Ministério da Indústria Comércio, e Energia
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Ministério das Finanças
Unidade de Gestão de Projetos Especiais

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

0.6 MWp-Expansion SOLAR PV PLANT

RENEWABLE ENERGY AND IMPROVED UTILITY PERFORMANCE PROJECT

COMPONENT 1 (“RENEWABLE AND EFFICIENT ELECTRICITY SERVICE”)

Subcomponent 1.1 (“Small-Scale for the Integration of Renewable Energy”)

Feasibility studies for the expansion of the solar PV plants, ESS facilities, and common infrastructures, and

Technical specifications and bidding documents for procurement of goods, construction works and installation, and O&M services of Solar PV and ESS facilities

MAIO ISLAND

MAV ENERGY

DOCUMENT INFORMATION

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LIST OF ABBREVIATIONS

ACP	Abbreviated Compensation Plan
BESS	Battery Energy Storage Systems
CCEFCF	Canada Clean Energy and Forest Climate
DNA	National Directorate for the Environment
DNICE	National Directorate of Industry, Trade and Energy
DNOT, EROT, PEOT	Land Use Plans
E&S	Environmental and social
EIA	Environmental Impact Assessment
EIAA	Environmental Impact Assessment Authority
EPC	Engineering, Procurement and Construction
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESHS	Environmental, Social, Health and Safety
EHSGs	Environmental, Health and Safety Guidelines
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
GBV	Gender-Based Violence
GIF	Global Infrastructure Facility
GovCV	Government of Cabo Verde
GRM	Grievance Redress Mechanism
IBRD	International Bank for Reconstruction and Development
ICIEG	Cape Verdean Institute for Gender Equality and Equity
IDA	International Development Association (World Bank)
INDC	the Intentional Nationally Determined Contribution
LGRM	Local Grievance Redress Management Committees
LMP	Labor Management Plan
MWp	Megawatts Peak
NGO	Non-Governmental Organization
OE	Owner's Engineer

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OHS	Occupational Health and Safety
PCAS	Environmental and Social Commitment Plan
PDM, PDU, PD	Urbanistic Plans
PDO	Project Development Objectives
PDSE 2018-2040	Master Plan for the Electricity Sector
PESA	Preliminary Environmental and Social Assessment
PESER in Portuguese)	Sectoral Strategic Plan for Renewable Energy
PV	Photovoltaic
SEP	Stakeholder Engagement Plan
UGPE	Unidade de Gestão de Projectos Especiais (Special Projects Management Unit)
UNESCO	United Nations Educational, Scientific and Cultural Organization
VAC	Violence Against Children
ZDER (abbreviation in Portuguese)	Maio's Renewable Energy Development Area
ZDTI	Integral Tourism Development Areas
ZRPT	Tourism Reserve and Protection Areas

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EXECUTIVE SUMMARY

This document summarizes the environmental and social assessment of the expansion of the existing solar PV plant (production of electricity using solar energy) in the peri-urban area of the City of Porto Inglês, capital of the municipality of Maio, Maio Island, in Cabo Verde.

This plant is implemented in the scope of the so-called “Cabo Verde Renewable Energy and Improved Utility Performance Project”. This Project is being developed in line with the country's commitment to increase the production and coverage of electricity from renewable energy resources. For that purpose, the Government of Cabo Verde has negotiated an additional support from the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA/World Bank), Canada Clean Energy and Forest Climate (CCEFCF) and the Global Infrastructure Facility (GIF) to implement the Project.

The Component 1 ("Renewable and Efficient Electricity Service") of the Project is funding investments to integrate variable renewable energy sources into the grid and provide sustainable and resilient electricity solutions to public health facility buildings. Within this component, Subcomponent 1.1 ("Integration of small-scale renewable energy") is supporting the construction of small-scale solar power plants, their connection to the grid, as well as the installation of pilot energy storage facilities. The Maio photovoltaic plant, including its extension, is part of this subcomponent of the Project.

The implementation of the Project is done by the Unidade de Gestão de Projectos Especiais (Special Projects Management Unit - UGPE).

The Project is also financing similar photovoltaic plants to be implemented in the islands of São Nicolau, Santo Antão and Fogo and also the installation of battery systems for the storage of electricity in the four target islands.

Location of the solar PV plant

The plot of land for which it is planned to use the solar resource (production of electric energy by photovoltaic technology) in Maio has a total area of about 2.1 hectares and is located in the peri-urban area of the City of Porto Inglês, capital of the Municipality of Maio, about 1.5km north of the city center.

Figure 1 - Location of the expansion of the solar PV plant

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Description of the solar PV power plant

A Solar Photovoltaic (PV) power plant is a facility designed to harness sunlight and convert it into electrical energy using photovoltaic technology. At the heart of the system are solar panels, also known as PV modules, which are made from semiconductor materials like silicon. These panels absorb sunlight and generate direct current (DC) electricity through the photovoltaic effect, a process where light photons excite electrons in the semiconductor material.

The panels are mounted on structures that optimize their exposure to sunlight. These structures are fixed tilt, where the panels are set at a fixed angle throughout the year. Once the panels generate DC electricity, inverters within the plant convert this into alternating current (AC), which is suitable for feeding into the electrical grid.

Supporting components, collectively referred to as the balance of system (BOS), include wiring, junction boxes, fuses, and circuit breakers, all of which ensure the safe and efficient transmission of electricity. Monitoring systems are also integrated to track performance and detect faults.

The expansion capacity will be 0.6 MWp and the energy injection will be done via a very short connection to the 20 kV-medium voltage substation that will be built during the Phase 1 (EPC contract on going).

The solar PV plant will have a small technical building, with a footprint of approximately 50 m^2. This building will in principle be constructed of concrete and masonry and will be used to house the solar PV plant's control and management systems and the medium voltage equipment, which will interconnect to the public electricity grid.

The entire facility will be designed, installed, and operated to comply with applicable international standards and national regulations.

The main aspects of the construction of the solar PV plant can be summarized as follows:

- To support the work, a construction yard will be assembled inside the perimeter of the plant. It will include containers as usual in similar works, with a small meeting room and a support area for the staff, namely sanitary facilities, and a storage area for tools and some materials.
- One of the characteristics of this type of project is that the structures for mounting the panels can reasonably adapt to the morphology of the terrain. Therefore, it is not expected that the creation of the photovoltaic plant may involve major earth movements (landfills, excavations). Foreseeable civil construction works include mainly:
    - The preparation (cleaning, regularization, construction of the septic tank) of the area for the installation of the construction yard.
    - The installation of a fence.
    - The creation of access paths within the land.
    - The creation of drainage ditches on the perimeter of the fenced area and along the access paths.
    - The regularization of the land in the area where the panels and the technical building will be installed. It is expected that the earth movements to be carried out will not generate excess soil to be deposited outside the perimeter of the photovoltaic plant, nor will it require the importation of soil from borrow areas located outside this perimeter.
    - The opening of trenches to install electrical cables inside the solar PV plant.
    - Driving piles into the ground or installation of concrete blocks for the foundation of the metal structures for fixing the panels.

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  - The assembly of the metallic structures.
  - The laying of the electric cables in the trenches.
  - The installation of the electrical equipment.
  - The construction of the technical building, in concrete and masonry.
  - The construction of concrete bases for the installation of the inverters.
  - Opening the foundations, placing the poles, installing the equipment, and laying the cables to connect to the existing medium voltage line.
- For the execution of this work, a variety of machinery will be used, including excavators, concrete mixers, and transport vehicles for equipment and materials.
- The assembly of the solar photovoltaic collectors essentially consists of the mechanical fixing of the panels to the metallic structure, using clamps and screws or equivalent, and the electrical connections of the panels.
- After the panels are assembled, the various components of the electrical system will be connected (inverters and equipment installed in the technical building) and the necessary tests and trials will be carried out, followed by the start-up for energy production.
- The assembly of the solar photovoltaic panels essentially consists of the mechanical fixing of the panels to the metallic structure, using clamps and screws or equivalent, and the electrical connections of the panels.
- After the panels are assembled, the various components of the electrical system will be connected and the necessary tests and trials will be carried out, followed by the start-up for energy production.
- The main form of energy to be used in the construction phase will be diesel fuel for vehicles and machinery. In some works, especially in the final phase of the construction, electrical energy will be used.
- The domestic wastewater produced in the sanitary facilities by the workers will be directed to a septic tank to be built on the local construction yard. No other effluents are expected to be produced at the site, except for the eventual washing of concrete mixers used on site.
- Solid domestic waste will be produced mainly by workers on site, materials from excavations and waste associated with construction work and equipment installation, including packaging waste. It is not expected that the construction yard will have an area for maintenance of equipment and vehicles. Thus, it is not expected the generation of relevant quantities of lubricating or hydraulic oils and other waste typically generated in this type of activity. The different types of waste generated at the site will be separated and conditioned in specific containers, and removed to an adequate destination, according to their characteristics.
- The operation of vehicles and various machinery in the area of the photovoltaic plant will lead to the resuspension of dust, in addition to the emission of combustion gases typically resulting from the operation of vehicle engines and machinery.
- Noise emissions are to be expected because of vehicle traffic to transport equipment, materials and people, and the use of various machinery to be used in the construction work. It is expected that most of the work will take place during daylight hours.
- It is foreseen that the construction of the photovoltaic plant will take about 4 months and that in the most labor-intensive phase (a period of about 2 months, when the support structures will be installed and the panels assembled), there may be about 50 to 80 jobs.
- Most of these temporary jobs can be filled by local and relatively unskilled personnel. It is anticipated that the site management and higher-skilled jobs may employ about 15 people, some of whom may be foreigners.

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The main aspects associated with the operation of the solar PV plant can be summarized as follows:

- The operation of the plant is automatically controlled, only requiring intervention in case of breakdown or for external reasons associated with the operation of the grid.
- The maintenance of the solar photovoltaic plant is fundamentally preventive and includes cleaning the panels and checking the status of certain components and parameters that may indicate a tendency for faulty operation.
- Given the specific conditions of Cabo Verde, in general, and in Maio particular (including the occurrence of high natural concentrations of dust in the atmosphere and proximity to the sea), it is to be expected that, as in other photovoltaic plants in the country, an almost permanent cleaning of panels is necessary, so as not to impair their performance. For the cleaning of the panels there are several applicable solutions, including dry or water cleaning, mechanical or manual cleaning. The recommended solution to be adopted in this plant will be manual cleaning with the minimization of water consumption.
- The wastewater will be the effluent from the sanitation facilities, which is expected to be very limited given the small number of workers who will be permanently on the site. It is assumed that the septic tank that was installed in the construction phase will remain active and will receive the wastewater in the operation phase.
- Waste generation in the operation phase will be very limited and restricted to waste from equipment maintenance, and may include packaging, batteries, broken or damaged panels, and broken electrical or electronic components. The waste, including any components that may have been replaced, will be handed over by the team in charge of the maintenance to authorized waste management operators. Since Cabo Verde lacks a waste recycling policy, these components will be stored in designated areas assigned by local or national authorities.
- No relevant noise or air pollutant emissions are expected from the operation of the photovoltaic solar plant. It will, however, contribute to the reduction of emissions of air pollutants resulting from the production of electricity from fossil fuels.
- No heat and light emissions are expected because of the operation of the solar PV plant.
- It is anticipated that up to 4 permanent jobs could be created during the operation of the PV plant, which will be supplied locally for cleaning and general maintenance. In addition to these jobs, there will be sporadic use of specialized personnel, not necessarily foreigners, for occasional repair or maintenance activities.

In what concerns the decommissioning phase:

- Given that no significant topographical changes were required to install the plant, it will be relatively easy to decommission.
- Most of the structures and equipment are relatively easy to dismantle and transport.
- The technical building may be demolished (if it is no longer possible to assign it a useful use).
- Many of the materials resulting from the decommissioning can be recycled (panels, metallic structures, wires…) 90-95% of a solar panel are recyclable. The lifecycle of a photovoltaic power plant is approximately 25 to 30 years. It is possible that the country will have established a local recycling sector or entered into service contracts with specialized companies at the international level. Glass composes most of the weight of a panel (about 75 percent), and glass recycling is a well-established industry. Other materials that are easily recyclable include the aluminum frame, copper wire, and plastic junction box, even locally.

In terms of time schedule, it is estimated that a period of eight(8) months may elapse between the start of construction (installation of the construction yard) and the commissioning of the solar PV plant.

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The installation of the plant will be done in the scope of an "Engineering, Procurement and Construction" (EPC) contract, which will also cover the operation and maintenance of the plant for an initial period of 2 years, after which operation and maintenance will be provided on a definitive basis by another entity following a tender to be launched specifically for this purpose.

As for the useful life of the facilities, a time horizon of about 20 years can be considered, under normal operation and maintenance conditions.

Policy and regulatory framework

The assessment was carried out taking into account the applicable national legislation, covering, among other aspects:

- Environmental impact assessment regulations.
- Biodiversity conservation and protection.
- Waste.
- Water and sanitation.
- Air quality, noise pollution.
- Cultural heritage.
- Territorial and urban planning.
- Gender-based violence.
- Expropriation.
- Health and safety at work.
- Labor and working conditions.
- Road code.
- Private security activities.

Additionally, and given the funding source for the Project, the World Bank's Environmental and Social Framework and the relevant Environmental, Health and Safety Guidelines (EHSGs) namely the General EHSGs and the Electric Power Transmissions and Distribution EHSGs have also been considered. The ESF contains an import set of requirements, structured in Environmental and Social Standards, covering aspects like:

- Assessment and Management of Environmental and Social Risks and Impacts.
- Labor and Labor Conditions.
- Resource Efficiency, Pollution Prevention and Management.
- Community Health and Safety.
- Land Acquisition, Land Use Restrictions, and Involuntary Resettlement.
- Biodiversity Conservation and Sustainable Management of Living Natural Resources.
- Cultural Heritage.
- Stakeholder Engagement and Information Dissemination.

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Environmental and Social Baseline

The environmental and social assessment of the plant was performed taking into account the applicable relevant national legislation and the World Bank's Environmental and Social Framework, given the source of funding for the Project.

The assessment involved an environmental and social characterization of the proposed photovoltaic site and its surrounding area, which allowed the following aspects to be highlighted:

- The site is located on a flat area with a gentle slope from north to south and from east to west. The elevation varies between approximately 56 and 49 meters.
- Maio Island has a warm and regular climate. The dominant winds throughout the year are the trade winds, which blow from the NE. Rainfall on Maio is low compared to the other Leeward Islands. Maio Island receives strong solar radiation, giving it a very high solar energy potential.
- The geological and lithological formations of the surroundings of the study area are composed of limestones, mainly calcarenites, corresponding to ancient beaches (Plistocene). The site has a very low susceptibility to slope movements and a low volcanic hazard.
- In the project site and its immediate surroundings no situations of flood risk have been identified and there are no surface water resources that are, or have the potential to be, explored, nor is this area inserted in any aquifer system or formation of hydrogeological interest of recognized importance.
- The soil is incipient and with rocky outcrops, with very limited potential productivity. Currently the site has no use. No evidence of erosion was noted at the site.
- The EN3-MA-01 road is currently the main source of air pollution and noise in the surroundings of the site. However, the intensity of the traffic is low, and it does not generate significant degradation of the air quality or noise nuisance. Reference should be made to the high concentrations of particulate matter (dust) of natural origin that occur in Cabo Verde.
- In Maio there are important biodiversity areas, and a significant number of threatened species can be found on the island. However, the project site is not located within any key biodiversity area and does not interfere with any of Maio's protected areas. No threatened species were identified at the project site. Also, note that the Maio island and the surrounding marine space was designated as a biosphere reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in November 2020.
- The project site has a very low to low susceptibility to forest fire.
- The landscape of the area has a relatively important scenic value and sensibility. The project site is moderately exposed visually, mainly from the EN3-MA-01 road.
- The land is owned by the State. (Declaração Nº12/PROC. Nº188/DGPCP/2020, in annex)
- In the project site there is no human settlement, nor is there any known economic activity. The nearest population aggregations to the study area are the town of Porto Inglês, about 1.5 km to the south.
- The project site does not interfere with any land planning or management instruments.
- There are no known elements of tangible or intangible cultural heritage related to the project site.

Risks and Impacts and associated Mitigation Measures

An assessment of risks and impacts was carried out for constructing, operating and decommissioning the photovoltaic plant. The results of this assessment can be summarized as follow :

- Climate: no climatic or microclimate impacts are expected in the vicinity of the photovoltaic plant. Its operation will have a positive impact by preventing emissions of gases from the burning of fuel to produce electricity, which cause air pollution and contribute to the global warming.

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- No geological or geotechnical impacts are expected associated with the implementation of the plant.
- No significant effects are expected in terms of land use. As in any construction works, there is the potential for soil contamination to occur and this justifies the adoption of mitigation measures.
- No water resources are expected to be affected by the implementation of the plant. In any case and as indicated for the soils, mitigation measures are justified to prevent water contamination events.
- The construction works may cause a localized increase of dust, but it is not expected that this affects residential areas. In any case, mitigation measures are justified.
- Similarly, no noise impact is expected on any residential areas.
- The local landscape will be affected by the construction and presence of the photovoltaic plant. This negative impact will not be reasonably possible to mitigate.
- It is not expected that the artificialization of the area of the photovoltaic plan will correspond to a significant negative impact in terms of biodiversity. The production of electricity using solar power corresponds to a positive impact in terms of use of a natural resource.
- Different types of waste will be generated. Mitigation measures will be required.
- No impact is expected in terms of cultural heritage. In any case a procedure to deal with the discovery of previously unknown archaeological resources during the project must be implemented.
- No interference has been identified with territory planning instruments.
- The land where the solar PV plant it to be installed is State owned and does not currently support any built occupation or economic activity. No impacts in terms of physical or economic displacement are expected.
- The construction work will create a relevant number of temporary jobs. Specific measures must be adopted to promote the recruitment of local labor and the recruitment of women. A small number of non-temporary jobs will be generated for the operation phase, which can be filled locally. There is the risk of child and forced labor being used to produce the solar panels (abroad), justifying the adoption of specific preventive measures determined by the World Bank.
- There will be health and safety risks for the personnel involved in the construction and operation of the photovoltaic plant, justifying the need for specific health and safety plans which will detail the preventive measures and the emergency procedures to be adopted.
- No significant health and safety risks are expected for the local communities during the construction or operation of the photovoltaic plant. However, preventive measures are justified in relation with the traffic associated with the construction works and with the access of unauthorized personnel to risk areas. Also, specific measures will be required for the prevention of Covid-19 and for the security of the facilities.
- No significant fire risks are anticipated in relation with the project.
- Considering the limited labor influx to and the current situation in terms of Gender Based Violence awareness and prevention in Cabo Verde, no significant risks are expected in this regard. In any case, preventive measures will be implemented, including strict codes of conduct (as detailed in section 8.4.2 of the ESIA).
- No significant risks and impacts are expected in relation to the future decommissioning of the plant. In any case, it will be necessary to manage the materials and equipment which will be removed from the site, promoting its reuse, or recycling as much as possible. Measures will also be justifiable to facilitate the reintegration in the labor market of the personnel which will be demobilized from the photovoltaic plant.

