

INTER-AMERICAN DEVELOPMENT BANK



HONDURAS

INVEMA – SELF-SUPPLY SOLAR (HO-L1100)

ENVIRONMENTAL AND SOCIAL MANAGEMENT REPORT (ESMR)

October 2014

This document was prepared by the Project Team consisting of: Patrick Doyle, (SCF/SMU), Project Team Leader; Matthew McClymont (SCF/SMU); Ignacio Fernandez Stearns (SCF/SMU); Vanesa Ruperez (SCF/SCF); Korin Hirato (SCF/SYN); and, Ashley McKean (LEG/NSG), with the support of Vanessa Matos (SCF/SMU); under the supervision of: Kelle Bevine, Unit Chief (SCF/SMU).

I. INTRODUCTION

Country:	Honduras
Sector:	Energy Efficiency and Renewable Energy
Name:	INVEMA – Self-Supply Solar
Borrower:	Inversiones Materiales S.R.L. de C.V. (Invema)
Proposed A Loan:	US\$3 million
Environ. Class.:	Category C

II. PROJECT DESCRIPTION

- 2.1 Inversiones Materiales S.R.L. de C.V. (Invema) aims to install a rooftop solar photovoltaic system to generate 1.22 megawatts approximately, for self-consumption, and improve the energy efficiency technology of their facilities (“The Project”). The Project includes the installation of approximately 4,789 photovoltaic solar panels of 255Wp on a 7,000 m² rooftop structure located at the Invema facilities.

Environmental and Social Settings

- 2.2 The Project will be located in an existing materials recycling plant in San Pedro Sula city, Municipality of San Pedro Sula, Honduras. The Invema facilities are situated in the Northwest sector of the highly urbanized environment of San Pedro Sula. Although the Invema facilities are located on the route between San Pedro Sula proper and the neighborhood of El Zapotal, the surrounding sectors are entirely anthropized, encompassing a mix of residential, commercial, and industrial infrastructure. See Figure 1 and 2. Therefore, the Project site cannot be described as a natural habitat since the site has already been impacted broadly by human settlements.

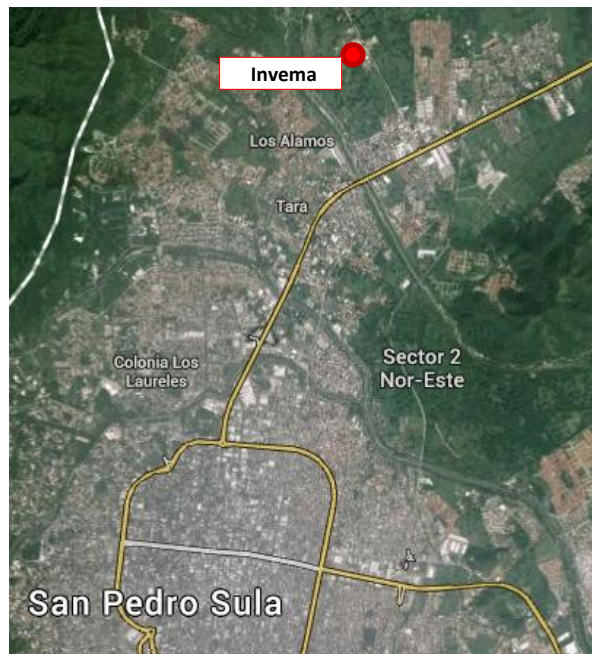


Figure 1



Figure 2

Project Schedule and Workforce

- 2.3 The Project is expected to have approximately 10 workers during the peak of the installation of the solar panels phase that is estimated to last two months; and, it is currently anticipated that 2 employees will be required during operations. The Project is expected to begin on November 1st, 2014 and start operating on January 1st, 2015.

