lithium ion batteries may also qualify as household hazardous waste.²⁴ Solar company will ensure that the batteries are disposed in a particular designated area ensuring environmental and occupational health and safety in line with World Bank E&S standards and Environmental, Health, and Safety Guidelines of the World Bank Group. Solar company will also comply with the government regulations, if any, regarding disposal of any of the components used in the battery units.

²⁴ In some countries, they are classified as non-hazardous waste.

Annex 10. Sample stakeholder engagement plan and grievance mechanism for solar businesses

I. Sample Content of a Stakeholder Engagement Plan

A good **Stakeholder Engagement Plan** should:

- Describe regulatory, lender, company, and/or other requirements for consultation and disclosure.
- Identify and prioritize key stakeholder groups, focusing on Affected Communities.
- Provide a strategy and timetable for sharing information and consulting with each of these groups.
- Describe resources and responsibilities for implementing stakeholder engagement activities.
- Describe how stakeholder engagement activities will be incorporated into a company's management system.

The scope and level of detail of the plan should be scaled to fit the nature and needs of the project (solar businesses). A sample outline of a Stakeholder Management Plan can be as follows:

1. Introduction

Briefly describe the project, including design elements and potential social and environmental issues. Where possible, include maps of the project site and surrounding area.

2. Regulations and Requirements

Summarize any legal, regulatory, lender, or company requirements pertaining to stakeholder engagement applicable to the solar business operations (if any).

3. Summary of any Previous Stakeholder Engagement Activities (if applicable)

If the company has undertaken any activities to date, including information disclosure and/or consultation, provide the following details:

- Type of information disclosed, in what forms, and how it was disseminated
- The locations and dates of any meetings undertaken to date
- Individuals, groups, and/or organizations that have been consulted
- Key issues discussed and key concerns raised
- Company response to issues raised, including any commitments or follow-up actions
- Process undertaken for documenting these activities and reporting back to stakeholders

4. Project Stakeholders

List the key stakeholder groups who will be informed and consulted about the project. These should include persons or groups who:

- are directly and/or indirectly affected by the solar business
- have "interests" in the project that determine them as stakeholders
- have the potential to influence project outcomes or company operations

5. Stakeholder Engagement Program

- Summarize the purpose and goals of the program
- Briefly describe what information will be disclosed, in what formats, and the types of methods that will be used to communicate this information to each of group
- Briefly describe the methods that will be used to consult with each of group
- Describe how the views of women and other relevant sub-groups will be taken into account during the process
- Describe any other engagement activities that will be undertaken

6. Management Functions *(This is applicable to Energy Service Companies that may be involved in a Public Institution Projects)*

How will stakeholder engagement activities be integrated into the company's environmental and social management system and with other core business functions?

- Who will have management oversight for the program?
- What are the plans for hiring, training, and deploying staff to undertake stakeholder engagement work?
- What will be the reporting lines between community liaison staff and senior management?
- How will the company's stakeholder engagement strategy be communicated internally?
- What management tools will be used to document, track, and manage the process?
- For projects or company operations involving contractors, how will the interaction between contractors and local stakeholders be managed to ensure good relations?

7. Monitoring and Reporting *(This is applicable to Energy Service Companies that may be involved in a Public Institution Projects)*

Describe any plans to involve project stakeholders (including affected communities) or third-party monitors in the monitoring of project impacts and mitigation programs. Describe how and when the results of stakeholder engagement activities will be reported back to affected stakeholders as well as broader stakeholder groups?

8. Timetable

Provide a schedule outlining dates and locations when various stakeholder engagement activities, including consultation, disclosure, and partnerships will take place and the date by which such activities will be incorporated into the company's management system.

9. Resources and Responsibilities

Who within the company will be responsible for carrying out these activities? What budget has been allocated toward these activities? Indicate what staff and resources will be devoted to managing and implementing the Stakeholder Engagement Program. Integration of the community liaison function with other core business functions is also important, as is management involvement and oversight.

10. Grievance Mechanism

Describe the process by which people affected by the business can bring their grievances to the company for consideration and redress. Who will receive public/users grievances, how and by whom will they be resolved, and how will the response be communicated back to the complainant?

II. Sample Grievance Mechanism

Solar business especially Energy Service Companies providing services to Government and Public Institutions will set up a project-specific grievance mechanism (GM) for people to report concerns or complaints, if they feel unfairly treated or are affected by any of the activities.

For companies involved in the distribution of SHS equipment and for productive uses, will have to indicate in their transactions with users, the issues of warranty, what contact numbers to call in case they have challenges with the system or payments.

The mechanism will amongst other things: (a) provide information about project implementation; (b) provide a forum for resolving grievances and disputes at the lowest level; (c) resolve disputes relatively quickly before they escalate to an unmanageable level; (d) facilitate effective communication between the project and affected persons; (e) win the trust and confidence of project beneficiaries and stakeholders and create productive relationships between the parties. The mechanism is envisaged to be at multiple levels and will address such complaints, including logging, tracking, and resolving grievances promptly during and after the implementation of the Project.

The company will have dedicated person to be responsible for setting up and maintaining the GM that allows general public in the project area and affected communities or individuals to file complaints and to receive responses in a timely manner. The system will also record and consolidate complaints and their follow-up. This system will be designed for handling complaints perceived to be generated by the project or its personnel. It may also include disagreements about compensation and other related matters.

The GM will be communicated to all stakeholders in the course of its community engagement activities, and will make public available a record documenting the responses to all grievances received. The GM will remain available throughout the project cycle. It is expected to address concerns promptly and effectively, in a transparent manner that is culturally appropriate and readily accessible to all project affected parties, at no cost and without retribution. It also allows for anonymous complains to be raise and addressed.

The GM should include the following elements. More details see Table below.

- Different ways in which users can submit their grievances, which may include submission in person, by phone, text message, mail, email or via a website;
- A lot where grievances are registered in writing and maintained as a database;
- Publicly advertised procedures, setting out the length of time users can expect to wait for acknowledgement, response, and resolution of their grievances;
- Transparency about the grievance procedure, governing structure and decision makers; and
- An appeals process (including the national judiciary) to which unsatisfied grievances may be referred when resolution of grievance has not been achieved.
- A separate process for dealing with local complaints about sexual exploitation and abuse and gender-based violence that is sensitive towards and protects the confidentiality of the complainant. Information should also be provided to victims about local services to provide medical and social support.

Grievance Management Process

Process	Description	Time Frame	Other Information
Identification of grievance	Face to face; telephone; letter; mail; e-mail; website; recorded during public/community interaction; others The grievance can also be passed through other parties, such as the chief office because the public are more conversant with this office.	1 Day	Email address; hotline number
Grievance assessed and logged	Significance assessed and grievance recorded or logged (i.e. in a log book) It will be prudent to have a grievance record book where the grievances are recorded for follow up. Grievances concerning sexual exploitation and abuse/gender-based violence should be treated as confidential. Only the nature of the complaint and the processing outcome should be recorded.	3-6 Days	Significance criteria: Level 1 –one off event; Level 2 – complaint is widespread or repeated; Level 3- any complaint (one off or repeated) that indicates breach of law/ policy
Grievance is acknowledged	Acknowledgement of grievance through appropriate medium	3 Days	
Development of response	Grievance assigned to appropriate party for resolution Response development with input from management/ relevant stakeholders	4-8 Days	
Response signed off	Redress action approved at appropriate	8-15 Days	
Implementation /communication of response	Redress action implemented and update of progress on resolution communicated to complainant	5-9 Days	

If complainants are not satisfied with the grievance process, even after arbitration, the affected persons will still have the right to present their complaint through the court system.