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As a general conclusion of this assessment no environmental or social risks or impacts affecting the sustainability of the solar PV plant were identified.

No loss of natural resources has been identified in relation to the plant.

The risks and negative impacts are not significant, and the development of the project is even expected to have some positive impacts, in particular in terms of reducing the dependence on fossil fuels for electricity generation on Maio Island, reducing greenhouse gas emissions and improving air quality.

In any case, the implementation of several measures is recommended, with the primary objective of preventing the possible negative risks and impacts and assuring the sustainability of the Project.

These measures can be summarized as follows:

Measures for the Preparatory Phase:

Risks and Impacts on:	Measures related to:
General	Grievance Redress Mechanism Codes of Conduct (prevention of Gender Based Violence and of Violence Against Children) Community Engagement Prevention of forced Labor Articulation with other Entities Detailed Terrain Modelling Completion and Detailing of the Environmental and Social Management Plan Completion and Detailing of the Health and Safety Plan Labor Management

Measures for the Construction Phase:

Risks and Impacts on:	Measures related to:
General	Staff Training and Awareness
Geology, Geotechnics and Geomorphology	Execution of Works • Use of borrow pits
Soil and Land Use	Construction of yard location and operation • Waste and wastewater Management • Storage and Handling of Hazardous Substances • Machinery Overhauls and Maintenance Execution of Works • Management of Materials resulting from Excavations Washing of Concrete Mixers and Concrete Residues

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Risks and Impacts on:	Measures related to:
Water Resources	Construction of yard location and operation • Water supply for work • Waste and wastewater management • Storage and handling of hazardous substances • Machinery overhauls and maintenance Washing of concrete mixers and concrete residues
Air Quality & Noise	Execution of works • Preservation of Air Quality and Noise • Implementation of the Health and Safety Plan
Waste	Construction of yard location and operation • Waste and wastewater Management Execution of works • Management of Materials resulting from Excavations Washing of Concrete Mixers and Concrete Residues
Cultural heritage	Execution of works • Discovery of archaeological remains
Employment and Working Conditions	Staff Training and Awareness • Implementation of the grievance redress mechar (maintaining its accessibility and dissemination to worke • Codes of Conduct (maintenance)
Occupational health and safety	Implementation of the Health and Safety Plan
Community health and safety	Execution of Works • Fencing and Signaling of Works and Conditioning Pedestrian and Car Circulation • Fire Prevention • Emergency Plan
Human rights	Staff Training and Awareness • Implementation of the grievance redress mechar (maintaining its accessibility and dissemination communities) • Codes of Conduct (maintenance)

Measures for the Completion of the Construction Phase:

Risks and Impacts on:	Measures related to:
General	Remediation of Intervened Areas

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Measures for the Operation Phase:

Risks and Impacts on:	Measures related to:
General	Labor Recruitment Codes of Conduct Update of the Environmental and Social Management Plan and Health and Safety Plan Staff Training and Awareness
Soil and Land Use	Waste and wastewater Management Storage and Handling of Hazardous Substances
Water Resources	Efficient Use of Water Waste and Wastewater Management Storage and Handling of Hazardous Substances
Waste	Waste and wastewater Management
Employment and Working Conditions	Staff Training and Awareness Implementation of the grievance redress mechanism (maintaining its accessibility and dissemination to workers) Codes of Conduct (maintenance)
Occupational health and safety	Implementation of the Health and safety Plan Emergency Plan
Community health and safety	Facility Security Fire Prevention Emergency Plan
Human rights	Staff Training and Awareness Implementation of the grievance redress mechanism (maintaining its accessibility and dissemination to communities) Codes of Conduct (maintenance)

Measures for the Deactivation Phase:

Risks and Impacts on:	Measures related to:
General	The measures for the decommissioning phase will be, in essence and with the necessary adaptations, identical to those recommended for the construction phase.
Labour	Training of the personnel involved in the operation pf the plant, to facilitate their reintegration into the labor market
Waste	Reuse or recycling of decommissioned materials and equipment

In view of the risks and impacts analyzed, it is not considered justifiable to consider possible alternative locations for this photovoltaic park. Its non-implementation, the so-called zero alternative, would be incompatible with the renewable energy development strategy in Cabo Verde and would prevent its contribution to the Project's objectives.

The implementation of the expansion of solar PV plant is assessed to be aligned with the Environmental and Social Standards (ESS) contained in the World Bank Environmental and Social Framework.

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Consultation and Information Disclosure and Grievance Redress Mechanism

It is intended that the public consultation and information disclosure actions throughout the development of the project are aligned with good practice and the requirements of the World Bank.

In July 2020 members of the local community were interviewed with the objective of presenting the project and offering and get their views on project risks, impacts, and possible mitigation measures.

Questions were raised and answers were provided about the following aspects:

- Location of the project and timing of implementation.
- Jobs to be created and benefits for the local community.
- Expected reduction of the electricity price as a result of the Project.

The following recommendations were made by the participants:

- Recruitment of local workers
- Reduction of the electricity price.

The Municipality Council of Maio and the Delegation of the Ministry of Agriculture and Environment were also consulted at the time.

In July 2021 a stakeholder meeting was undertaken in the municipality of Maio with the following objectives:

- To present the Project's objectives and planned activities.
- To present the Grievance Redress Mechanism implemented for the by UGPE.
- To establish the Local Complaints Management Committee for the Project.

UGPE has implemented a Grievance Redress Mechanism for the Project. For that purpose, Local Complaints Management Committees have been created, one in each municipality where the Project is developed, as well as the Central Complaints Management Committee (CCMC), along with the means and procedures necessary for the operation of the Grievance Redress Mechanism.

Any person or group of people associated with the project or affected by their activities can submit a question, complaint, or grievance.

Any person or group of persons involved in the project, partner institutions, NGOs and community-based associations, local councils and any individual or group affected by the project can raise a grievance. Anonymous suggestions and complaints are accepted.

The Grievance Redress Mechanism contains provisions related to the reception and registration of grievances, their treatment, analysis and investigation, verification and subsequent actions and the follow-up, monitoring and reporting of the grievances, as well as the communication strategy to be adopted.

Prior to the start of the work, the UGPE will promote the dissemination of the GRM among the various interested and affected parties, including those working on the project.

A public meeting is planned to be held as soon as the contractor is appointed and before the start of the works, in order to introduce the Contractor, who, in turn, will describe his work plan (activities to be carried out and respective expected start and end dates), to present the Project environmental and

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social safeguards, with emphasis on the Gender Based Violence and Violence Against Children prevention measures, and to disseminate the Project's Grievance Redress Mechanism.

The budget of the Project already covers the costs for implementation and operation of the Grievance Redress Mechanism.

Note : The expansion of the solar power plant will be built on the same site as the solar plant currently under development. Therefore, no new public consultations have been planned. However, during the training scheduled at the start of the Phase 1 works (ongoing EPC contract), a presentation on the expansion works will be made to the local communities. Comments or questions raised during this session will be included in an updated version of the Environmental and Social Management Plan.

Environmental Management Plan

An Environmental and Social Management Plan (ESMP) was prepared with the main objective to provide clear mitigation measures for identified potential social and environmental impacts and to establish. These measures correspond to those summarized in the section above covering Risks and Impacts and Associated Mitigation Measures, applicable to the preparatory, construction, operation, and decommissioning phases.

The ESMP clarifies the responsibilities of the various intervening parties in the implementation of the mitigation measures defined to address the risks and impacts of the project. The intervening parties are:

- The UGPE, who established from the outset the terms of reference to be followed for the environmental and social management of the Project, taking into account the applicable legal requirements and the requirements of the entity financing the Project, and ensured that these terms of reference are complied with. The UGPE will oversee obtaining licenses and authorizations for carrying out the expansion of the solar PV plant, formal articulation with the various official entities involved in the process and implements a Grievance Redress Mechanism (GRM) to receive and process complaints related to the Project. The UGPE will oversee the obtaining of licenses and permits to carry out the expansion of the solar PV plant, the formal articulation with the various official bodies involved in the process, and the implementation of the Grievance Redress Mechanism (GRM).
- The "Owner's Engineer", who will be responsible for assisting UGPE in the procurement of goods and services, controlling and supervising construction works, supporting the implementation of the training program, and supporting and monitoring the implementation of environmental and social safeguards.
- The Contractor for the EPC (Engineering, Procurement and Construction) contract will be responsible for the detailed engineering studies, the supply of materials and equipment necessary for this, carrying out the construction work on the photovoltaic plant, the physical execution of the works, under the supervision of the Owner's Engineer (OE) and will thus be the main agent in the generation of environmental and social impacts during the construction phase. The Contractor will also be responsible for starting up the operation of the photovoltaic plant, as well as its maintenance for a period of 2 years.
- The Operator. In an initial period, the operation and maintenance of the photovoltaic Plant will be ensured by the Contractor and, subsequently, by an Operator to be selected through a tender to be launched for this purpose. Thus, the Operator will be responsible for the long-term environmental and social management of the photovoltaic plant.

The ESMP also defines the requirements applicable to environmental and social monitoring, namely in terms of actions by the different intervening parties and the indicators to be calculated, monitored and reported.

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The schedule for the implementation of the ESMP and the requirements applicable to its review are also established.

The following table summarizes the environmental and social management activities to be implemented for the subcomponent 1.1 of the Project (photovoltaic pant and their respective interconnections with the electric grid and the battery storage systems), indicating also the responsible parties and the estimated cost:

Activity	Responsibility	Estimated cost	Comments
Implementation of mitigation measures (Contractor and Operator)	Contractor, Operator		The environmental and social management measures to be implemented by the contractor and the operator will rely exclusively to compliance with the applicable legal requirements or best practices and will have a reduced cost, which should be included in the general budget of the respective contracts. It is not foreseen the need to implement any environmental or social measure that implies investment costs.
Environmental and Social Monitoring and Auditing	UGPE,	12,000 USD	Lump sum estimation of the costs associated with E&S monitoring and auditing of the project, including possible audits to be carried out by the external entities (e.g., National Directorate for the Environment, Delegations of the Environment and Agriculture Ministry, Municipalities, ICIEG). The operational costs of the Owner's Engineer and UGPE teams are not included in this estimation
Stakeholder Engagement	UGPE	5,000 USD	Lump sum estimation of the costs associated with the stakeholder engagement, including public meetings, disclosure of information documents. The operational costs of the Owner's Engineer and UGPE teams are not included in this estimation
Grievance Mechanism	UGPE, Local and Central Grievances Management Committees	10,000 USD	Lump sum estimation of the costs associated with the GRM, including the Local and Grievances Management Committees. The operational costs of the UGPE team are not included in this estimation.
Capacity Building (as detailed in the Environmental and Social Commitment Plan)	Owner's Engineer, Contractor, Operator, ICIEG	21,500 USD	Lump sum estimation of the costs associated with organizing and delivering the capacity building sessions, including mobilization of participants. The operational costs of the Owner's Engineer and UGPE teams are not included in this estimation
Training of Project Workers (initial training of the Contractor's and Operator's management staff)	Owner's Engineer, Contractor, Operator, ICIEG	10,000 USD	Lump sum estimation of the costs associated with organizing and delivering the training sessions. The operational costs of the Contractor's, Operator's, Owner's Engineer and UGPE teams are not included in this estimation
Total		58,500 USD	

Controversial issues

No controversial issues have been identified in relation with the expansion of the Maio solar PV plant.

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SUMÁRIO EXECUTIVO

Este documento resume a avaliação ambiental e social da implementação de uma central fotovoltaica (produção de electricidade a partir de energia solar) na zona periurbana da Cidade do Porto Inglês, capital do concelho de Maio, Ilha de Maio, em Cabo Verde.

Esta central será implementada no âmbito do denominado "Cabo Verde Renewable Energy and Improved Utility Performance Project". Este projecto está a ser desenvolvido de acordo com o compromisso do país de aumentar a produção e a cobertura de electricidade a partir de recursos energéticos renováveis. Para o efeito, o Governo de Cabo Verde obteve o apoio do Banco Internacional para a Reconstrução e Desenvolvimento (BIRD), da Associação Internacional de Desenvolvimento (AID/Banco Mundial), do Canada Clean Energy and Forest Climate (CCEFCF) e do Global Infrastructure Facility (GIF) para implementar o Projecto.

A Componente 1 ("Serviço de Electricidade Renovável e Eficiente") do Projecto financiará investimentos para integrar fontes de energia renováveis variáveis na rede e fornecer soluções de electricidade sustentáveis e resilientes aos edifícios das instalações de saúde pública. No âmbito desta componente, a subcomponente 1.1 ("Integração de energias renováveis de pequena escala") apoiará a construção de centrais solares de pequena escala, a sua ligação à rede, bem como a instalação de instalações-piloto de armazenamento de energia. A central fotovoltaica de Maio faz parte desta subcomponente do projecto.

A implementação do projecto será feita pela Unidade de Gestão de Projectos Especiais (UGPE). O Projecto também financiará centrais fotovoltaicas semelhantes a serem implementadas nas ilhas de São Nicolau, Santo Antão e Maio e a instalação de sistemas de baterias para o armazenamento de electricidade nas quatro ilhas alvo.

Localização da central solar fotovoltaica

A parcela de terreno para a qual está previsto o aproveitamento do recurso solar (produção de energia eléctrica por tecnologia fotovoltaica) no Maio tem uma área total de cerca de 2,1 hectares e situa- se na zona periurbana da Cidade do Porto Inglês, capital do Município do Maio, a cerca de 1,5km a norte do centro da cidade

Descrição da central solar fotovoltaica

Uma central solar fotovoltaica (PV) é uma instalação projetada para capturar a luz solar e convertê-la em energia elétrica utilizando tecnologia fotovoltaica. No centro do sistema estão os painéis solares, também conhecidos como módulos fotovoltaicos, que são fabricados com materiais semicondutores, como o silício. Esses painéis absorvem a luz solar e geram eletricidade em corrente contínua (DC) por meio do efeito fotovoltaico, um processo em que os fótons da luz excitam os elétrons no material semicondutor. Os painéis são montados em estruturas que otimizam sua exposição à luz solar. Essas estruturas têm uma inclinação fixa, na qual os painéis são posicionados em um ângulo constante ao longo do ano. Após a geração de eletricidade em corrente contínua pelos painéis, inversores instalados na central convertem essa eletricidade em corrente alternada (AC), adequada para ser integrada à rede elétrica.

Componentes de suporte, coletivamente chamados de balanceamento de sistema (BoS), incluem cabos, caixas de junção, fusíveis e disjuntores, que garantem a transmissão segura e eficiente da

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eletricidade. Sistemas de monitoramento também são integrados para acompanhar o desempenho e identificar falhas no funcionamento da central.

A capacidade de expansão será de 0,6 MWp, e a injeção de energia será realizada por meio de uma conexão muito curta à subestação de média tensão de 20 kV, que será construída durante a Fase 1 (contrato EPC em andamento).

A central solar fotovoltaica terá um pequeno edifício técnico, com uma área de implantação de cerca de 50 m^2. Este edifício será, em princípio, construído em betão e alvenaria e será utilizado para albergar os sistemas de controlo e gestão da central solar fotovoltaica e os equipamentos de média tensão, que serão interligados à rede eléctrica pública. Toda a instalação será projectada, instalada e operada em conformidade com as normas internacionais e os regulamentos nacionais aplicáveis. Os principais aspectos da construção da central solar fotovoltaica podem ser resumidos da seguinte forma:

- Para apoiar os trabalhos, será montado um estaleiro de construção dentro do perímetro da central. Incluirá contentores como é habitual em obras similares, com uma pequena sala de reuniões e uma zona de apoio ao pessoal, nomeadamente instalações sanitárias, e uma zona de armazenamento de ferramentas e alguns materiais.
- Uma das características deste tipo de projecto é que as estruturas de montagem dos painéis podem adaptar-se razoavelmente à morfologia do terreno. Assim, não se prevê que a criação da central fotovoltaica possa implicar grandes movimentos de terra (aterros, escavações). Os trabalhos de construção civil previsíveis incluem principalmente:
    - A preparação (limpeza, regularização, construção da fossa séptica) da área para a instalação do estaleiro.
    - A instalação de uma vedação.
    - Criação de caminhos de acesso no interior do terreno.
    - A criação de valas de drenagem no perímetro da área vedada e ao longo dos caminhos de acesso.
    - A regularização do terreno na zona onde serão instalados os painéis e o edifício técnico. Prevê-se que os movimentos de terras a efectuar não gerem excesso de terras a depositar fora do perímetro da central fotovoltaica, nem exijam a importação de terras de zonas de empréstimo localizadas fora deste perímetro.
    - A abertura de valas para a instalação de cabos eléctricos no interior da central solar fotovoltaica.
    - A cravação de estacas no solo ou a instalação de blocos de betão para a fundação das estruturas metálicas de fixação dos painéis.
    - A montagem das estruturas metálicas.
    - A colocação dos cabos eléctricos nas valas.
    - A instalação dos equipamentos eléctricos.
    - A construção do edifício técnico, em betão e alvenaria.
    - A construção de bases de betão para a instalação dos inversores.
    - Abertura das fundações, colocação dos postes, instalação dos equipamentos e colocação dos cabos de ligação à linha de média tensão existente.
- Para a execução destes trabalhos serão utilizadas diversas máquinas, nomeadamente escavadoras, betoneiras e veículos de transporte de equipamentos e materiais.

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- A montagem dos colectores solares fotovoltaicos consiste essencialmente na fixação mecânica dos painéis à estrutura metálica, com recurso a grampos e parafusos ou equivalente, e nas ligações eléctricas dos painéis.
- Após a montagem dos painéis, proceder-se-á à ligação dos vários componentes do sistema eléctrico (inversores e equipamentos instalados no edifício técnico) e à realização dos testes e ensaios necessários, seguindo-se o arranque para produção de energia.
- A montagem dos painéis solares fotovoltaicos consiste essencialmente na fixação mecânica dos painéis à estrutura metálica, através de grampos e parafusos ou equivalente, e nas ligações eléctricas dos painéis.
- Após a montagem dos painéis, proceder-se-á à ligação dos vários componentes do sistema eléctrico e à realização dos testes e ensaios necessários, seguindo-se o arranque para produção de energia.
- A principal forma de energia a ser utilizada na fase de construção será o gasóleo para veículos e máquinas. Em algumas obras, sobretudo na fase final da construção, será utilizada energia eléctrica.
- As águas residuais domésticas produzidas nas instalações sanitárias pelos trabalhadores serão encaminhadas para uma fossa séptica a construir no estaleiro local. Não se prevê a produção de outros efluentes na obra, com excepção da eventual lavagem das betoneiras utilizadas em obra.
- Os resíduos sólidos domésticos serão produzidos principalmente pelos trabalhadores no local, materiais provenientes de escavações e resíduos associados aos trabalhos de construção e instalação de equipamentos, incluindo resíduos de embalagens. Não se prevê que o estaleiro de construção tenha uma área para manutenção de equipamentos e viaturas. Assim, não se prevê a produção de quantidades relevantes de óleos lubrificantes ou hidráulicos e outros resíduos tipicamente gerados neste tipo de actividade. Os diferentes tipos de resíduos gerados na obra serão separados e acondicionados em contentores específicos, e removidos para um destino final adequado, de acordo com as suas características.
- A operação de veículos e máquinas diversas na área da central fotovoltaica levará à ressuspensão de poeiras, para além da emissão de gases de combustão tipicamente resultantes do funcionamento de motores de veículos e máquinas.
- São de esperar emissões de ruído devido ao tráfego de veículos para transporte de equipamentos, materiais e pessoas, e à utilização de várias máquinas a utilizar nos trabalhos de construção. Prevê-se que a maior parte dos trabalhos decorra durante o dia.
- Prevê-se que a construção da central fotovoltaica dure cerca de 6 meses e que na fase de maior intensidade de mão-de-obra (um período de cerca de 3 meses, em que serão instaladas as estruturas de suporte e montados os painéis), possam existir cerca de 100 a 130 postos de trabalho.
- A maioria destes postos de trabalho temporários pode ser preenchida por pessoal local e relativamente pouco qualificado. Prevê-se que a direcção da obra e os postos de trabalho mais qualificados possam empregar cerca de 20 pessoas, algumas das quais poderão ser estrangeiras.