III. COMPLIANCE STATUS AND PROJECT STANDARDS

Appraisal Process and Local Requirements

- 3.1 The *Ley de Promoción a la Generación de Energía Eléctrica con Recursos Renovables* (Law to Promote Generation of Electric Energy with Renewable Resources, in English), August 2013, requires on its Article 27 that projects generating three or less megawatts (3 MW) have to obtain an Operational License issued by the *Secretaría de Estado en los Despachos de Recursos Naturales y Ambientales – SERNA –* (Natural Resources and Environment Agency, in English). Invema already has delivered the formal request and documentation to the SERNA in order to obtain this license and be registered in the Environmental Register. The Project has been submitted to the SERNA as Project Category I; these kinds of projects are those that have minimal environmental and social impacts and risks, and are design to improve social and economic welfare and environmental standards.
- 3.2 According to Bank's Environmental Safeguards Policy, specifically Directive B.03, the Project has been classified as Category "C" as the potential negative environmental and

social impacts and risks are likely to cause minimal or no negative environmental and associate social impacts and risks. This operation does not involve physical modification of the environment or generation of solid waste, effluents or gas emissions. The Project is clearly designed to produce positive environmental outcomes. The Project triggers the following directives of IDB’s OP-703 Environmental and Safeguards Policy: B.1 Bank Policies; B.2, Country Laws and Regulations; B.3, Screening and Classification; B.7, Supervision and Compliance; and B.11, Pollution Prevention and Abatement. The OP-704 Natural and Unexpected Disasters Policy will also be triggered as the Project occurs in an earthquake and hurricane area.

3.3 Table 1, below, illustrates the Project’s capacity to comply with IDB’s various policies and directives.

Table 1: Compliance with IDB Policies and Directives

Policy / Directive	Applicable Aspect	Compliance Rationale
B.1 Bank Policies	Compliance with applicable IDB policies	The Project is currently in full compliance with all IDB policies and directives.
B.2 Country Laws and Regulations	Compliance with country laws and regulations	The Project is in compliance with all Honduran laws and regulations.
B.3 Screening and Classification	Application of appropriate classification	The Project has been screened using the Bank’s toolkit and has been classified as a <u>Category C</u> operation.
B.4 Other Risk Factors	N/A	N/A
B.5 Environmental Assessment Requirements	Due to the nature of the Project, Category C, it is not required to develop an environmental assessment.	In accordance with the Honduran regulations, Invema has submitted all the documentation to obtain the Environmental Register to be issued by the SERNA.
B.6 Consultations	N/A	N/A
B.7 Supervision and Compliance	Monitoring of borrower’s compliance with all Bank’s environmental and social safeguard requirements	The Project will submit at least one compliance report during the installation and annual compliance reports during the operation phases.
B.8 Transboundary Impacts	N/A	N/A
B.9 Natural Habitats and Cultural Sites	N/A	N/A
B.10 Hazardous Materials	N/A	N/A
B.11 Pollution Prevention and Abatement	Pollution control and CO2 emissions	The Project will implement the adequate waste management program during the installation of solar panels phase. The project will reduce the country’s CO2 emissions by providing a source of green energy.
B.12 Project Under Construction	N/A	N/A

Policy / Directive	Applicable Aspect	Compliance Rationale
B.13 Noninvestment and Flexible Lending Instruments	N/A	N/A
B.14 Multiple Phase and Repeat Loans	N/A	N/A
B.15 Co-financing Operations	N/A	N/A
B.16 In-country Systems	N/A	N/A
B.17 Procurement	N/A	N/A
OP-710 involuntary Resettlement	N/A	N/A
OP-765 Indigenous Peoples	N/A	N/A
OP-704 Disaster Risk Management	Earthquake and hurricane zone	The Project could be affected by earthquake and hurricane events. However, structural studies have been carried out to analyze the current roof structure.
OP-761 Gender Equality in Development	N/A	N/A
OP-102 Access to Information	Project information disclosure	IDB will make all relevant Project documentation available on its website.

Project Requirements and Standards

- 3.4 Invema possesses an environmental permit from SERNA issued on June 10th, 1997 which establishes that Invema's business operations do not generate environmental impacts that could pose a risk to the surrounding environment.
- 3.5 Through support from the IDB, Invema has undertaken the process of implementing an Environmental, Health and Safety Management System. The IDB has retained the *Centro Nacional de Producción Más Limpia de Honduras (CNP+LH)*, an independent not-for-profit organization based in San Pedro Sula and certified in environmental, health and safety management systems for cleaner production (ISO 14001, ISO 9001, ISO 22000). Under the technical assistance agreement with IDB, CNP+LH will assist Invema to (i) improve internal environmental performance management (ii) evaluate occupational health and safety and establish a training program (iii) perform an environmental compliance audit, and (iv) process any additional environmental permits. This environmental, health, and safety implementation program will be completed by May 2015