Os principais aspectos associados ao funcionamento da central solar fotovoltaica podem ser resumidos da seguinte forma:

- O funcionamento da central é controlado automaticamente, apenas necessitando de intervenção em caso de avaria ou por razões externas associadas ao funcionamento da rede.
- A manutenção da central solar fotovoltaica é fundamentalmente preventiva e inclui a limpeza dos painéis e a verificação do estado de certos componentes e parâmetros que podem indicar uma tendência para um funcionamento defeituoso.
- Dadas as condições específicas de Cabo Verde, em geral, e de Maio, em particular (incluindo a ocorrência de elevadas concentrações naturais de poeiras na atmosfera e a proximidade do mar), é de esperar que, tal como noutras centrais fotovoltaicas do país, seja necessária uma limpeza quase permanente dos painéis, de modo a não prejudicar o seu desempenho. Para a limpeza dos painéis

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existem várias soluções aplicáveis, nomeadamente limpeza a seco ou com água, limpeza mecânica ou manual. A solução recomendada a adoptar nesta central fotovoltaica será a limpeza manual com a minimização do consumo de água.

- As águas residuais serão os efluentes das instalações sanitárias, que se espera que sejam muito limitadas, dado o pequeno número de trabalhadores que estarão permanentemente no local. Assume-se que a fossa séptica que foi instalada na fase de construção permanecerá activa e receberá as águas residuais na fase de operação.
- A produção de resíduos na fase de operação será muito limitada e restrita aos resíduos da manutenção do equipamento, podendo incluir embalagens, baterias, painéis partidos ou danificados e componentes eléctricos ou electrónicos partidos. Os resíduos, incluindo quaisquer componentes que possam ter sido substituídos, serão entregues pela equipa responsável pela manutenção a operadores de gestão de resíduos autorizados.
- Não são esperadas emissões sonoras ou de poluentes atmosféricos relevantes decorrentes do funcionamento da central solar fotovoltaica. Contribuirá, no entanto, para a redução das emissões de poluentes atmosféricos resultantes da produção de electricidade a partir de combustíveis fósseis.
- Não se prevêem emissões de calor e luz devido ao funcionamento da central solar fotovoltaica.
- Prevê-se que possam ser criados até 6 postos de trabalho permanentes durante o funcionamento da central fotovoltaica, que serão fornecidos localmente para limpeza e manutenção geral. Para além destes postos de trabalho, haverá um recurso esporádico a pessoal especializado, não necessariamente estrangeiro, para actividades ocasionais de reparação ou manutenção.

No que respeita à fase de desactivação:

- Dado que não foram necessárias alterações topográficas significativas para a instalação da central, o seu desmantelamento será relativamente fácil.
- A maior parte das estruturas e equipamentos são relativamente fáceis de desmontar e transportar.
- O edifício técnico pode ser demolido (se já não for possível atribuir-lhe uma utilização útil).
- Muitos dos materiais resultantes do desmantelamento da central têm um potencial de valorização significativo (os próprios painéis fotovoltaicos, as estruturas metálicas e os cabos eléctricos).

Como trabalhos complementares à central solar fotovoltaica e à sua ligação à rede eléctrica da ilha, está também prevista a instalação de um Sistema de Armazenamento de Energia por Baterias, para atenuar as flutuações da procura e da oferta de electricidade e facilitar a injecção da electricidade na rede. Este sistema de armazenamento será fornecido e instalado no âmbito de um contrato separado e terá um Plano de Gestão Ambiental e Social específico. Em qualquer caso, é de notar que o equipamento para o sistema de armazenamento será embalado num contentor que será recebido em Cabo Verde pronto para ser instalado. No Maio, o BESS estará localizado ao lado da central solar PV, e terá uma capacidade de 1.016 MWh.

Em termos de cronograma, estima-se que poderá decorrer um período de seis (6) meses entre o início da construção (instalação do estaleiro) e a entrada em funcionamento da central solar fotovoltaica.

A instalação da central será efectuada no âmbito de um contrato de "Engineering, Procurement and Construction" (EPC), que abrangerá também a operação e manutenção da central por um período inicial de 2 anos, findo o qual a operação e manutenção serão asseguradas a título definitivo por outra entidade, na sequência de concurso a lançar especificamente para o efeito.

Quanto à vida útil das instalações, pode considerar-se um horizonte temporal de cerca de 20 anos, em condições normais de operação e manutenção.

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Quadro legal

A avaliação foi efectuada tendo em conta a legislação nacional aplicável, abrangendo, entre outros aspectos

- Regulamento de avaliação de impacte ambiental.
- Conservação e protecção da biodiversidade.
- Resíduos.
- Água e saneamento.
- Qualidade do ar, poluição sonora.
- Património cultural.
- Planeamento territorial e urbano.
- Violência de género.
- Expropriações.
- Saúde e segurança no trabalho.
- Trabalho e condições de trabalho.
- Código da estrada.
- Actividades de segurança privada.

Adicionalmente, e dada a fonte de financiamento do Projecto, foram também considerados o Quadro Ambiental e Social do Banco Mundial e as Directrizes Ambientais, de Saúde e Segurança (EHSGs) relevantes, nomeadamente as EHSGs Gerais e as EHSGs de Transmissão e Distribuição de Energia Eléctrica. O ESF contém um conjunto importante de requisitos, estruturados em normas ambientais e sociais, que abrangem aspectos como

- Avaliação e Gestão de Riscos e Impactes Ambientais e Sociais.
- Trabalho e condições de trabalho.
- Eficiência de recursos, prevenção e gestão da poluição.
- Saúde e segurança da comunidade.
- Aquisição de terras, restrições de uso da terra e reassentamento involuntário.
- Conservação da biodiversidade e gestão sustentável dos recursos naturais vivos.
- Património cultural.
- Envolvimento das partes interessadas e divulgação de informações.

Base de referência ambiental e social

A avaliação ambiental e social da central foi realizada tendo em conta a legislação nacional relevante aplicável e o Quadro Ambiental e Social do Banco Mundial, dada a fonte de financiamento do Projecto.

A avaliação envolveu uma caracterização ambiental e social do local proposto para a instalação fotovoltaica e da sua área envolvente, o que permitiu destacar os seguintes aspectos:

- O local do projecto situa-se numa zona montanhosa com um declive acentuado de norte para sul e de oeste para este. A altitude varia entre cerca de 56 e 49 metros.

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- A Ilha do maio tem um clima quente e regular. Os ventos dominantes durante todo o ano são os ventos alísios, que sopram do NE. A precipitação na ilha de Maio é baixa em comparação com as outras Ilhas de Leeward. A Ilha de Maio recebe forte radiação solar, o que lhe confere um potencial de energia solar muito elevado.
- As formações geológicas e litológicas da envolvente da área de estudo são compostas por calcários, principalmente calcarenitos, correspondentes a praias antigas (Plistoceno). O terreno tem uma suscetibilidade muito baixa a movimentos de inclinação e um risco vulcânico baixo.
- No local do projecto e na sua envolvente imediata não foram identificadas situações de risco de inundação e não existem recursos hídricos superficiais que sejam, ou tenham potencial para ser, explorados, nem esta área está inserida em qualquer sistema aquífero ou formação de interesse hidrogeológico de reconhecida importância.
- Os solos do terreno são incipientes e com afloramentos rochosos, com um potencial de produtividade muito limitado. Actualmente o terreno não tem qualquer utilização. Não foram registados indícios de erosão no local.
- A estrada EN3-MA-01 é actualmente a principal fonte de poluição atmosférica e sonora nas imediações do terreno. No entanto, a intensidade do tráfego é baixa e não gera uma degradação significativa da qualidade do ar ou incómodos sonoros. Deve ser feita referência às elevadas concentrações de partículas (poeiras) de origem natural que ocorrem em Cabo Verde.
- Em Maio existem importantes áreas de biodiversidade, e um número significativo de espécies ameaçadas pode ser encontrado na ilha. No entanto, o local do projecto não está localizado em nenhuma área chave de biodiversidade e não interfere com o Parque Natural de Maio, a única área protegida na ilha. Não foram identificadas espécies ameaçadas no local do projecto. De notar também que a ilha de Maio e o espaço marinho circundante foram designados como Rreserva da Biosfera pela Organização das Nações Unidas para a Educação, Ciência e Cultura (UNESCO) em Novembro de 2020.
- O local do projecto tem uma susceptibilidade muito baixa a baixa a incêndios florestais.
- A paisagem da área onde se insere o local do projecto tem um valor cénico e uma sensibilidade relativamente importantes. O local do projecto está moderadamente exposto visualmente, principalmente a partir da estrada EN1-MA-01.
- O terreno onde a central solar fotovoltaica está planeada para ser construída é propriedade do Estado.
- No local do projecto não existe qualquer povoamento humano, nem qualquer actividade económica conhecida. Os aglomerados populacionais mais próximos da área de estudo é a cidade de Porto Inglês, cerca de 1,5 km a sul.
- O local do projecto não interfere com quaisquer instrumentos de planeamento ou gestão do território.
- Não são conhecidos elementos do património cultural tangível ou intangível relacionados com o local do projecto.

Riscos e Impactes e Medidas de Mitigação associadas

Foi efectuada uma avaliação de riscos e impactes para a construção, operação e desactivação da central fotovoltaica. Os resultados desta avaliação podem ser resumidos da seguinte forma:

- Clima: não são esperados impactes climáticos ou microclimáticos na proximidade da central fotovoltaica. O seu funcionamento terá um impacte positivo ao evitar as emissões de gases provenientes da queima de combustível para a produção de electricidade, que causam poluição atmosférica e contribuem para o aquecimento global.
- Não são esperados impactes geológicos ou geotécnicos associados à implementação da central.

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- Não são esperados efeitos significativos em termos de utilização dos solos. Como em qualquer obra de construção, existe o potencial de contaminação do solo, o que justifica a adopção de medidas de mitigação.
- Não se prevê que os recursos hídricos sejam afectados pela implementação da central. Em todo o caso, e tal como indicado para os solos, justifica-se a adopção de medidas de mitigação para prevenir eventos de contaminação da água.
- Os trabalhos de construção podem causar um aumento localizado de poeiras, mas não se espera que isso afecte áreas residenciais. Em todo o caso, justificam-se medidas de mitigação.
- Do mesmo modo, não se prevê qualquer impacte sonoro em zonas residenciais.
- A paisagem local será afectada pela construção e presença da central fotovoltaica. Este impacte negativo não será razoavelmente possível de mitigar.
- Não se prevê que a artificialização da área da central fotovoltaica corresponda a um impacte negativo significativo em termos de biodiversidade. A produção de electricidade a partir da energia solar corresponde a um impacte positivo em termos de utilização de um recurso natural.
- Serão gerados diferentes tipos de resíduos, requerendo adopção de medidas de mitigação.
- Não são esperados impactes em termos de património cultural. Em qualquer caso, deve ser implementado um procedimento para lidar com a descoberta de recursos arqueológicos previamente desconhecidos durante o projecto.
- Não foi identificada qualquer interferência com os instrumentos de planeamento do território.
- O terreno onde será instalada a central solar fotovoltaica é propriedade do Estado e não suporta actualmente qualquer ocupação edificada ou actividade económica. Não são esperados impactes em termos de deslocação física ou económica.
- Os trabalhos de construção criarão um número relevante de postos de trabalho temporários. Deverão ser adoptadas medidas específicas para promover o recrutamento de mão-de-obra local e também o recrutamento de mulheres. Na fase de exploração, será criado um pequeno número de postos de trabalho não temporários, que poderão ser preenchidos localmente. Existe o risco de utilização de trabalho infantil e forçado na produção dos painéis solares (no estrangeiro), justificando a adopção de medidas preventivas específicas determinadas pelo Banco Mundial.
- Haverá riscos para a saúde e segurança do pessoal envolvido na construção e operação da central fotovoltaica, justificando a necessidade de planos de saúde e segurança específicos que detalhem as medidas preventivas e os procedimentos de emergência a adoptar.
- Não são esperados riscos significativos para a saúde e segurança das comunidades locais durante a construção ou operação da central fotovoltaica. No entanto, justificam-se medidas preventivas em relação ao tráfego associado aos trabalhos de construção e ao acesso de pessoal não autorizado a zonas de risco. Além disso, serão necessárias medidas específicas para a prevenção da Covid-19 e também para a segurança das instalações.
- Não se prevêem riscos significativos de incêndio relacionados com o projecto.
- Tendo em conta o afluxo limitado de mão-de-obra e a situação actual em termos de sensibilização e prevenção da violência de género em Cabo Verde, não são esperados riscos significativos a este respeito. Em qualquer caso, serão implementadas medidas preventivas, incluindo códigos de conduta rigorosos (conforme detalhado na secção 8.4.2 do estudo).
- Não são esperados riscos e impactes significativos em relação ao futuro desmantelamento da central. Em qualquer caso, será necessário gerir os materiais e equipamentos que serão retirados do local, promovendo a sua reutilização ou reciclagem, tanto quanto possível. Também se justificam medidas para facilitar a reintegração no mercado de trabalho do pessoal que será desmobilizado da central fotovoltaica.

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Como conclusão geral desta avaliação, não foram identificados riscos ou impactes ambientais ou sociais que afectem a sustentabilidade da central solar fotovoltaica.

Não foi identificada qualquer perda de recursos naturais relacionada com a central.

Os riscos e impactes negativos não são significativos, prevendo-se mesmo que o desenvolvimento do projecto tenha alguns impactes positivos, nomeadamente em termos de redução da dependência dos combustíveis fósseis para a produção de electricidade na ilha de Maio, de redução das emissões de gases com efeito de estufa e de melhoria da qualidade do ar.

Em todo o caso, recomenda-se a implementação de um conjunto de medidas, com o objectivo principal de prevenir os possíveis riscos e impactes negativos e de assegurar a sustentabilidade do Projecto.

Estas medidas podem ser resumidas da seguinte forma:

Medidas para a Fase Preparatória:

Riscos e impactes sobre:	Medidas relacionadas com
Geral	Mecanismo geral de resolução de queixas
	Códigos de conduta (prevenção da violência baseada no género e da violência contra as crianças)
	Envolvimento da comunidade
	Prevenção de Trabalho Forçado
	Articulação com outras Entidades
	Modelação detalhada do terreno
	Conclusão e pormenorização do Plano de Gestão Ambiental e Social
	Conclusão e pormenorização do Plano de Saúde e Segurança
	Gestão Laboral

Medidas para a fase de construção:

Riscos e impactes sobre:	Medidas relacionadas com
Geral	Formação e sensibilização do pessoal
Geologia, Geotécnia e Geomorfologia	Execução das obras • Utilização de áreas de empréstimo
Solos e usos do solo	Localização e funcionamento do estaleiro • Gestão de resíduos e águas residuais • Armazenamento e manuseamento de substâncias perigosas • Revisão e manutenção de máquinas Execução de obras • Gestão de Materiais resultantes de Escavações • Lavagem de betoneiras e resíduos de betão

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Riscos e impactes sobre:	Medidas relacionadas com
Recursos hídricos	Localização e funcionamento do estaleiro • Abastecimento de água à obra • Gestão de resíduos e águas residuais • Armazenamento e manuseamento de substâncias perigosas • Revisão e manutenção de máquinas • Lavagem de betoneiras e resíduos de betão
Qualidade do ar e Ruído	Execução de obras • Preservação da qualidade do ar e do ruído • Implementação do Plano de Segurança e Saúde
Resíduos	Localização e funcionamento do estaleiro • Gestão de Resíduos e Águas Residuais • Execução de obras • Gestão de Materiais resultantes de Escavações • Lavagem de Betoneiras e Resíduos de Betão
Património Cultural	Execução de obras • Descoberta de vestígios arqueológicos
Emprego e condições de trabalho	Formação e sensibilização do pessoal • Implementação do mecanismo de resolução de queixas (mantendo a sua acessibilidad divulgação junto dos trabalhadores) • Códigos de conduta (manutenção)
Saúde e Segurança no Trabalho	Implementação do plano de saúde e segurança
Saúde e Segurança da Comunidade	Execução de Obras • Vedação e Sinalização de Obras e Condicionamento da Circulação Pedonal e Automóvel • Prevenção de Incêndios • Plano de Emergência
Direitos Humanos	Formação e sensibilização do pessoal • Implementação do mecanismo de resolução de reclamações (mantendo a sua acessibilidad divulgação junto das comunidades) • Códigos de Conduta (manutenção)

Medidas para a Conclusão dos Trabalhos de Construção:

Riscos e impactes sobre:	Medidas relacionadas com
Geral	Reposição das áreas intervencionadas

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Medidas para a Fase de Operação:

Riscos e impactes sobre:	Medidas relacionadas com
Geral	Recrutamento de mão de obra Códigos de conduta Actualização do Plano de Gestão Ambiental e Social e do Plano de Segurança e Saúde Formação e sensibilização do pessoal
Solos e Usos do Solo	Gestão de resíduos e águas residuais Armazenamento e manuseamento de substâncias perigosas
Recursos hídricos	Uso eficiente da água Gestão de resíduos e águas residuais Armazenamento e manuseamento de substâncias perigosas
Resíduos	Gestão de resíduos e águas residuais
Emprego e condições de trabalho	Formação e sensibilização do pessoal Implementação do mecanismo de resolução de queixas (mantendo a sua acessibilidade e divulgação junto dos trabalhadores) Códigos de conduta (manutenção)
Segurança e saúde no trabalho	Implementação do Plano de Segurança e Saúde Plano de Emergência
Saúde e segurança da comunidade	Segurança das instalações Prevenção de incêndios Plano de Emergência
Direitos humanos	Formação e sensibilização do pessoal Implementação do mecanismo de resolução de reclamações (mantendo a sua acessibilidade e divulgação junto das comunidades) Códigos de Conduta (manutenção)

Medidas para a Fase de Desactivação:

Riscos e impactes sobre:	Medidas relacionadas com:
Geral	As medidas para a fase de desactivação serão, na sua essência e com as necessárias adaptações, idênticas às preconizadas para a fase de construção.
Gestão laboral	Formação do pessoal envolvido na exploração da central, para facilitar a sua reintegração no mercado de trabalho.
Resíduos	Reutilização ou reciclagem dos materiais e equipamentos desactivados

Tendo em conta os riscos e impactes analisados, não se considera justificável considerar possíveis localizações alternativas para este parque fotovoltaico. A sua não implementação, a chamada alternativa zero, seria incompatível com a estratégia de desenvolvimento das energias renováveis em Cabo Verde e impediria a sua contribuição para os objectivos do Projecto.

A implementação da central fotovoltaica de Maio foi avaliada como estando alinhada com as Normas Ambientais e Sociais (ESS) contidas no Quadro Ambiental e Social do Banco Mundial.

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Consulta e divulgação de informações e mecanismo de reparação de queixas

Pretende-se que as acções de consulta pública e de divulgação de informações ao longo do desenvolvimento do projecto estejam alinhadas com as boas práticas e os requisitos do Banco Mundial.

Em Julho de 2020 foram entrevistados membros da comunidade local com o objectivo de apresentar o projecto e oferecer e obter as suas opiniões sobre os riscos, impactes e possíveis medidas de mitigação do projecto.

Foram colocadas questões e dadas respostas sobre os seguintes aspectos:

- Localização do projecto e calendário de execução.
- Emprego a ser criado e benefícios para a comunidade local.
- Redução esperada do preço da electricidade em resultado do Projecto.

Os participantes fizeram as seguintes recomendações

- Recrutamento de trabalhadores locais.
- Redução do preço da electricidade.

A Câmara Municipal de Maio e a Delegação do Ministério da Agricultura e do Ambiente foram também consultadas na altura.

Em Julho de 2021, foi realizada uma reunião com as partes interessadas no município do Maio com os seguintes objectivos.

- Apresentar os objectivos do projecto e as actividades previstas.
- Apresentar o Mecanismo de Resolução de Reclamações implementado pela UGPE.
- Estabelecer o Comité Local de Gestão de Reclamações do Projecto.

A UGPE implementou um Mecanismo de Gestão de Reclamações (MGR) para o Projecto. Para o efeito, foram criados Comités Locais de Gestão de Reclamações, um em cada município onde se desenvolve o Projecto, bem como o Comité Central de Gestão de Reclamações, assim como os meios e procedimentos necessários para o funcionamento do Mecanismo de Gestão de Reclamações.

Qualquer pessoa ou grupo de pessoas associadas ao projecto ou afectadas pelas suas actividades pode apresentar uma pergunta, queixa ou reclamação.

Qualquer pessoa ou grupo de pessoas envolvidas no projecto, instituições parceiras, ONGs e associações de base comunitária, conselhos locais e qualquer indivíduo ou grupo afectado pelo projecto pode apresentar uma queixa. São aceites sugestões e queixas anónimas.

O MGR contém disposições relacionadas com a recepção e o registo das queixas, o seu tratamento, análise e investigação, verificação e acções subsequentes e o acompanhamento, monitorização e comunicação das queixas, bem como a estratégia de comunicação a adoptar.

Previamente ao início dos trabalhos, a UGPE promoverá a divulgação do MGR junto das várias partes interessadas e afectadas, incluindo as que trabalham no projecto.

Está prevista a realização de uma reunião pública, logo após a nomeação do empreiteiro e antes do início dos trabalhos, para apresentação do Empreiteiro, que, por sua vez, descreverá o seu plano de trabalho (actividades a realizar e respectivas datas previstas de início e fim), para apresentação das salvaguardas ambientais e sociais do Projecto, com destaque para as medidas de prevenção da

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Violência de Género e da Violência Contra Crianças, e para divulgação do Mecanismo de Resolução de Reclamações do Projecto.

O orçamento do projecto já cobre os custos de implementação e funcionamento do mecanismo de reparação de queixas.

Plano de gestão ambiental

Foi elaborado um Plano de Gestão Ambiental e Social (PGAS) com o objectivo principal de fornecer medidas de mitigação claras para os potenciais impactes sociais e ambientais identificados e de estabelecer um plano de gestão ambiental. Estas medidas correspondem às resumidas na secção acima relativa aos Riscos e Impactes e Medidas de Mitigação Associadas, aplicáveis às fases de preparação, construção, exploração e desactivação.

O PGAS clarifica as responsabilidades dos vários intervenientes na implementação das medidas de mitigação definidas para fazer face aos riscos e impactes do projecto. Os intervenientes são:

- UGPE, que estabelecerá desde o início os termos de referência a seguir para a gestão ambiental e social do Projecto, tendo em conta os requisitos legais aplicáveis e os requisitos da entidade financiadora do Projecto, e assegurará o cumprimento desses termos de referência. A UGPE supervisionará a obtenção de licenças e autorizações para a realização do Projecto, a articulação formal com as várias entidades oficiais envolvidas no processo e implementará um Mecanismo de Resolução de Queixas (GRM) para receber e processar reclamações relacionadas com o Projecto. A UGPE supervisionará a obtenção de licenças e autorizações para a realização do projecto, a articulação formal com as várias entidades oficiais envolvidas no processo e a implementação do Mecanismo de Gestão de Reclamações (GRM).
- O Engenheiro do Dono de Obra (*Owner's Enginner*), que será responsável por assistir a UGPE na aquisição de bens e serviços, controlar e supervisionar os trabalhos de construção, apoiar a implementação do programa de formação e apoiar e monitorizar a implementação das salvaguardas ambientais e sociais.
- O Empreiteiro para o contrato EPC (*Engineering, Procurement and Construction* – Engenharia, Contratação e Construção) será responsável pelos estudos detalhados de engenharia, pelo fornecimento de materiais e equipamentos necessários para tal, pela realização dos trabalhos de construção da central fotovoltaica, pela execução física das obras, sob a supervisão do OE e será, assim, o principal agente na geração de impactes ambientais e sociais durante a fase de construção. O Empreiteiro será igualmente responsável pela entrada em funcionamento da central fotovoltaica, bem como pela sua manutenção durante um período de 2 anos.
- O Operador. Num período inicial, a operação e a manutenção da Central Fotovoltaica serão asseguradas pelo Empreiteiro e, posteriormente, por um Operador a seleccionar através de um concurso a lançar para o efeito. Assim, o Operador será responsável pela gestão ambiental e social a longo prazo da central fotovoltaica.

O PGAS define ainda os requisitos aplicáveis à monitorização ambiental e social, nomeadamente em termos de acções dos diferentes intervenientes e dos indicadores a calcular, monitorizar e reportar.

É também estabelecido o calendário de implementação do PGAS e os requisitos aplicáveis à sua revisão.

A tabela seguinte resume as actividades de gestão ambiental e social a implementar para a subcomponente 1.1 do Projecto (central fotovoltaica e respectivas interligações com a rede eléctrica e os sistemas de armazenamento de baterias), indicando também os responsáveis e o custo estimado:

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Actividade	Responsibilidade	Custo estimado	Comentários
Implementação de medidas de mitigação (Empreiteiro e Operador)	Empreiteiro, Operador		As medidas de gestão ambiental e social a implementar pelo empreiteiro e pelo operador dependerão exclusivamente do cumprimento dos requisitos legais ou das melhores práticas aplicáveis e terão um custo reduzido, que deverá ser incluído no orçamento geral dos respectivos contratos. Não se prevê a necessidade de implementar qualquer medida de carácter ambiental ou social que implique custos de investimento.
Monitorização e Auditoria Ambiental e Social	UGPE	12,000 USD	Estimativa global dos custos associados à monitorização e auditoria ambiental e social do projecto, incluindo eventuais auditorias a realizar por entidades externas (ex.: Direcção Nacional do Ambiente, Delegações do Ministério do Ambiente e da Agricultura, Municípios, ICIEG). Os custos operacionais do Engenheiro do Dono de Obra e das equipas da UGPE não estão incluídos nesta estimativa
Envolvimento das partes interessadas	UGPE	5,000 USD	Estimativa global dos custos associados ao envolvimento das partes interessadas, incluindo reuniões públicas e divulgação de documentos informativos. Os custos operacionais do Engenheiro do Proprietário e das equipas da UGPE não estão incluídos nesta estimativa
Mecanismo de Gestão de Reclamações	UGPE, Comités Locais e Central de Gestão de Reclamações	10,000 USD	Estimativa global dos custos associados ao MGR, incluindo os Comités de Gestão Local e de Queixas. Os custos operacionais da equipa da UGPE não estão incluídos nesta estimativa.
Reforço das capacidades (tal como especificado no Plano de Compromisso Ambiental e Social)	Engenheiro do Dono de Obra, ICIEG	21,500 USD	Estimativa global dos custos associados à organização e realização das sessões de capacitação, incluindo a mobilização dos participantes. Os custos operacionais do Engenheiro do Proprietário e das equipas da UGPE não estão incluídos nesta estimativa
Formação dos trabalhadores do projecto (formação inicial do pessoal de enquadramento do Empreiteiro e do Operador)	Engenheiro do Dono de Obra, Empreiteiro, Operador, ICIEG	10,000 USD	Estimativa global dos custos associados à organização e realização das sessões de capacitação, incluindo a mobilização dos participantes. Os custos operacionais das equipas do Empreiteiro, do Operador, do Engenheiro do Dono de Obra e da UGPE não estão incluídos nesta estimativa
Total		58,500 USD	

Questões controversas

Não foram identificadas questões controversas em relação à central solar fotovoltaica De Maio.

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1. INTRODUCTION

1.1 Background

The present report presents the Environmental and Social Impact Assessment (ESIA) for the use of solar energy in the peri-urban area of the City of Porto Inglês, capital of the Municipality of Maio.

The present ESIA is carried out in the framework of the Cabo Verde Renewable Energy and Improved Utility Performance Project (the "Project").

1.2 Scope and Objectives of the Assessment

The Renewable Energy and Improved Utility Performance Project became effective on March 15, 2022, and has seen progress in implementing its components and activities under the World Bank's Environment and Social Framework (ESF). However, following the GoCV decision to scale of the Parent Project activities to maximize the development impact, the project will undergo an Additional Financing to the World Bank, and an extension of the closing date from December 31st, 2026, until December 31st, 2029.

Per Environmental and Social Standard (ESS) 1: Assessment and Management of Environmental and Social Risks and Impacts, the project's Environmental and Social Commitment Plan (ESCP) of the Project has been updated to accommodate new activities. Being so, this ESIA [3]has been prepared to comply with what is established in the ESCP, updating the ESIA for the Maio's solar PV power plant prepared in 2022/23 along with a set of safeguard instruments was prepared also in 2020/21 for the Project in order to meet the requirements of the World Bank's Environmental and Social Framework. These instruments included an Environmental and Social Management Framework (ESMF), an Environmental and Social Commitment Plan (ESCP), a Grievance Redress Mechanism (GRM) and a Stakeholder Engagement Plan (SEP), at a stage of project development when only a limited and generic set of characteristics and specifications of the PV plant were available.

Once the feasibility studies for the expansion of the Solar PV were developed, allowing the definition of the specifications that the expansion of the solar PV plant must meet, it became possible to prepare this ESIA to evaluate the potential environmental and social risks and impacts inherent to the implementation of that plant and to formulate the corresponding mitigating measures for significant E&S risks and impacts following mitigation hierarchy, as included in the Environmental and Social Management Plan.

The ESMP included in this ESIA will be included as an appendix of the EPC (Engineering, Procurement and Construction) contract, which will cover the detailed engineering studies, supply of materials and equipment, construction works and commissioning of the expansion of the solar PV plant, as well as its maintenance for a period of 2 years.

[3] The ESIA for the 1st phase of construction of Maio's PV solar plant and the ESMP for the installation of the Battery Energy Storage Systems (BESS) available at the links https://backend-ugpe.gov.cv/wp-content/uploads/2021/09/EIAS_MAIO-REIUP.pdf, https://backend-ugpe.gov.cv/wp-content/uploads/2021/09/1010-ALL-ENV-MGP-AR-1014_3.0.pdf respectively, are elements which may supplement/complement this ESIA.

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In developing this ESIA, relevant national legislation and the World Bank's Environmental and Social Framework have been considered.

1.3 Engagement and Mobilization of Consultant for the Assessment

This assessment was prepared by MRV Energy, the company selected as "Consultant" for the realization of the feasibility studies for Expansion of the solar PV plants, ESS facilities, and VRE grid integration in the islands od Fogo, Maio, Brava, Santo Antão, and São Nicolau.

1.4 Structure of the report

The report consists of this introduction and the following chapters:

- Project details: description of the location and other characteristics of the solar PV plant, with emphasis on those aspects that are more relevant to the environmental and social assessment of the project.
- Policy, Regulatory, and Institutional framework: Summarizes the analysis of the legal and institutional framework for the project within which the social and environmental assessment will be carried out.
- Environmental and Social Baseline: Characterization of the environmental and social conditions in the area where the project is planned to be implemented.
- Environmental and social risks and impacts: Identification and analysis of environmental and social risks and impacts during construction, operation, and decommissioning.
- Public consultation and disclosure of information: a summary of the public consultation and disclosure activities that have already been carried out and the results obtained.
- Environmental and Social Management Plan: presentation of the mitigation and monitoring measures, including the actions needed to implement these measures, in order to achieve the desired social and environmental sustainability outcomes.
- Final considerations.

2. PROJECT DETAILS

2.1 National Programs

The Project "Renewable Energy and Improvement of Energy Efficiency in Public Utilities" has as one of its main objectives to increase renewable energy generation.

This objective has direct correspondence with the global objectives defined in the Sectoral Strategic Plan for Renewable Energy (PESER abbreviation in Portuguese) and the Master Plan for the Electricity Sector (PDSE 2018-2040), regarding the increase of the weight of renewable energy and, specifically, solar PV energy, in the electricity generation mix in Cabo Verde. These goals are articulated with the scenarios envisaged in the Third National Communication of Cabo Verde for Climate Change (MAA/INMG, 2017) and the Intentional Nationally Determined Contribution (INDC) presented by Cabo Verde at the Paris Conference in December 2015, as well as in its update presented in 2020.

In practical terms, and according to the elements contained in the Third Cabo Verde National Communication on Climate Change, the production of electricity in solar PV plants allows a saving of 0.22 tons of fossil fuels (diesel or fuel oil) per MWh of solar PV energy (i.e., per MWh not produced by burning fossil energy): In other terms, one can also estimate a reduction of emissions 0.7 tons of

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CO^2 per MWh of energy produced by renewable sources (i.e., per MWh not produced by burning fossil energies).

2.2 Project Overview

The Project is financed by several international entities, namely the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA/World Bank), Canada Clean Energy and Forest Climate (CCEFCF) and the Global Infrastructure Facility (GIF) and has as main objectives to:

- Increase renewable energy production; and
- Improve the performance of the public electricity service in Cabo Verde, leveraging private financing.

To meet these objectives the Project integrates the following three components:

- Component 1 ("Renewable and Efficient Electricity Service") will fund investments to integrate variable renewable energy sources into the grid and provide sustainable and resilient electricity solutions to public health facility buildings.
- Component 2 ("Technical Assistance Services for the Restructuring and Privatization of the Electricity Sector", will cover technical assistance for the restructuring and privatization of the electricity sector (ELECTRA) and technical assistance to the Multisectoral Economic Regulation Agency.
- Component 3 ("Project Implementation Support and Technical Assistance") will support the Special Projects Management Unit (UGPE) in the management and coordination of the Project and provide technical assistance to the Ministry of Industry, Trade and Energy, more specifically to the National Directorate of Industry, Trade and Energy (DNICE).

Component 1 of the Project includes two subcomponents:

- Subcomponent 1.1 ("Integration of small-scale renewable energy") will support the construction of small-scale solar power plants, their connection to the grid, the installation of pilot energy storage facilities, as well as the operation and maintenance of investments developed under the project.
- Subcomponent 1.2 ("Resilient and Efficient Electricity Service in Public Services") will finance public investments in solar photovoltaic systems (on rooftops) and energy efficiency in public health buildings, including public hospitals and health centres.

Based on the priority needs of the Government of Cabo Verde (GovCV), under sub-component 1.1 the Project will support the implementation of four interventions considered in the second phase of the Electricity Sector Master Plan:

- Expansion of the Solar PV power plant with a capacity of 1.488 MWp (megawatts peak) in Santo Antão.
- Expansion of the Solar PV power plant with a capacity of 0.6 MWp in Maio; and
- Expansion of the Solar PV power plant with a capacity of 1.374 MWp in Fogo.
- Expansion of the Solar PV power plant with a capacity of 0.6 MWp in São Nicolau.

Each of these interventions is subject to its own ESIA.

The project will also include the connection of these plants to the grid and battery energy storage system facilities installed which will allow to reduce demand and supply fluctuations, thus supporting voltage and frequency regulation and integration of the electricity generated from the PV plants into the grid.

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2.3 Project Development Objectives and Benefits

According to the Project Appraisal Document, The Project Development Objectives (PDOs) are to

(i) increase renewable energy generation; and

(ii) improve the performance of the electricity utility in Cabo Verde by leveraging private finance.

Yet according to the Project Appraisal Document, the Project will increase Cabo Verde's renewable energy generation capacity, reduce CO_2 emissions, and reduce the power system losses to ultimately provide sustainable electricity services to the population of Cabo Verde and meet the GovCV's power sector reform and renewable energy targets.

It will also improve the efficiency and resilience of public health buildings, as well as support interventions to reduce the skills development and employment gender gap in the energy sector in Cabo Verde.

Finally, the proposed project will support the GoCV in achieving these targets by helping mobilize private and public capital for energy sector investments; increasing stakeholder capacity; and supporting the restructuring and privatization of ELECTRA[4], which is expected to result in improved efficiency and therefore reduced system losses.

2.4 Location of the Solar PV Plant on Maio Island

The photovoltaic park on the island of Maio will be located in the Renewable Energy Development Zone (ZDER) MA.2 ("Esgrovere"), as established in the Sectorial Strategic Plan for Renewable Energy (PESER - Resolution nº 7/2012, of 3 February). More specifically, the land made available for the location of the park has a total area of around 21,613 m2 (2.1 hectares) and is located in the peri-urban area of the City of Porto Inglês, capital of the Municipality of Maio, about 1.5km north of the city center, as shown in the following figure.