IV. KEY ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

Environmental and Social Impacts and Risks

- 4.5 The potential negative environmental and social impacts and risk identified for the Project are minimal due to the nature of the activities that will be carried out during the installation and operational phases. During the installation of the solar panels, the main impacts and risks will be those related to the health and safety of the workers since they will be working on the roof of the plant; generation of solid waste, mainly, due to the replacement of some roof structures; and temporary increment of traffic due to the transportation of the panels. In the case of the operational phase, no risks and impacts are predicted other than those related to health and safety issues during maintenance activities on the roof and generation of solid waste because of decommissioning of the Project. Since the Project is located in an area with plentiful rainfall year round, it is not expected to use water from resources other than those from natural rain to clean the solar panels.

Positive Impacts

- 4.6 The project will reduce greenhouse gas emissions by replacing grid electricity with electricity generated from emission-free solar power. In addition, the energy efficiency improvements will reduce demand on the electrical grid. Through reductions in electricity consumption the project is expected to generate approximately 30,000 tons of CO₂ emission reduction over 20 years. As one of the larger-scale rooftop solar projects in all of Central America, this project also stands to provide demonstration effect for the Honduran and Latin American industry considering similar projects.

V. MANAGEMENT AND MONITORING OF ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY AND LABOR IMPACTS AND RISKS

- 5.1 The Project will adhere to a model Environmental, Social, Health and Safety Plan(ESHSP), specifically prepared for the IDB, which establishes procedures in the following areas: solar panel installation; waste management; accident investigation and safety inspections; employee training; emergency response; hygiene and order; equipment tagging and lockout; working at heights and fall protection; environmental, social and health and safety compliance reporting. Additionally, as it mentioned before, Invema has undertaken the process of implementing an Environmental, Health and Safety Management System, which will be aligned to ISO 14001 standards.

Monitoring and Supervision

- 5.2 Implementation of the environmental and social safeguards for the Project will be monitored and supervised through an Environmental, Social and Health and Safety Compliance Report (ESHSCR). It is expected that at least one ESHSCR will be delivered to the Bank during the installation phase and one ESHSCR annually for the operation phase.

VI. REQUIREMENTS TO BE INCLUDED IN THE LEGAL AGREEMENTS

- 6.1 The conditions described below are required to be fulfilled for the Project throughout the life of the loan, in form and substance satisfactory to IDB. The IDB will require within its Loan Agreement that the Project and each Project party (Sponsor/Borrower/Company) and other Project/Environmental parties, including construction companies and operators, and any

contractors and sub-contractors will, at all times during the life of the Loan Agreement, comply with the following requirements:

- a. All applicable environmental, social, health and safety, and labor regulatory requirements of Honduras
- b. All requirements associated with any environmental, social, health and safety, and labor related permits, authorizations, or licenses that apply to the Project, the Borrower or any party responsible for executing the Project or its mitigation measures
- c. All environmental, social, health and safety, and labor requirements of the Project contracts and any subsequent modifications
- d. All aspects and components of all of the Project's environmental, health and safety, social and labor documents
- e. All relevant IDB policies such as the Environment and Safeguards Compliance Policy (OP-703), the Disaster Risk Management Policy (OP-704) and the Disclosure of Information Policy (OP-102), the Involuntary Resettlement policy (OP-710), the Operational Policy on Indigenous Peoples (OP-765) and the Gender and Equity in Development Policy (OP-270) and their respective guidelines.