Figure 2 - Location of the expansion of the solar PV plant

[4] New entities: EDEC, EPEC, ONSEC

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Solar PV of 0.6 MWp

Coordinates PV Plant & BESS facility : 15.15°, -23.20°

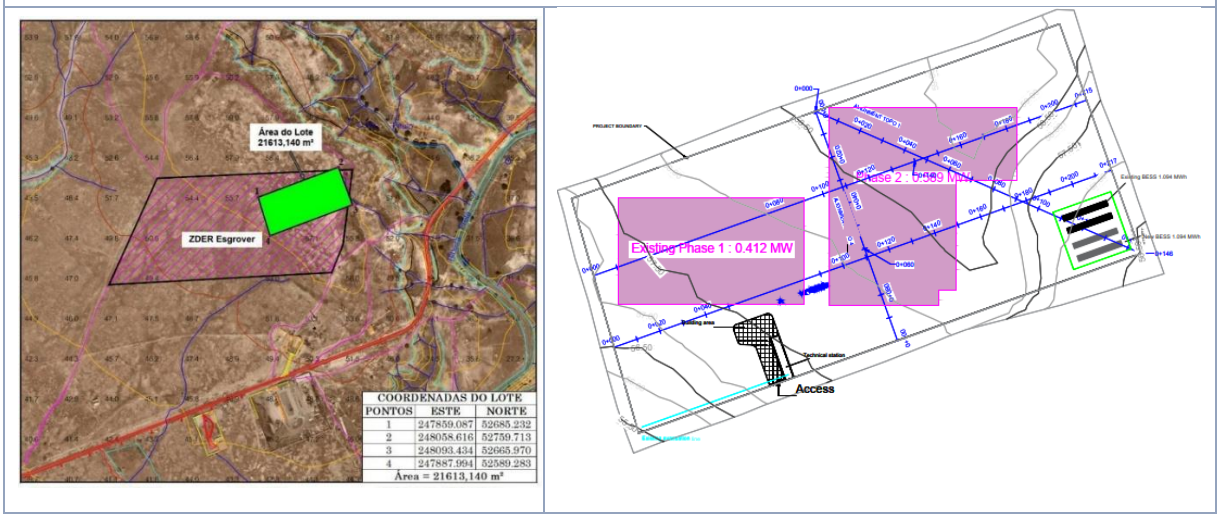

Figure 3 - Localization Plan (Source MRV & MF)

Following the preparatory work carried out by MRV Energy, including a reconnaissance of the plot of land, it was possible to identify the preferred location of the PV plant equipment in the northernmost part of the plot of land, leading to the schematic layout represented below:

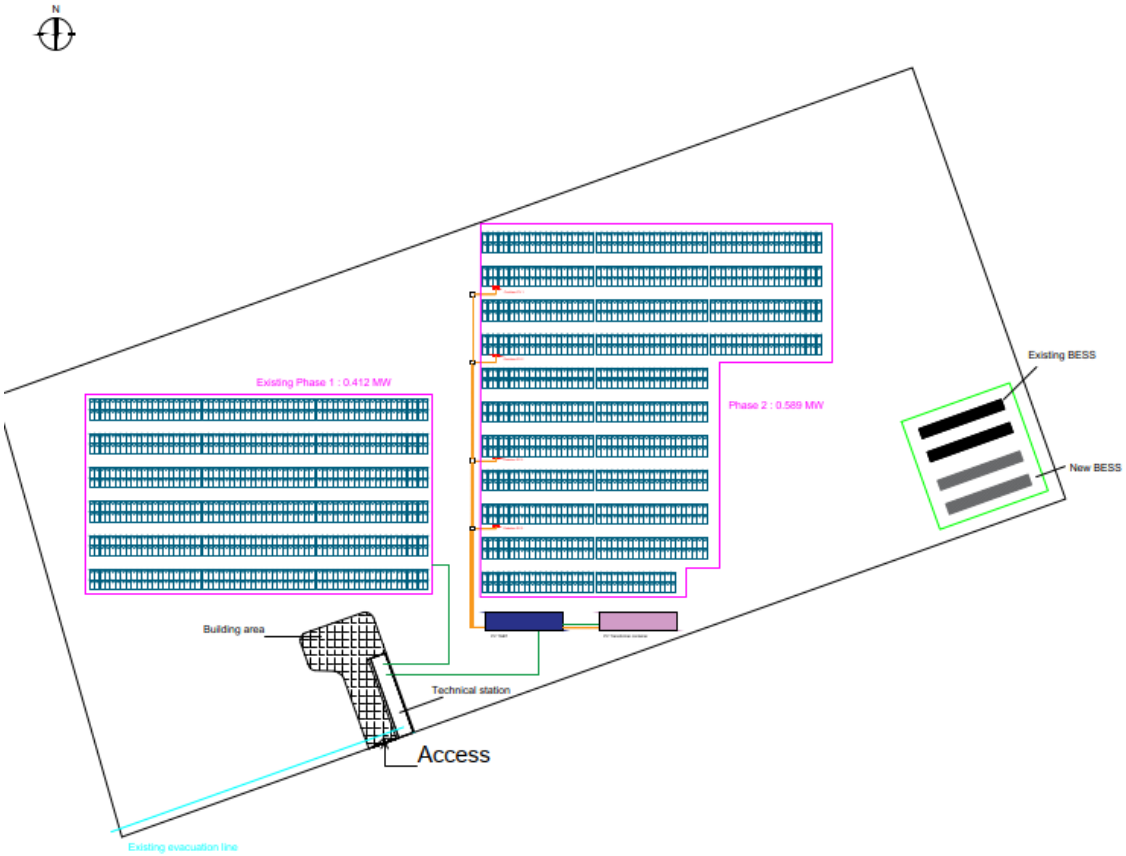

Figure 4 - Deployment of the solar PV plant on the plot of land

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2.5 Project Description and Key Performance Indicators

2.5.1 Implementing Agency

The Project will be implemented by the Special Projects Management Unit (UGPE) of the Ministry of Finance, which is responsible for the fiduciary management of the project.

2.5.2 Solar PV Plant Description

The solar PV effect is obtained through the incidence of light on a solar PV cell, which is made up of sheets of semiconductor materials, such as silicon. When light is incident on a solar PV cell, the photons that constitute the light collide with the electrons in the structure of the semiconductor material, generating an electric current.

A solar PV cell is the basic unit of a solar PV system. The most common types of solar PV cells on the market are monocrystalline, polycrystalline, and amorphous silicon cells.

Solar PV cells each produce a small electrical power. To obtain higher powers, the cells are integrated into solar PV modules (also called panels or collectors).

The solar PV modules therefore consist of several cells connected in series and/or parallel. Connecting several cells in series increases the voltage available, while connecting them in parallel increases the electrical current.

The yield coefficient corresponds to the proportion of solar energy transformed into electrical energy. In this case, it is planned to use panels with a yield coefficient of about 20%.

The large-scale production of electrical energy in a solar PV plant, for supply to the public grid, implies the installation of relatively large areas of solar PV panels. In the case of the plant in question, a total of 1101 panels are expected to be installed, covering a covered area of 2,853 m².

The electrical energy produced by solar PV cells and modules is in direct current, and it is necessary to convert it to alternating current, through inverters, for compatibility with the receiving grid. It is also necessary to raise the voltage of the energy produced to the grid voltage at the receiving point, through transformers.

The entire facility will be designed, installed, and operated to comply with applicable international standards and national regulations.

2.5.2.1 Solar PV Panels and Assembly Structures

The electrical energy generators consist of solar PV panels, which will be installed on metallic structures designed to position them for the best capture of the site's solar radiation (oriented to the South).

The panels are grouped in strings connected in series or in parallel and subsequently fixed to the metallic structure that rests on the ground, indirectly, with fixation to concrete blocks, or directly, through metallic profiles nailed or screwed directly to the ground using mechanical means. Micropiles, driven with light equipment, will also be an option.

The ground anchorages and structures are dimensioned to ensure the integrity and optimum operation of the panels under the possible wind effects considered for the site, throughout the life of the project. These anchorages and structures are dimensioned according to the applicable regulations, considering the specificities of the project site and the possible constraints and efforts

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caused, namely, by wind. In this case, the structures should be dimensioned to resist winds of up to 140 km/h and be resistant to corrosion caused by the proximity to the sea.

The distance between rows of panels is determined by the morphology of the terrain and should be sufficient to avoid loss of energy production by shading between panels.

Photo 1 - Solar PV panels and support structure set in concrete blocks (Santo Antão Island) (Source MRV)

Photo 2 – Solar PV plant with aluminum structures and concrete blocks in Madagascar (Source MRV)

The detail drawing of the panel mounting structures and their foundations will be prepared by the Contractor.

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Photo 3 - Drilling for implementation of the panel structures on Maio Island (Source UGPE - MRV

2.5.2.2 Inverters, Transformation Posts and Sectioning Posts

The inverter is an electrical equipment that has the function of converting the direct current coming from the solar panels into alternating current according to the standards of the electrical grid that will receive the electricity produced in the solar PV plant.

The inverter operation is totally autonomous. When there is sufficient solar radiation and the panels generate enough current to reach the inverter input limits, the equipment's regulation and control unit starts supervising the voltage and frequency on the grid side.

Whenever the grid parameters are in line with the grid connection requirements, and there is sufficient solar radiation, the inverter starts the process of injecting electrical power into the public grid. At dusk, when the available power is below the minimum limits for injection into the grid, the inverter completely disconnects from the grid and suspends its operation until the next day.

The solar panels will be grouped and connected to inverters (grouping configuration and number of inverters to be defined in the project).

The inverters convert the electric energy from direct current to alternating current, a reduced voltage, which in turn will be converted at the transformer stations to the voltage and frequency required for injection into the grid. In this case, it is planned to install 3 inverters, with a unit capacity of 125 kW, to be installed outdoors, near the groups of panels to which they will be connected.

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Photo 4 - Inverter installation on panel structures in Madagascar (Source MRV)

The inverters will be connected to transformers that can also be installed outside or inside the technical building (detailed solution to be defined by the Contractor). The transformers to be installed will be oil-filled and each transformer will be provided with a spill-containment tray.

2.5.2.3 Technical Building

The solar PV plant will have a small technical building, single story and with an implantation area of approximately 50 m^2, with dimensions and specifications to be proposed by the Contractor. This building will in principle be constructed of concrete and masonry and will be used to house the solar PV plant's control and management systems and the medium voltage equipment, which will interconnect to the public electricity grid.

Photo 5 - Technical building in construction in Maio Island (Source MRV)

This building will also house general support facilities for the operation of the plant (e.g., a small office, pantry, sanitary facilities, and storage area).

It is not planned to use SF6 in the circuit breakers to be installed. SF6 is a synthetic gas, used mainly by the electrical industry, as an insulating and arc extinguishing medium. It is a non-flammable gas, colorless, odorless, much denser than air, and nontoxic; however, it has a strong greenhouse effect (hence the importance of using it in a closed circuit, with no emissions).

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The building will be equipped with adequate accessories in the presence of live parts, such as rubber mat or wooden platform for maneuvering, maneuvering gloves, portable light source with autonomous power supply, table with first aid instructions, map to record the values of ground resistances and the triangular plates with the warning "*DANGER OF DEATH*," fixed in several more visible places.

The auxiliary systems will also include ventilation, alarm system and portable fire extinguisher, as well as means to ensure the permanent operation of the systems during the night and in case of a power outage.

The entire installation will be protected by an earth grid, integrating copper-plated steel rod electrodes buried vertically so that their tops are at least 80 cm deep. The number of these rods interconnected in the same circuit depends on what is necessary to obtain a resistance value as low as possible, below the regulatory value. The connections are made by bare copper cable between the electrodes and PVC insulated cable between the electrodes and the installation. It is also planned to install a weather station in the solar PV plant.

2.5.2.4 Interconnection with the Public Grid

The expansion capacity will be 1.374 MWp and the energy injection will be done via a very short connection to the 20 kV-medium voltage substation that will be built during the Phase 1 (EPC contract on going).

2.5.2.5 Battery Energy Storage Systems

During the deployment of phase 2, it is not planned to upgrade the Battery Energy Storage Systems (BESS) to be installed in 2025. The future capacity of the facilities is sufficient and sustainable to mitigate fluctuations in demand and supply of electricity and thus facilitate the regulation of voltage and frequency and the integration of renewable energy sources into the grid.

2.5.3 Key Performance Indicators

According to the PAD, the PDO indicators for this project are the following:

- Generation capacity of energy constructed or rehabilitated (Megawatt)
  - Renewable energy capacity installed as small-scale solar PV plants (Megawatt).
  - Renewable energy capacity installed as distributed solar PV (Megawatt).
- Power system losses (Percentage).
- Net greenhouse gas (GHG) emissions / Contribution to reduction of GHG emissions (Tons/year).

The indicators have direct relation with subcomponent 1.1 of the Project and with the subject solar PV plant.

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2.6 Planned Actions

2.6.1 Construction Phase

2.6.1.1 Construction Yard

To support the works, a small construction site will be assembled with containers, as usual in similar works, which includes a small meeting room, a support area for the staff, namely sanitary facilities, and a storage area for tools and some materials.

As the wastewater produced in the sanitary facilities of the site is exclusively domestic and given the relatively small number of workers expected, the sanitary facilities will be removable and should be connected to a septic tank (which may / should in the future serve the facilities to support the operation of the plant).

2.6.1.2 Civil Works

One of the characteristics of this type of project is that the structures for mounting the panels can reasonably adapt to the morphology of the terrain. Therefore, it is not expected that the creation of the solar PV plant may involve major earth movements (landfills, excavations). Foreseeable civil construction works include mainly:

- The preparation (cleaning, regularization, construction of the septic tank) of the area for the installation of the construction site (assumed to be inside the area for which the plant is planned to be built).
- The construction of the concrete masses for the poles and the placement of the wire mesh for the fence.
- The improvement of the access path and extension of access paths within the land.
- The creation of drainage ditches on the perimeter of the fenced area and along the paths.
- The regularization of the land in the area where the panels and the technical building will be installed.
- The excavations for the opening of trenches to install electrical cables inside the solar PV plant.
- Driving piles into the ground or concreting concrete blocks for the foundation of the metal structures fixing the collectors.
- The assembly of the metallic structure for fixing the collectors.
- The laying of the electric cables in the trenches.
- The installation of the electrical equipment.
- The construction of the technical building, in concrete and masonry.
- The construction of concrete bases for the installation of the inverters.
- Opening the foundations, placing the poles, installing the equipment, and laying the cables to connect to the existing medium voltage line.

For the execution of this work, a variety of machinery will be used, including excavators, concrete mixers, and transport vehicles for equipment and materials.

The purpose of the improvement and extension of the access roads inside the perimeter of the solar PV plant is to allow heavy vehicles and machinery to circulate to the locations where the collectors will be installed. These paths will not be sealed, and, after the work, the berms can be recovered, if

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necessary, remaining the minimum width necessary for the access of light off-road vehicles for maintenance operations.

As for the excavations, the resulting materials will be stored nearby and preserved for later soil replacement. The trenches will be open preferably on the side of the access roads, to minimize the areas of intervention of the work.

2.6.1.3 Mounting of Solar Collectors and Electrical Installations

The assembly of the solar PV collectors essentially consists of the mechanical fixing of the panels to the metallic structure, using clamps and screws or equivalent, and the electrical connections of the panels.

After the panels are assembled, the various components of the electrical system will be connected (inverters and equipment installed in the technical building) and the necessary tests and trials will be carried out, followed by the start-up for energy production.

2.6.1.4 Materials and Energy Used

The main materials to be used in the construction phase will include at the outset the following:

- For the construction work, the main materials to be used are as follows:
- Concrete for the fence post blocks, for the masonry building that will house the sectioning station and for the bases of the prefabricated cabins that will house the transformer stations.
- Concrete blocks for the masonry technical building.
- Concrete piles or concrete and metallic structures for fixing the panels.
- Metallic net and posts in metallic tube, for the plant's fence
- Sand for wrapping the cables in the trenches.
- Paint for painting the technical building and solvents for small corrections in some equipment, if necessary.
- Poles (wood) for connection to the existing medium voltage line.
- Solar PV panels.
- Metallic structure to support the solar PV panels.
- Aluminum cables, copper ground cables, various electrical wires for auxiliary services in copper and cables for communications.
- Tubes in plastic material for the passage of electrical cables.
- Inverters, transformers, relays and various electrical, electronic and computer equipment.
- Meteorological station to collect data on, at least, temperature, insolation, and wind.

The main form of energy to be used in the construction phase will be diesel fuel for vehicles and machinery (excavators, concrete mixers, etc.). In some works, especially in the final phase of the construction, electrical energy will be used, for lighting inside the technical building, and for some electrical or pneumatic tools.

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2.6.1.5 Foreseeable Effluents, Waste and Emissions

Wastewater

The domestic wastewater produced in the sanitary facilities by workers during the construction phase (the number for the time being undetermined but not expected to exceed two dozen during the most labor-intensive period) will be directed to the septic tank to be built on the local construction site.

No other effluents are expected to be produced at the site, except for the eventual washing of concrete mixers used on site. In this case, the concrete waste will be directed to a delimited area, which will be later remediated.

Waste

During the construction phase, solid domestic waste will be produced mainly by workers on site, materials from excavations and waste associated with construction work and equipment installation, including packaging waste (metal, plastic and cardboard packaging, wooden pallets and other waste resulting from the packaging of solar PV collectors).

Although in small quantities, there may also be waste from metal and wooden frames and formwork, as well as from damaged pallets and wooden reels of electric cables that cannot be reused.

It is not expected that the construction site will have an area for maintenance of equipment and vehicles assigned to the work. Thus, it is not expected the generation of relevant quantities of lubricating or hydraulic oils and other waste typically generated in this type of activity.

The different types of waste generated at the site will be separated and conditioned in specific containers, and removed to an adequate destination, assigned by the local authorities.

Noise

Noise emissions are to be expected because of vehicle traffic to transport equipment, materials and people, and the use of various machinery to be used in the construction work. It is expected that most of the work will take place during daylight hours.

Atmospheric Emissions

As mentioned, the construction of the solar PV plant is not expected to involve major landfills and excavations. In any case, there will always be the resuspension of particulate matter (dust) because of land clearing and regularization and the opening and closing of trenches. The traffic of vehicles and various machinery on unpaved roads will also lead to the resuspension of dust, in addition to the emission of combustion gases typically resulting from the operation of vehicle engines and machinery.

Light and Heat Emissions

The construction work is not expected to involve significant light and heat emissions. It is expected that the fencing of the plant and the metal structures for mounting the panels will use mostly mechanical connections, with modest use of welding. The fact that, predictably, the construction work will take place mostly during the day will imply a limited use of artificial lighting.

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2.6.1.6 Labor

It is foreseen that the construction of the solar PV plant will take about 4 months and that in the most labor-intensive phase (a period of about 2 months, when the support structures will be installed and the panels assembled), there may be about 50 to 80 jobs.

Most of these temporary jobs can be filled by local and relatively unskilled personnel. It is anticipated that the site management and higher-skilled jobs may employ about 15 people, some of whom may be foreigners.

2.6.2 Operation Phase

2.6.2.1 Operation of the Solar PV Plant

The objective of the operation of the solar PV plant is to capture energy from solar radiation and convert it into electrical energy through solar PV cells.

The solar radiation originates an electric current in the solar PV cells, which are grouped into modules. The modules, in turn, are grouped in series and in parallel, in several sets, as needed, according to the size of the plant and the desired electrical voltage.

The electric energy produced by the solar PV panels is in direct current, and it is necessary to use inverters to convert it to alternating current, and transformers to raise the voltage according to the requirements of the receiving grid.

The operation of the plant is automatically controlled, only requiring outside intervention in case of breakdown or for external reasons associated with the operation of the grid.

The control and protection systems ensure the optimized operation of the plant and compatibility with the electrical grid, to avoid damage to its components and possible disturbances to the stability of the electrical grid.

Through the control and monitoring systems installed in the technical building and the communications system, it is possible to remotely control and consult various operating parameters.

2.6.2.2 Maintenance

The maintenance of the solar PV plant is fundamentally preventive and includes cleaning the panels and checking the status of certain components and parameters that may indicate a tendency for faulty operation.

The reliability of PV solar collectors is very high, however small malfunctions can occur in the plant, namely in terms of electrical and electronic control systems (relays, fuses, microprocessors, batteries, etc.). In these cases, it may be necessary to replace defective components.

Major failures, namely in collectors, inverters, and transformers, are rare. However, if they do occur, it will be necessary to repair or, as a last resort, replace the defective parts.

Apart from exceptional maintenance operations (replacement of panels, inverters, etc.), routine maintenance is required as indicated in the table below:

Given the specific conditions of Cabo Verde, in general, and the Island of Maio in particular (including the occurrence of high natural concentrations of dust in the atmosphere and proximity to the sea), it

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is to be expected that, as in other solar PV plants in the country, an almost permanent cleaning of panels is necessary, so as not to impair their performance.

Table 1 - Maintenance and Monitoring of PV Plants

Maintenance Activity	Description
Periodic verification of installations	Regular verification of the proper functioning of the site's electrical installations (video surveillance, motors, inverters, transformers, etc.).
Replacement of electrical elements	As needed with age
Maintenance of the mechanical components of the plant	Some of the panels will need to be replaced throughout the life of the plant. In fact, panels may malfunction due to thermal shock, mechanical shock, or a manufacturing anomaly. Security devices, i.e., intrusion detection and fire protection, will be regularly checked and kept in good working order.
Modules cleaning and visual inspection	Cleaning of the PV modules is necessary to ensure maximum energy production from the PV plant
Maintenance of the site's vegetation	No phytosanitary product should be used during the maintenance of vegetation.

For the cleaning of the panels there are several applicable solutions, including dry or water cleaning, mechanical or manual cleaning. The solution to be adopted in the plant under study will be confirmed in the engineering studies to be developed by the Contractor, considering, among other aspects, the specificities of the panels to be installed and the applicable requirements (for example, in terms of guaranteed panel performance). However, the basic recommended solution will be manual cleaning and minimizing water consumption, for the following reasons:

- Job creation, albeit limited in number, during the entire operation period of the PV plant that would be the case with mechanical means.
- Potential reliability problems / maintenance needs of mechanical cleaning systems.
- Higher investment costs and energy consumption for the operation of mechanical cleaning systems,
- The use of cleaning solutions with minimized water consumption (preferably dry cleaning) is justified by the scarcity of water resources in Cabo Verde in general and in the island of Maio, in particular.

2.6.2.3 Energy Production

As previously mentioned, an expansion of solar PV plant with an installed capacity of 0.6 MWp is planned.

This will be in line with the nationally established goals and targets regarding the increased penetration of renewable energy, and solar PV energy specifically, and consequently the reduction of fossil fuel imports and consumption and associated emissions.

The energy produced in the plant and injected into the grid will be accounted for through an energy meter, under conditions to be established under the applicable legislation.

2.6.2.4 Materials and Energy Used

The materials used in the operation phase will be normally associated with maintenance, including namely:

- Replacement of electrical and electronic components.
- Replacement of panels (in case of breakdown or deterioration).

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As previously mentioned, the cleaning of solar panels may require the consumption of some fresh water. Given the scarcity of water, it is recommended to adopt a cleaning solution that reduces or even eliminates water consumption.

The consumption of electrical energy in solar PV plants, namely for command-and-control systems, protections and communications will correspond to a small percentage of the energy produced.

2.6.2.5 Effluents, Waste and Foreseeable Emissions

Waste Waters

The only residual waters in the operation phase will correspond to the sewage from the sanitary installations, which will be, predictably, of a reduced quantity, given the limited number of workers that will be permanently on the installations (essentially for cleaning and safety). It is assumed that the septic tank that was installed in the construction phase will remain active and will receive the wastewater in the operation phase.

Solid Waste

Waste generation in the operation phase is very low and is restricted to waste from equipment maintenance, and may include packaging, batteries, broken or damaged collectors, and broken electrical or electronic components.

These wastes, including any components that may have been replaced, will be handed over by the team in charge for the maintenance to authorized waste management operators, in accordance with the waste transfer procedures required by national legislation.

Noise

The operation of the PV solar plant will not cause noise emissions likely to cause disturbance in the neighborhood.

Atmospheric Emissions

The operation of the solar PV plant does not cause atmospheric emissions but contributes to reduce emissions resulting from the production of electricity from fossil fuels. Emissions from vehicles used in maintenance activities will be negligible, since these activities will occur very sporadically and on a very small scale.

Light and Heat Emissions

No heat and light emissions are expected because of the operation of the solar PV plant.

2.6.2.6 Labor

It is anticipated that up to 4 permanent jobs may be created during the operation of the PV plant to be supplied locally for cleaning and general maintenance activities. In addition to these jobs, there will be sporadic assignment of specialized personnel, but not necessarily foreigners, for occasional repair or maintenance activities.

2.6.3 Decommissioning Phase

Given that no significant topographical changes were required to install the plant, it will be relatively easy to decommission.

Most of the structures and equipment are relatively easy to dismantle and transport.

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The technical building may be demolished (if it is no longer possible to assign it a useful use).

Many of the materials resulting from the decommissioning of the plant have significant potential for recovery (the PV modules themselves, the metal structures, and electrical cables).

2.7 Schedule

Indicatively, it is estimated that a period of six (6) months may elapse between the start of construction (installation of the construction site) and the commissioning of the solar PV plant.

The EPC contractor will be responsible for operation and maintenance of the solar PV plant for an initial period of 2 years, after which operation and maintenance will be provided on a definitive basis by another entity following a tender to be launched specifically for this purpose.

As for the useful life of the facilities, a time horizon of about 20 years can be considered, under normal operation and maintenance conditions.

3. POLICY, REGULATORY, AND INSTITUTIONAL FRAMEWORK

3.1 Legal and Regulatory Framework

The main legal instruments applicable to the development of the project from an environmental and social point of view and, in particular, to the environmental (and social) impact assessment, are the following:

- The Environment Policy Framework Law (Law No. 86/IV/93) that establishes the bases of Cabo Verde's environmental policy, starting from the principle of prevention, based on the reduction or elimination of the causes, and the correction of the effects of actions or activities that may alter the quality of the environment.
- The Legislative Decree no. 14/97, of July 1st, whose objectives are to optimize and guarantee the use of natural resources, qualitatively and quantitatively, as a basic assumption for a self-sustained development, and to safeguard the citizens' right to a healthy and ecologically balanced living environment and the duty to defend, preserve, and it is up to the State and the Municipalities to promote the improvement of the individual and collective quality of life.
- Decree-Law 1/2011, of January 3, which establishes the provisions relating to the promotion, incentive and access, licensing, and operation inherent to the exercise of the activity of independent production and self-production of electricity, based on renewable energy sources.
- Decree-Law No. 27/2020, of March 19, establishes the legal regime for environmental impact assessment (EIA) of public or private projects likely to have an impact on the environment, revising the regime that had been in force since 2006. One of the changes introduced has to do with the categorization of projects, leading to projects of different types being subject to demanding evaluation processes.
- Decree-Law No. 27/2020 sets the requirements for environmental impact assessments and evaluation processes to align more closely with internationally recognized best practices and the standard requirements of international funding institutions.
- Decree-Law No. 27/2020 also established a project categorization system, ensuring that different types of projects undergo appropriate evaluation processes. These range from Category A, which applies to more complex projects requiring a full Environmental Impact Assessment, to Category C, which covers simpler projects that only require the approval of environmental management measures. According to this regulation, solar PV plant projects with less than 2 hectares fall into

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Category B, requiring the submission of a simplified environmental impact study. Solar PV plants with more than 2 hectares fall into Category A, requiring a full EIA.

However, it is necessary to consider the provisions of article 10(4) of Decree-Law 54/2018, of October 15 , which proceeds with the third amendment to Decree-Law 1/2011), particularly:

"4. The PESER(Sectoral Strategic Plan for Renewable Energy) approval replaces and waives the Environmental Impact Assessment (EIA) process or Environmental Incidences studies during the respective licensing process, when the projects are integrated in Renewable Energy Development Zones (ZDER)"

As the PV plant at Maio Island was planned to be located inside a ZDER established in the PESER (the current location had to be adjusted due to land ownership issues), considering this provision, it could be exempted from the respective EIA process. However, in the new EIA legal regime, approved by Decree 27/2020, of March 19, the EIA exemptions no longer have a legal framework.

It is understood that the procedure that has been adopted in comparable situations, i.e., to projects that, considering the former legal regime could be exempt from EIA, is to consider them as Category C projects, applying to them the simplest and most expeditious process, based on the presentation of Environmental Management Measures. In addition to accepting the measures proposed by the proponent or imposing other measures, the EIA Authority (the National Directorate of the Environment) also establishes the monitoring and reporting requirements, punctual or periodic, on the environmental performance of the project and issues the Environmental Authorization within 20 days from the date of receipt of the report with the environmental management measures.

It is worth mentioning other laws of great importance in more specific matters:

- Decree-Law No. 8/2022 of April 6th, which establishes measures for the conservation and protection of species of flora and fauna that must be given special protection as components of the biodiversity and as an integral part of the natural heritage of Cape Verde; this Decree-Law revokes the Regulatory Decree 7/2002.
- Decree-Law No. 3/2003 of February 24, as amended by Decree-Law No. 44/2006 of August 28, which establishes the legal regime regarding natural spaces, landscapes, monuments, and other spaces that deserve special protection and must be integrated in the National Network of Protected Areas, due to their ecological function, importance for the conservation of biodiversity, and interest from a socioeconomic, cultural, or scientific point of view.
- In the field of waste, it is worth noting Decree-Law No. 56/2015 of October 17, which establishes the general waste regime, applicable to the prevention, production and management of waste and approves the legal regime for licensing and concession of waste management operations. In addition to this decree, there are several other relevant pieces of legislation, namely Decree-Law No. 26/2020 of March 19 establishing the legal regime for solid urban waste management services, Decree-Law No. 65/2018 approving the National Waste List, Decree-Law No. 32/2016 approving the National Strategic Plan for Waste Management and Ordinance No. 18/2016 establishing the guide model for monitoring waste road transport.
- In the water and sanitation sector, Legislative Decree no. 3/2005, of October 19, which approves the Water and Sanitation Code - B.O. 29/07/2015, the Decree-Law nº 8/2004 that regulates the criteria and standards for water quality and its classification and the Decree-Law nº 7/2004 that regulates the discharge of wastewater and the Regulatory Decree nº4/2020, of 4 March, which establishes the criteria and parameters to control the quality of water for irrigation, of surface or underground origin, desalinated water, recovered rainwater or treated wastewater;
- In the field of air quality, Decree-Law no. 5/2003 of March 31, defines the national air protection and control system.

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- Law nº 34/VIII/13 of July 24th, which establishes the prevention and control of noise pollution, aiming to safeguard people's rest, peace, and well-being.
- Law nº 85/IX/2020 of April 20th, which establishes the Legal Regime of Protection and Values of the Cultural Heritage.
- Legislative Decree No. 4/2018, of July 6, which approves the Bases of Territorial Planning and Urban Planning and Legislative Decree No. 61/2018, of December 10, which establishes the National Regulations for Territorial Planning and Urban Planning.
- Law No. 84/VII/2011 of January 10 - Establishes measures to prevent and repress the crime of gender-based violence (GBV Law).
- Legislative Decree nº 2/2007, de 19 de Julho - Soils Law.
- Legislative Decree no. 3/2007, of July 19 - Expropriation of real estate due to public utility reasons.
- Decree Law No. 55/99, September 6 - Establishes rules on safety, hygiene, and health at work.
- Decree Law No. 64/2010, December 27 - Establishes the general rules for planning, organization, and coordination to promote safety, hygiene, and health at work on construction sites.
- Legislative Decree No. 1/2016, of February 3 - Cabo Verdean Labor Code.
- Legislative Decree nr. 4/2005 (altered by Legislative Decree nr. 1/2007 of May 11th - Cabo Verdean Labor Code - approves the Highway Code.
- Law 8/V/96, of November 11, altered by Law 59/VII/2010, of April 19 - prohibits the driving of vehicles by individuals under the influence of alcohol.
- Law no. 50/VII/2009, of December 30 defines the legal regime for the exercise of private security activities.

3.2 World Bank Environmental and Social Standards (ESS)

As mentioned in the Introduction, in developing this ESIA apart from the relevant national legislation, the World Bank's Environmental and Social Framework (ESF) has been considered, given the funding source for the Project. Being so, a comparison between the national legal framework and the requirements of the ESF is presented in Annex 1. The following Environmental and Social Standards (ESS) applies to the project:

- ESS1 - Assessment and Management of Environmental and Social Risks and Impacts: No significant gaps or conflicts are identified between the requirements of ESS1 and those of the national legislation on EIA.
- ESS 2 - Labor and Labor Conditions: No significant gaps or conflicts are identified between the requirements of ESS2 and those of national legislation on labor and labor conditions. At most, it should be noted that national legislation does not have as explicit requirements as ESS2 on labor management procedures or the adoption of a formal project-specific code of conduct, aspects that thus should be addressed in accordance with ESS2.
- ESS 3 - Resource Efficiency, Pollution Prevention and Management: The legal framework is relatively complete but lacks specific regulations in many areas; national practice in emission control and environmental quality monitoring is relatively incipient. This justifies the use of good practices and international guidelines to complement the existing gaps in the country.
- ESS 4 - Community Health and Safety: No significant gaps or conflicts are identified between the requirements of ESS4 and those of national legislation, which, however, does not have as explicit requirements as ESS4, which should therefore be considered. Regarding private security services,

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the requirements in national legislation are considerably aligned with the requirements set out in ESS 4.

- ESS 5 - Land Acquisition, Land Use Restrictions, and Involuntary Resettlement: National legislation has significant gaps compared to the requirements of ESS 5. Thus, even though there is convergence in aspects such as the types of payment, in-kind compensation, the consideration of regular occupants and the determination of the eligibility date, in several other aspects there are gaps or even divergence between the national legislation and ESS 5, namely with regard to the persons eligible for compensation, the fact that irregular occupants are not covered, relocation assistance, compensation alternatives, the failure to consider economic displacement, the absence of specific provisions to protect vulnerable groups, adequate dissemination of information, relevant consultation and informed participation, or monitoring and evaluation procedures. In other words, the sole consideration of national legislation does not allow safeguarding an important set of requirements of ESS 5, thus the use of the instruments and the observation of the requirements foreseen in this ESS should be foreseen.
- ESS 6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources: The requirements of ESS 6 should be applied complementarily to what follows from national legislation (very focused on protected areas).
- ESS 8 - Cultural Heritage: Recent national legislation is reasonably aligned with the requirements of ESS 8, and no significant gaps or conflicts are identified.
- ESS 10 - Stakeholder Engagement and Information Disclosure: Despite the improvements introduced with the new legal regime of environmental impact assessment, the options adopted in terms of stakeholder engagement and information dissemination do not fully address the requirements of ESS.
- The World Bank Group General Environment Health and Safety Guidelines (EHSGs) and the EHSGs for Electric Power Transmission and Distribution were also considered in developing the ESIA.

3.3 Environmental and Social Risk Classification

According to the Project Appraisal Document (October 2021), the environmental and social risk of the project have been classified as Moderate. This classification is linked to the facts that:

- The protected areas and areas of high biodiversity values will be avoided, that some temporary, localized.
- Adverse environmental and social impacts and risks of minor to moderate scale are anticipated, mainly during the construction phase (related to the proposed infrastructure works including the construction of the four small-scale power plants, the grid expansion/reinforcement and the pilot battery storage facilities);
- Since the site is situated within state-owned land, no land acquisition is necessary , nor temporary or permanent physical or economic displacement.
- The expected risks and impacts can be managed using appropriate ESF instruments.

3.4 Institutional Framework

The National Directorate for Industry, Commerce and Energy (DNICE) is the public entity responsible for all technical aspects related to the Project and for ensuring that it is aligned with the national objectives and policies of the energy sector in Cabo Verde. DNICE is also, in formal terms and under the General Regime, the entity responsible for the licensing inherent to the exercise of the activity of independent production and self-production of electricity based on renewable energy sources (Decree - Law 54/2018).

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The Project will be implemented by the Special Projects Management Unit (UGPE) of the Ministry of Finance, which is responsible for the fiduciary, environmental, and social management of the project. UGPE establishes the terms of reference to be observed in terms of environmental and social management of the Project, considering the applicable legal requirements and the requirements of the financing institutions and will ensure that these terms of reference are met.

The UGPE will also be responsible for the formal articulation with the various official entities involved in the process and for obtaining the necessary licenses and authorizations for the implementation of the Project's different interventions.

The expansion of the solar PV plant object of the present assessment will be implemented following a tender to be launched for an EPC (Engineering, Procurement and Construction) contract. Thus, the detailed engineering design of the plant will already be prepared by the EPC contractor. The contractor will be responsible for the operation and maintenance of the PV plant for an initial period of two years. After this period, these activities will be carried out by an entity, in principle national, to be selected through a tender process to be launched for that purpose.

An International Consulting Firm will act as the "Owner's Engineer" to support DNICE and UGPE in the Implementation, Control and Supervision of the works and supplies included in sub-component 1.1 of the Project. The Consultant's intervention thus includes supporting the development and implementation of environmental, social and health and safety management tools, support in the contracting of goods, works and services, control and supervision of the construction works, and support to the UGPE in training activities.

As entities not directly involved in the Project but with a decisive role in the fulfillment of environmental and social safeguards, the following can be highlighted:

- The National Directorate for the Environment (DNA) of the Ministry of Agriculture and Environment , under the legal regime of environmental impact assessment, is the Environmental Impact Assessment Authority (EIAA).

As such, the DNA will be responsible for deciding on the Environmental Impact Assessment procedure applicable to the solar PV plant and conduct the same, under the terms laid down in the regulations.

- The Maio City Council, in addition to participating in the ESIA commission, also has powers to monitor compliance with the conditions established under the EIA process.
- Similar competencies are also held by the Delegation of the Ministry of Agriculture and Environment in Maio Island.

The General Inspectorate of Labor has powers to monitor and ensure the application of legal, conventional, regulatory, and contractual provisions relating to employment, working conditions, and the protection of workers in the exercise of their duties, and compliance with standards relating to safety, hygiene, and health at work.

4. ENVIRONMENTAL AND SOCIAL BASELINE

4.1 Overview

The biophysical and socio-economic characterization of the site where the PV plant expansion is proposed and its surrounding area, presented here, is based on the characterization contained in the

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P-ESIA, which was carried out using field reconnaissance and consultation of cartographic and other published information, as well as stakeholder consultations.