SAFEGUARD SCREENING FORM

PROJECT DETAILS	
IDB Sector	ENVIRONMENT AND NATURAL DISASTERS-CLIMATE CHANGE FINANCING
Type of Operation	Corporate Finance
Additional Operation Details	
Country	HONDURAS
Project Status	
Investment Checklist	Generic Checklist
Team Leader	Doyle, Patrick Glenn (PATRICKD@iadb.org)
Project Title	Invema Self-supply Solar and Energy Efficiency Project
Project Number	HO-L1100
Safeguard Screening Assessor(s)	Fernandez Stearns, Ignacio Jesus (ignaciofe@IADB.ORG)
Assessment Date	2014-10-09

PROJECT CLASSIFICATION SUMMARY		
Project Category: C	Override Rating:	Override Justification:
		Comments:
Conditions/ Recommendations	<ul style="list-style-type: none"> • No environmental assessment studies or consultations are required for Category "C" operations. • Some Category "C" operations may require specific safeguard or monitoring requirements (Policy Directive B.3). Where relevant, these operations will establish safeguard, or monitoring requirements to address environmental and other risks (social, disaster, cultural, health and safety etc.). • The Project Team must send the PP (or equivalent) containing the Environmental and Social Strategy (the requirements for an ESS are described in the Environment Policy Guideline: Directive B.3) as well as the Safeguard 	

	Policy Filter and Safeguard Screening Form Reports.
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SUMMARY OF IMPACTS/RISKS AND POTENTIAL SOLUTIONS	
Identified Impacts/Risks	Potential Solutions

DISASTER RISK SUMMARY

Disaster Risk Category: High	
Disaster/ Recommendations	<ul style="list-style-type: none"> • The reports of the Safeguard Screening Form (i.e. of the Safeguards Policy and the Safeguard Classification Filters) constitute the Disaster Risk Profile to be summarized in and annexed to the Environmental and Social Strategy (ESS). The Project Team must send the PP (or equivalent) containing the ESS to the ESR. • The Borrower should consider including disaster risk expertise in the organization of project oversight, e.g. in the project's panel of experts. For the Bank's requirements, the Borrower addresses the screened disaster risks in a Disaster Risk Management Summary reviewing disaster and climate change risks associated with the project on the basis of a Disaster Risk Assessment (DRA). Based on the specified hazards and the exposure of the project area, it demonstrates the potential impact of the rapid onset events and/or slow inset changes for the project and its area including exacerbated risks for people and environment, given local vulnerability levels and coping capacities. Furthermore the DRM Summary presents proposed measures to manage or mitigate these risks in a Disaster Risk Management Plan (DRMP). The DRA /DRMP to which the DRM Summary refers may be a stand-alone DRA document (see Directive A-2 of the DRM Policy OP-704) or included in other project documents, such as feasibility studies, engineering studies, environmental impact assessments, or specific natural disaster and climate change risk assessments, prepared for the project. These documents should be accessible for the Project Team. • The Project Team examines and adopts the DRM summary. The team remits the project risk reduction proposals from the DRMP to the engineering review by the sector expert or the independent engineer during project analysis or due diligence, and the financial protection proposals to the insurance review (if this is performed). The potential exacerbation of risks for the environment and population and the proposed risk preparedness or mitigation measures are included in the Environmental and Social Management Report (ESMR), and are reviewed by the ESG expert or environmental consultant. The results of these analyses are

	<p>reflected in the general risk analysis for the project. Regarding the project implementation, monitoring and evaluation phases, the project team identifies and supervises the DRM approaches being applied by the project executing agency.</p> <ul style="list-style-type: none"> • Climate change adaptation specialists in INE/CCS may be consulted for information regarding the influence of climate change on existing and new natural hazard risks. If the project requires modification or adjustments to increase its resilience to climate change, consider (i) the possibility of classification as an adaptation project and (ii) additional financing options for climate change, and consult the INE/CCS adaptation group for guidance.
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SUMMARY OF DISASTER IMPACTS/RISKS AND POTENTIAL SOLUTIONS	
Identified Impacts/Risks	Potential Solutions
<p>Earthquakes from various sources are prevalent in the project area and the likely severity of impacts is moderate.</p>	<p>The Disaster Risk Management Plan should secure a design for the project at an acceptable level of seismic risk for the project and address potential exacerbated risks for people and the environment during construction and operation. Appropriate measures to reduce the risks (predominantly engineering), to prepare for impact (predominantly environmental and social safeguards) and to include financial protection will need to be included.</p>
<p>Significant hurricane and other winds may occur in the project area and the likely severity of impacts is major or extreme.</p>	<p>The Disaster Risk Management Plan should secure a design for the project at an acceptable level of the storm and flood risks for the project and address potential exacerbated risks for people and the environment during construction and operation, as specified in the Disaster Risk Assessment, which must take into consideration changes in the frequency and intensity of tropical storms that could occur with climate change. The DRMP includes risk reduction measures (siting and engineering options), disaster risk preparedness and response (contingency planning, etc.), as well as the financial protection (risk transfer, retention) of the project. The DRM Plan takes into account existing vulnerability levels and coping capacities, the country's disaster alert and prevention system, general design standards, coastal retreat and other land use regulations and civil defense recommendations in coastal areas. However, the options and solutions are sector- and even case-specific and are selected based on a cost analysis of equivalent alternatives. The amplified uncertainties due to climate change may be considered in hazard scenarios and an efficient combination of measures in the DRMP.</p>
<p>Tropical Storms are prevalent in the project area and the likely</p>	<p>The Disaster Risk Management Plan should secure a design for the project at an acceptable level of storm risks for the project and address potential exacerbated risks for people and the environment during construction and</p>