As part of the work carried out by the MRV Energy team, a complementary field survey was carried out, allowing the previously prepared characterization to be complemented.

4.2 Topography

The project site is located on flat area with a gentle slope from north to south and from east to west. The elevation varies between approximately 59 and 55 meters.

Access to the site is via the EN3-MA-01 road, Anel do Maio (Porto Inglês - Morro - Calheta - Morrinho - Cascabulho - Pedro Vaz - Pilão Cão - Porto Inglês, present immediately to the south).

Figure 5- Geographic framing of the planned solar PV plant

4.3 Climate

Maio island as a warm and regular climate, with an average annual temperature around 24º C. The fact that the island is windy makes the periods of great heat in May more bearable than in less exposed regions of other islands.

The dominant winds during the year are the trade winds, which blow in the NE direction. They are generally constant winds, with occasional high intensity gusts. In the months from December to March, the harmattan season, the winds tend to turn eastward. The wind intensity remains constant throughout the year with an average speed of about 30.3 km/h.

Rainfall in Maio is low, even lower than on the other islands of the leeward group.

A meteorological characterization of Maio Island is presented below, obtained from the Meteonorm software (v8) commonly used in solar energy projects and used for the simulation studies of the present solar PV plant.

This software contains a solar irradiation database for the period 1996-2015, as well as temperature, wind, and precipitation databases for the period 2000-2019, using data obtained via satellite in areas with low density of meteorological stations.

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4.3.1 Global Horizontal Solar Irradiation

Solar irradiation is an important parameter in the calculation of energy efficiency and the performance evolution of solar PV technologies.

An accurate assessment of this irradiance is necessary to determine the energy efficiency and economic profitability of the solar power plant development project. The global horizontal irradiation data for the Maio site are presented in the table below.

Table 2 - Monthly solar irradiation (kWh/m²/month)

Month	NASA	Meteonorm V8	PVGIS	Arithmetic Average	Average weighted
Jan	156.90	143.30	144.60	148.27	145.7
Feb	161.60	146.20	163.70	157.17	153.5
Mar	206.20	188.40	205.60	200.07	196
Apr	209.70	192.60	216.30	206.20	201.9
May	218.20	192.90	226.20	212.43	206.2
Jun	196.50	172.60	205.60	191.57	185.6
Jul	195.00	170.60	186.60	184.07	178.8
Aug	194.70	177.40	180.70	184.27	180.9
Sep	182.10	156.90	173.70	170.90	165.5
Oct	177.00	155.10	180.70	170.93	165.7
Nov	150.60	141.10	147.20	146.30	144.3
Dec	147.90	132.30	143.50	141.23	137.8
Total	**2196.40**	**1969.40**	**2174.40**	**2113.40**	**2062.10**

Solar irradiation on Maio Island is 2062.10 kWh/m²/year, giving it a very high solar energy potential.

4.3.2 Temperature

Temperature data is used for energy efficiency prediction. In fact, the increase or decrease in temperature has a consequence on the performance of the solar PV modules, the more the temperature of a module increases, the more its power decreases.

For a temperature increase from 25 to 75 °C, modules can lose up to 27% of their power.

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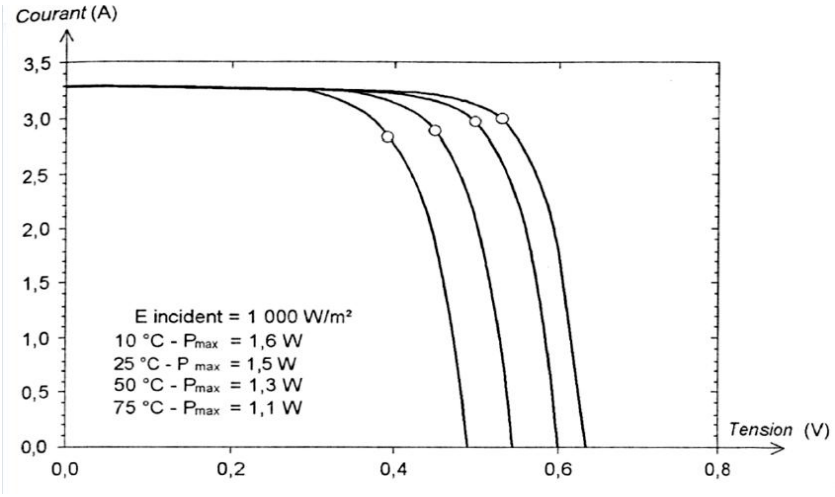

Figure 6 - I (V) curve of a single-crystalline cell at various temperatures

Therefore, temperature is an important parameter to consider when predicting the energy efficiency of the solar plant.

Table 3 - Monthly temperature at the site (°C)

Month	NASA	Meteonorm V8	PVGIS	Weather spark	Arithmetic Average
Jan	20.8	21.8	19.2	23.0	21.2
Feb	20.2	21.2	17.6	22.0	20.3
Mar	20.3	21.8	18.9	23.0	21.0
Apr	20.7	21.9	19.0	23.0	21.2
May	21.4	23.0	19.7	24.0	22.0
Jun	22.2	23.6	22.7	25.0	23.4
Jul	23.1	25.3	22.5	26.0	24.2
Aug	24.3	26.7	24.2	27.0	25.6
Sep	24.8	26.9	24.4	27.0	25.8
Oct	24.5	26.7	23.9	27.0	25.5
Nov	23.7	24.6	22.6	25.0	24.0
Dec	22.2	23.2	21.4	24.0	22.7
Average	22.4	23.9	21.3	24.7	23.1

4.3.3 Wind

The influence of wind is dominant in determining the mechanical strength of the PV panel attachment structures.

Average wind speed data for the site at 10 meters above ground are presented in the table below.

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Table 4 - Monthly average wind speed (m/s)

Month	NASA	Meteonorm V8	PVGIS	Weather spark	Arithmetic Average
Jan	7.3	7.0	8.9	7.5	7.7
Feb	7.2	6.8	9.0	7.4	7.6
Mar	6.7	6.6	7.9	7.0	7.1
Apr	6.8	6.8	9.8	7.2	7.7
May	6.9	6.9	9.1	7.2	7.5
Jun	6.4	6.4	7.0	6.6	6.6
Jul	5.1	5.2	7.0	5.3	5.7
Aug	5.0	4.8	5.6	5.0	5.1
Sep	5.6	5.2	6.8	5.8	5.9
Oct	6.0	5.4	6.0	6.2	5.9
Nov	6.1	5.5	8.3	6.4	6.6
Dec	6.7	5.9	6.4	7.0	6.5
Average	6.3	6.0	7.7	6.6	6.7

The average speed reaches a maximum in Jan/April (7.7 m/s) and a minimum in August (5.1 m/s). The sizing of the structures will be done conservatively, considering the probability of occurrence of hurricane winds.

4.3.4 Precipitation

The amount and frequency of precipitation can have an impact on the solar plant (flooding, cleaning of panels, etc.) and on solar energy production (cloud passage).

The precipitation data from the site is shown below:

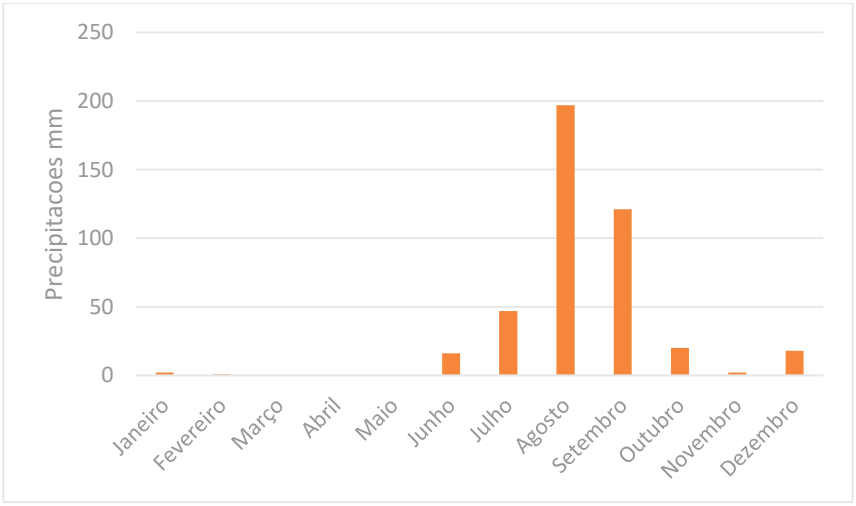

Figure 7 - Average monthly precipitation (mm)

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4.3.5 Humidity

Relative humidity has an important impact on the life cycle of a solar PV plant, influencing the corrosion caused that eventually degrades the installation.

Table 5 - Monthly relative humidity (%)

Month	NASA	Meteonorm V8	PVGIS	Arithmetic Average
Jan	75.0%	69.1%	72.9%	72.3%
Feb	77.8%	70.5%	73.7%	74.0%
Mar	78.7%	70.8%	75.5%	75.0%
Apr	79.6%	72.5%	79.8%	77.3%
May	81.6%	72.3%	79.7%	77.9%
Jun	83.2%	75.5%	83.4%	80.7%
Jul	82.3%	74.4%	82.5%	79.7%
Aug	82.2%	76.3%	82.3%	80.3%
Sep	82.6%	80.2%	84.4%	82.4%
Oct	80.5%	75.4%	77.5%	77.8%
Nov	78.3%	74.0%	77.6%	76.6%
Dec	76.2%	70.8%	28.1%	58.4%
Average	79.8%	73.5%	74.8%	76.0%

4.4 Geology, Geotechnics and Geomorphology

From the point of view of geology and geomorphology, the geological and lithologic formations of the surroundings of the project implementation area are composed of limestones, mainly calcarenites, corresponding to ancient beaches (Plistocene).

No signs of exploitation of aggregates have been identified on the site.

From the point of view of natural hazards, it is important to mention the work done under the Project "Analysis and Mapping of Hazards in Cabo Verde" (UNDP, 2014), with the following aspects to highlight:

- Slope movements, including landslides (falls), slides (slips) and runoffs (flows) occur throughout the archipelago of Cabo Verde, but have their greatest expression on the islands that have a more rugged relief. As can be seen in the following figure, the site of the solar PV plant has a very low susceptibility to slope movements.
- An assessment of the volcanic hazard of the whole country was carried out, and in the area surrounding the PV plant the hazard is low.
- In Maio Island the seismic hazard is low.

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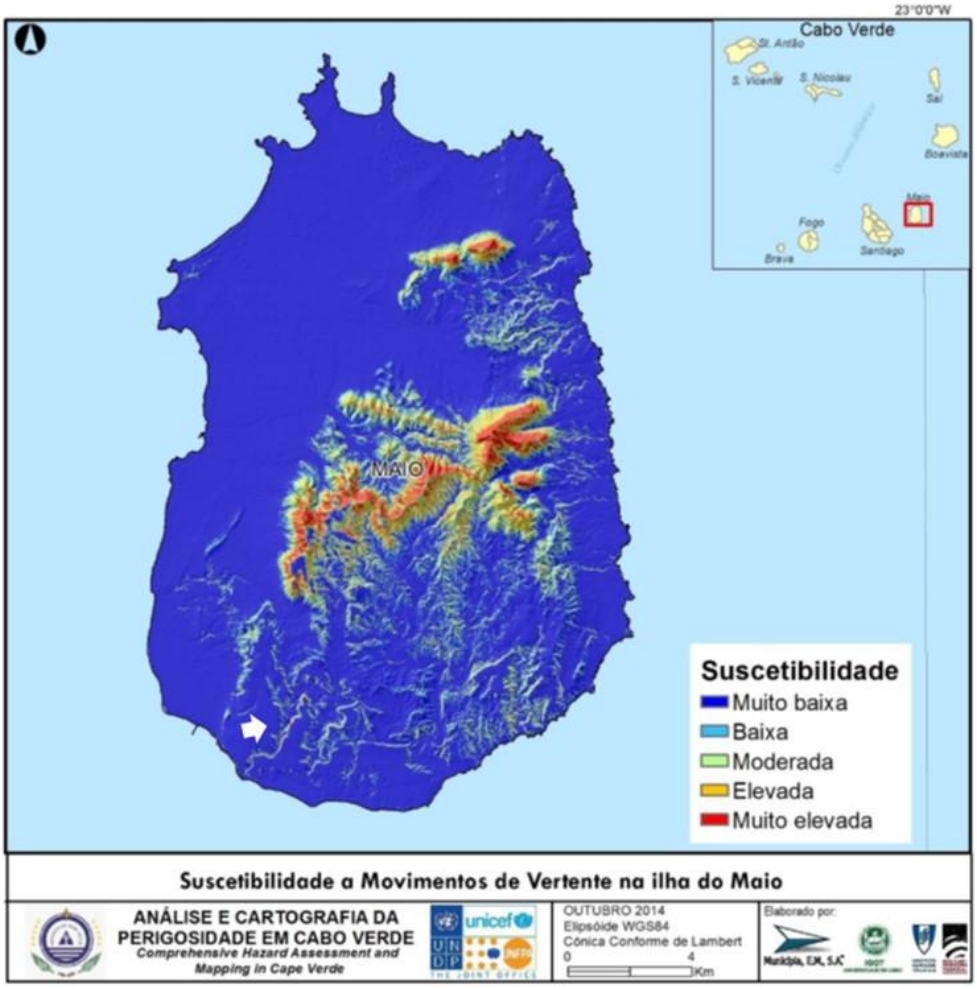

Figure 8 - Susceptibility to slope movement in Maio Island

4.5 Water Resources

In the project site and its immediate surroundings there are no surface water resources that are, or have the potential to be, exploited.

To the North of the plot of land is the Ribeira Cava Paulo, which flows into the Ribeira Preta, to the East of the study area. These are torrential water lines (like all of them in Cape Verde), which carry water only in short periods of rain, but which can be of considerable intensity. Nevertheless, the study area is not inserted in any aquifer system or formation of hydrogeological interest.

The study area is not crossed by any stream and in the scope of the Project "Analysis and Mapping of Hazards in Cabo Verde" (UNDP, 2014) no situations of flood risk/flooding and in particular flash floods) have been identified in the PV plant implementation area.

4.6 Soil and Land Use

The land in question is located in an inhospitable area, very arid, with incipient (poor) soils and very dense stoniness. In addition to being skeletal, these soils have a very low organic matter content and very low fertility.

Currently, the area where the photovoltaic park is located has no use.

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There is no evidence of erosive processes.

Photo 6 - Typical aspect of the soil in the study area (Source MRV)

4.7 Air Quality

The power plant (where electricity is produced from burning fuel) present about 250m south of the plot of land, the existing municipal waste dump about 300 m east / southeast of the plot and the EN3-MA-01 road, south / east of the plot, are currently the main sources of air pollution in the vicinity of the site.

Reference should be made to the high concentrations of particulate matter (dust) of natural origin that occur in Cabo Verde.

No sensitive receptors were identified, in terms of air quality, in the immediate vicinity of the project site and in the direction of the prevailing winds. The first dwellings and school establishments of the City of Porto Inglês are located more than 800 m to the southwest of the PV plant area.

4.8 Noise

The power plant present about 250m south of the plot of land, and the EN3-MA-01 road, south / east of the plot, are currently the main sources of noise in the vicinity of the site.

No sensitive receptors were identified in terms of noise, in the immediate vicinity of the project site and in the direction of the prevailing winds The first dwellings and school establishments of the City of Porto Inglês are located more than 800 m to the southwest of the PV plant area.

4.9 Biodiversity

Lying off the coast of continental Africa, the isolation of the Cabo Verde archipelago combined with local species adaptations have resulted in important levels of species richness and endemism.

According to Fifth National Report on the State of Biodiversity (2015), prepared in the framework of the Convention on Biological Diversity, in terms of terrestrial biodiversity Santo Antão, followed by Santiago and Fogo, are the islands with the highest number of plant species. Santo Antão, followed by São Nicolau and Fogo, are the islands with the highest number of endemism, while Santa Luzia and islets have the least. Santiago, followed by Santo Antão and S. Vicente, are the islands with the largest

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number of animal species and, in the same order, with more endemic species. Santa Luzia and islets also have the lowest number of animal endemism.

Cabo Verde is recognized as a global hotspot for marine biodiversity and supports a high diversity of emblematic and unique marine animals, including marine mammals, marine turtles, marine birds, and sharks. The level of endemism is high within benthic invertebrates.

In Maio Island there are eight protected areas, created through Decree-Law 3/2003, of February 24:

- Terras Salgadas - Natural Reserve, Casas Velhas - Natural Reserve, Barreiro e Figueira - Natural Park, Lagoa Cimidor - Nature Reserve, Praia do Morro- Nature Reserve, Salinas do Porto Inglês- Protected Landscape, Monte Penoso and Monte Branco - Protected Landscape, Monte Santo António - Protected Landscape.

Also, to note that the Maio island and the surrounding marine space was designated as a biosphere reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO) at the end of 2020.

According to the data provided in the Integrated Biodiversity Assessment Tool (IBAT)[5] there are 20 IUCN Red List of Threatened Species (Critically Endangered - CR, and Endangered - EN) potentially found in a radius of 50 km from the project site (this radius includes the entire Maio Island and the easternmost Part of the nearby Santiago Island). The site corresponds to a modified habitat, i.e. where there are large proportion of plants and/or animal species of non-native origin, and where human activity has substantially modified the primary ecological functions of the territory and the species composition.

[5] https://www.ibat-alliance.org/. IBAT is developed and maintained by the IBAT Alliance (BirdLife International, Conservation International, UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), and IUCN)

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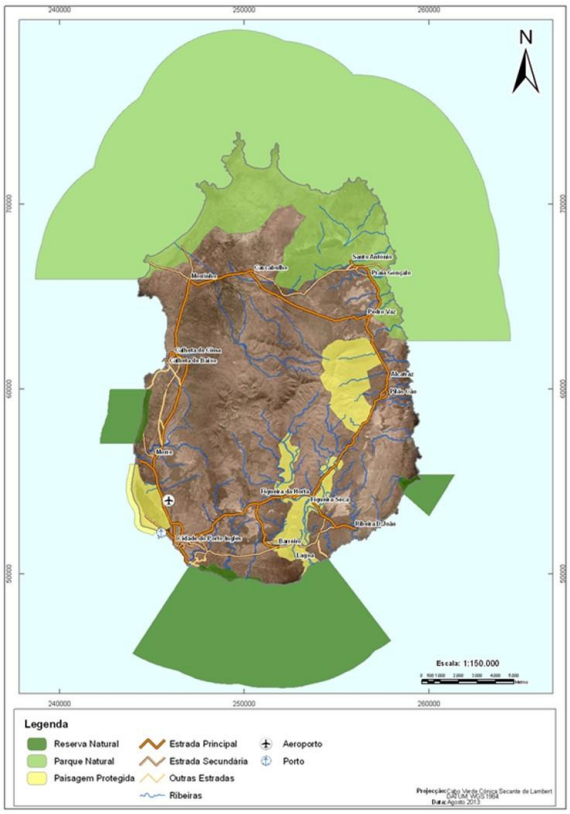

Figure 9 - Protected Areas of Maio Island

The project does not interfere with any of Maio's protected areas, all more than 1.5 km away.