severity of impacts is moderate.	operation, which must take into consideration changes in the frequency and intensity of tropical storms that could occur with climate change. Appropriate measures to reduce risks (predominantly engineering), prepare for impact (predominantly environmental and social safeguards) and to include financial protection will need to be included.
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ASSESSOR DETAILS	
Name of person who completed screening:	Fernandez Stearns, Ignacio Jesus (ignaciofe@IADB.ORG)
Title:	
Date:	2014-10-09

SAFEGUARD POLICY FILTER REPORT

PROJECT DETAILS	
IDB Sector	ENVIRONMENT AND NATURAL DISASTERS-CLIMATE CHANGE FINANCING
Type of Operation	Corporate Finance
Additional Operation Details	
Investment Checklist	Generic Checklist
Team Leader	Doyle, Patrick Glenn (PATRICKD@iadb.org)
Project Title	Invema Self-supply Solar and Energy Efficiency Project
Project Number	HO-L1100
Safeguard Screening Assessor(s)	Fernandez Stearns, Ignacio Jesus (ignaciofe@IADB.ORG)
Assessment Date	2014-10-09

SAFEGUARD POLICY FILTER RESULTS		
Type of Operation	Loan Operation	
Safeguard Policy Items Identified (Yes)	Activities to be financed by the project are in a geographical area and sector exposed to natural hazards* (Type 1 Disaster Risk Scenario).	(B.01) Disaster Risk Management Policy– OP-704
	The Bank will make available to the public the relevant Project documents.	(B.01) Access to Information Policy– OP-102
	The operation is in compliance with environmental, specific women's rights, gender, and indigenous laws and regulations of the country where the operation is being implemented (including national obligations established under	(B.02)

	ratified Multilateral Environmental Agreements).	
	The operation (including associated facilities) is screened and classified according to their potential environmental impacts.	(B.03)
	The Borrower/Executing Agency exhibits weak institutional capacity for managing environmental and social issues.	(B.04)
	The Bank will monitor the executing agency/borrower's compliance with all safeguard requirements stipulated in the loan agreement and project operating or credit regulations.	(B.07)
	The operation has the potential to pollute the environment (e.g. air, soil, water, greenhouse gases...).	(B.11)
	Suitable safeguard provisions for procurement of goods and services in Bank financed projects may be incorporated into project-specific loan agreements, operating regulations and bidding documents, as appropriate, to ensure environmentally responsible procurement.	(B.17)
Potential Safeguard Policy Items(?)	No potential issues identified	
Recommended Action:	<p>Operation has triggered 1 or more Policy Directives; please refer to appropriate Directive(s). Complete Project Classification Tool. Submit Safeguard Policy Filter Report, PP (or equivalent) and Safeguard Screening Form to ESR.</p> <p>The project triggered the Disaster Risk Management policy (OP-704). A Disaster Risk Assessment (DRA) may be required (see Directive A-2 of the</p>	

	DRM Policy OP-704) in case of high risk, a limited DRA in case of moderate risk. Next, please complete a Disaster Risk Classification along with Impact Classification.
Additional Comments:	

ASSESSOR DETAILS	
Name of person who completed screening:	Fernandez Stearns, Ignacio Jesus (ignaciofe@IADB.ORG)
Title:	
Date:	2014-10-09