Photo 7 - Overview of the vegetation in the project site

As part of the Project "Analysis and Mapping of Hazard in Cabo Verde" (UNDP, 2014) the susceptibility of the island of Maio to forest fires was assessed, revealing that the area for where the PV plant is planned has a very low to low susceptibility to forest fire.

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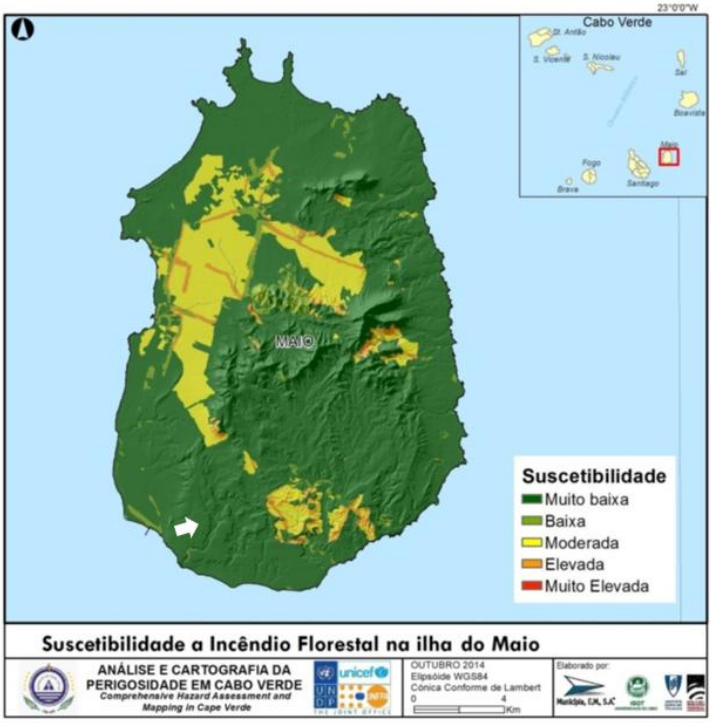

Figure 10 - Susceptibility to forest fire

Regarding ecosystem services, i.e., ecosystem functions that generate benefits and well-being for individuals, communities, and society in general, it appears that in the project site the provisioning and cultural services provided by the ecosystem are very low, in practice null. Also, the regulation and support services provided by the ecosystem are, due to the biophysical characteristics of the project site, quite incipient.

4.10 Landscape

In the current situation the area under study presents a landscape with limited scenic value and sensibility, arid and with a relevant degree of artificiality in its surroundings, due to the presence of the Power Plant and other built structures, the road EN3-MA-01 and the city of Porto Inglês.

The visual exposure of the PV park area is low in the current situation and is expected to increase in the future with the development of the industrial park in the surrounding area and consequent increased accessibility to the whole area.

4.11 Socio-Economic Baseline

4.11.1 Population and Economic Activities

According to the preliminary results of the 5th General Census of Population and Housing (INE, 2021) the resident population in the municipality of Maio in 2021 was 6,298 inhabitants, of which 3,183 (50.5%) were males and 3,115 (49.5%) females.

Between 2010 and 2021, the resident population in Maio decreased by 0.9 %.

The results of the 2021 Census also indicate that 71 % of the population of the Maio municipality resides in urban areas and 29 % in rural areas with a total of 2,035 households (average size 3.1).

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According to the Labor Market Statistics-Year 2020 (INE, 2021), the unemployment rate in the county of Maio in 2020 was 13.5 % (comparatively, at the national level it was 14.5 %). According to the Household Statistics and Living Conditions-Continuous Multi-Objective Survey 2019 (INE, 2020), 99.5 % of households in Maio had access to electricity from the public grid in 2019, 88.4 % had a connection to the public water supply network, and 2.5 % had no sanitary facilities in the dwelling.

The solar PV plant is located in an area of the Maio municipality without any human settlement or economic activity however, the installation in the surroundings of an industrial park of municipal initiative is planned.

The nearest population cluster to the area of the future photovoltaic park is the town of Porto Inglês, about 1.5 km to the south.

4.11.2 Land Tenure and Land Use

As verified by the Directorate General of Patrimony and Public Procurement, the land on which the solar PV plant is planned to be built is owned by the State.

Another very relevant aspect is that the land does not currently support any built occupation or economic activity.

Note the presence of infrastructure in the immediate vicinity to the north of the plot, including the power station, the EN3-MA-01 road, telecommunications towers and the municipal waste dump.

4.11.3 Cultural Heritage

There are no known elements of tangible (movable or immovable property, sites, structures, groups of structures and natural resources and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance) or intangible cultural heritage (practices, representations, expressions, knowledge, skills - as well as the associated instruments, objects, artifacts, and cultural spaces) related to the project site.

4.11.4 Territorial Planning

For the characterization of the area of implantation of the solar PV plant, it is important to consider the following legal instruments of territorial planning:

- Urban Planning (EROT, PDM, PU, PD).
- Environment (protected areas).
- Tourism Planning (ZDTIs).
- Infrastructure (public networks).

According to the Basic Law on Spatial Planning and Urban Development, territorial planning in Cabo Verde is promoted through Land Use Plans (DNOT, EROT, PEOT) and Urbanistic Plans (PDM, PDU, PD). The PDU and PD are developed in previously defined areas of the main urban centres, constituting a basic element of control of urban planning requirements imposed for a given area of the national territory.

Despite its proximity to the urban area, the intervention area does not interfere with the spatial planning of the Municipality of Maio and the urban planning of the City of Porto Inglês. It is a state-owned land, for which the Municipality of Maio foresees the creation of an industrial park and has been indicated as an area that meets the necessary conditions to host projects using solar energy.

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The following figure, provided by the Municipality of Maio, illustrates the urban framework of the plot of land under study.

In terms of environmental constraints and concerning protected areas, created through Decree-Law 3/2003 of 24 February, the analysis carried out allowed us to conclude that the area under study does not present any interference with protected areas.

Regarding tourism planning, Law No. 85/VII/2011, of January 10, establishes the basis of public policies for tourism. Under the terms of Article 7 of the same law are declared special tourism zones the areas that, due to the relevant characteristics of their natural and cultural resources and historical value, can originate national and international tourist flows.

The Special Tourism Areas are classified into Integral Tourism Development Areas (ZDTI) and Tourism Reserve and Protection Areas (ZRPT).

Law No. 75/VII/2010, of August 23, establishes the legal regime for the declaration and operation of Special Tourism Areas. According to the same legislation, Special Tourism Areas are areas identified as having special aptitude and vocation for tourism based on their endogenous potential or with significant potential for future tourism development.

No ZDTIs or ZRPTs are defined for the area where the PV plant is to be located.

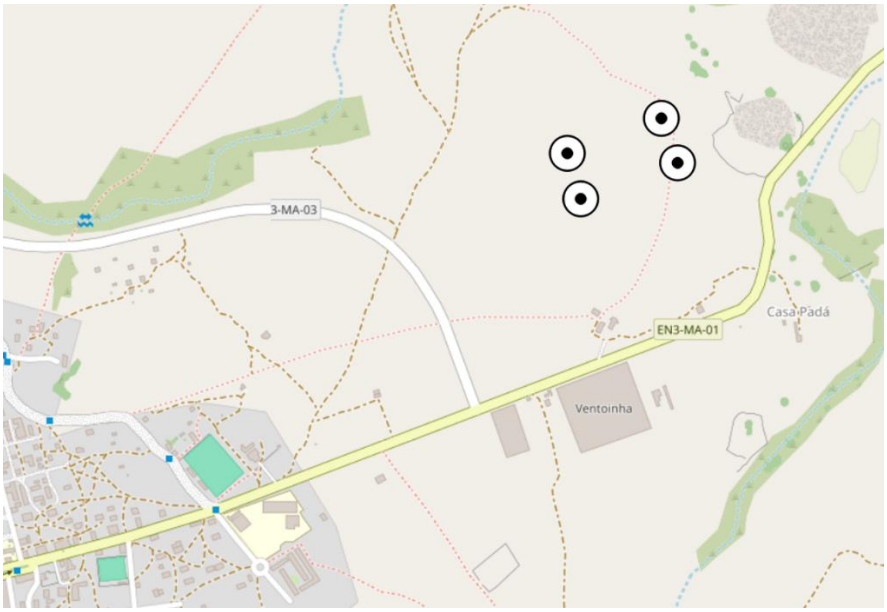

Figure 11 - Urban framing

5. ENVIRONMENTAL AND SOCIAL RISKS, IMPACTS AND MITIGATION MEASURES

5.1 Methodological approach

Based on the description of the actions that will typically occur during the development of the solar PV plant (the primary causes of impacts, described in chapter 2) and the biophysical and socio-economic factors (whose characterization was presented in the previous chapter) on which these

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actions could produce effects, it was possible to identify and assess the main risks and impacts potentially associated with the solar PV plant.

Essentially, the analysis carried out aims to highlight the potentially most significant risks and impacts, to:

- Identify upfront if there are any risks or impacts so serious (significant) that they would advise against, for environmental or social reasons, the development of the plant.
- If this is not the case (i.e., if there are no environmental or social reasons that would make the plant unfeasible), to achieve a better focus of the environmental and social management initiatives to be carried out during the PV plant development process.

The analysis of the risks and impacts was done using a set of criteria, as applicable to the specificity of each impact, and include the following:

- Regarding their character, the impacts were classified as positive or negative.
- The magnitude of the impacts will be classified as high, moderate, or low.
- According to the geographic scope of influence, the impacts were classified as local, regional, or national taking into account the size of the area in which their effects are felt.
- The probability of occurrence or degree of certainty of the impacts were determined based on knowledge of the characteristics of each of the actions and each environmental factor, allowing each of the impacts to be classified as certain, probable, or unlikely.
- As for the duration, the impacts were considered temporary if they occur only during a certain period, and permanent otherwise.
- With regard to reversibility, impacts were considered as having an irreversible or reversible nature, depending on whether the corresponding effects remain in time or are annulled, in the medium or long term, namely when the respective cause ceases.
- The type of impact: if it is a direct impact - determined directly by the Project - or an indirect impact - induced by Project-related activities.
- Any cumulative impacts were also be noted, that is, impacts determined or induced by the Project that will add to existing or anticipated disturbances as a result of other projects or activities on any of the environmental factors considered.

Finally, each impact was assigned a significance, taking into account the results of the classification according to the criteria above and the sensitivity of the EIA team to the consequences of the impact in the specific context of the project.

In the following sections, the significance of the impacts as its global evaluation, focusing on the consequences the associated degree of mitigation effort required is stated. The rationale for assigning significance to the impacts is presented in the following table.

Thus, the following sections present the analysis of risks and impacts relative to various biophysical and socio-economic factors. Whenever justifiable, a differentiated analysis was made for the construction phase and for the operation phase for each of the factors, and a joint analysis was also prepared for the decommissioning phase. A summary of the risks and impacts analyzed is presented at the end.

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Table 6 - Rationale for Assigning Significance to Impacts

Significance	Description	Measures
Low or reduced (negligible risk or impact)	Environmental or social change is expected, but the consequence of the risk or the magnitude of the impact is small and well within acceptable standards, and/or the receptor is of low sensitivity/value. Spatially and temporally limited risk or impact.	Mitigation of risks and negative impacts not essential, being always necessary the observation of good practices. Measures to enhance positive impacts should be considered if they involve an effort compatible with the expected benefit
Medium or moderate (significant risk or impact)	Risk or impact that may exceed acceptable limits and standards and/or the receptor is moderately sensitive/valuable.	Necessary mitigation of risks and negative impacts and justifiable enhancement of positive impacts
High or elevated (very significant risk or impact)	Risk or impact where acceptable limits or standards may be grossly exceeded, or where major changes occur to highly valued/sensitive resources/receptors. Impact that may last over the long term or affect a large area.	If the risks or negative impacts cannot be mitigated, intervention may be justified at the Project decision level.

5.2 Climate

5.2.1 Construction Phase

No notable climatic or microclimatic impacts are expected because of the construction works.

5.2.2 Operation Phase

Internationally available experience, although still relatively recent, indicates that PV plants can have microclimatic effects. These effects can be felt at very short distances from the panels, namely in the atmospheric layer immediately above the panels and between the panels and the ground.

In fact, it is expected that during the day the panels and the adjacent air layer will be warmer than the air in the surrounding areas, while at night the opposite occurs.

The shading caused by the panels also means that the ground under the panels tends to have lower temperatures than the ground in the adjacent areas (without panels).

In any case, these effects can be felt at very short distances, most likely without extending beyond the perimeter of the plant. Windy conditions such as those prevailing in Cabo Verde, further attenuate these effects, by promoting more efficient heat exchange. These facts and the biophysical and occupation characteristics of the area surrounding the plant mean that no microclimatic impacts are expected in the operation phase.

On the other hand, we must consider the indirect impacts on the climate through the production of electricity from renewable sources instead of burning fossil fuels, thus contributing to a global strategy to combat the problem of global warming. The development of the Project is, therefore, a positive impact in this context, whose significance is reinforced by the alignment with the climate change mitigation strategy established by Cabo Verde.

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From the perspective of adaptation and as mentioned in section 2.5, the planned PV plant will be designed and built to withstand very strong winds and is not considered to be significantly vulnerable to climate change, directly or indirectly. On the other hand, the PV plant will not imply any increase in the vulnerability of communities, infrastructures, or activities to the effects of climate change.

5.3 Geology, Geotechnics and Geomorphology

5.3.1 Construction Phase

It is not expected that the construction works for the implementation of solar PV plant may imply changes in the morphology of the area under study that could translate into relevant impacts.

Indeed, it is anticipated that the earthworks to be carried out will be of very limited expression, given the ease with which the panels can adapt to the terrain and the excavations to be carried out to open the trenches and for the foundations of the technical building and the support structures of the panels (in case these are not nailed into the ground) will not be such as to imply significant effects on the geology and geomorphology or to aggravate any risks of soil erosion.

It should also be noted that no unique or sensitive geological features were identified in the project site and its immediate surroundings.

5.3.2 Operation Phase

The presence of the panels is not expected to give rise to any relevant impacts on geology and geomorphology.

5.4 Soil and Land Use

As mentioned previously, the soils in the study area are very incipient and devoid of agronomic suitability. Therefore, the pedological sensitivity of the study area is very low and in the current situation there is no built occupation or economic activity.

5.4.1 Construction Phase

The cleaning and shaping of the terrain and the planned construction works will not have any relevant impact on the already non-existent agronomic characteristics of the soils, especially if a balance is achieved between the volumes of excavation and landfill for the shaping of the terrain and, in this way, prevent the need to find other areas to deposit the surplus volumes.

On the other hand, it should be considered that in the construction phase, construction site activities are likely to generate water contaminated with hydrocarbons, heavy metals, suspended solids and organic matter, which could cause soil contamination if measures are not taken to control these effluents by sending them to appropriate treatment or recovery systems and to control the conditions of storage and use of hazardous substances and waste. Thus, the adoption of prevention and correction measures to mitigate these potential impacts is justified, as presented in a separate chapter.

The correct implementation of these measures means that the potential negative effects on soil quality associated with the construction works will not result in significant impacts.

During the construction phase, environmental emergencies may also occur, involving the spillage of dangerous substances into the soil, namely diesel oil, petrol, hydraulic oil and lubricating oil. The reason for the occurrence of a spill may be an accidental situation, such as the rupture of a hydraulic

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hose of a machine, poor handling of substances, particularly during filling operations or maintenance operations. Although the extent of the effect of such a situation is difficult to determine, the eventual occurrence of a spill of hazardous substances may have a negative effect on the quality of soils and thus give rise to a significant impact, depending on the quantities and characteristics of the substances involved. In this case also, the application of appropriate prevention and control measures will be justified.

In any case, the extremely low productive capacity of the soils at the site and the absence of exploitable water resources (see below) contribute to a very low sensitivity of the natural environment to impacts of this type.

5.4.2 Operation Phase

In the operation phase, the land occupation that began with the construction works will remain. Therefore, no additional relevant impact on soils is expected.

As in the construction phase, environmental emergencies may also occur in the operation phase, involving the release of hazardous substances into the soil during maintenance operations at the solar PV plant. The predictably low maintenance requirements mean that the probability of this type of occurrence is very low. However, once again, the adoption of appropriate measures for its prevention and the creation of an adequate emergency plan will be a determining aspect for the mitigation of these risks.

5.5 Water Resources

It should be noted that there are no water resources (underground or surface) in the study area that are, or have the potential to be, exploited.

5.5.1 Construction Phase

As already mentioned in relation to soils, in the construction phase, the construction site activities are likely to generate water contaminated with hydrocarbons, heavy metals, suspended solids and organic matter, which may cause contamination of the hydric environment (surface and underground water). The adoption of prevention and control measures to mitigate these potential impacts is thus justified, as presented in a separate chapter. The correct implementation of these measures means that the potential negative effects on water quality (surface or groundwater) associated with the operation and functioning of the construction site will not result in significant impacts.

During the construction phase, environmental emergencies may also occur, involving the spillage of dangerous substances (namely diesel, petrol, hydraulic oil and lubricating oil) onto the ground and, in the limit, such a spillage may reach a water line or infiltrate to the point of affecting the groundwater. The reason for a spill could be accidental, such as a ruptured hydraulic hose on a machine, poor handling of substances, e.g., during filling operations or maintenance operations. Although the extent of the effect of such a situation is difficult to determine, the possible occurrence of a spill of hazardous substances may have a negative effect on the quality of surface water and/or groundwater, and thus constitute a significant impact, depending on the quantities and characteristics of the substances involved and on the specific nature of the place where it occurred. The adoption of adequate measures for the prevention of this type of occurrence and the creation of an adequate emergency plan will be a determining aspect for the mitigation of these risks which, at the outset, are reduced due to the limited sensitivity of the hydric resources.

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Since no significant changes in the morphology of the terrain are foreseen (the earthworks to be carried out will be small) and given the flat topography of the terrain, it is not expected that, even if heavy rainfall occurs during the works, major erosion phenomena may occur and, consequently, the solid transport through the water lines towards the sea.

In summary, during the construction phase negative, localized, probable, temporary, reversible, immediate, direct, and partially minimizable impacts will occur. Overall, these are of very low significance.

5.5.2 Operation Phase

The presence of the solar PV plant will not result in a significant increase in soil sealing, which is why no significant changes in infiltration capacity are expected.

Similarly, to what was referred to the construction phase, also in the operation phase it can be admitted the possibility of environmental emergency situations occurring during maintenance operations of the solar PV plant, likely, in theory, to affect water resources. The predictably low maintenance needs mean that the probability of this type of occurrence is very low. However, once again, the adoption of appropriate measures for its prevention and the creation of an adequate emergency plan will be a determining aspect for the mitigation of these risks, which are very low given the very limited sensitivity of local water resources.

The most frequent human presence in the solar PV plant will correspond to the personnel, predictably reduced in number, who will ensure its security and cleaning. As indicated previously, it is assumed that the septic tank that has been installed in the construction phase will remain active and will receive the wastewater in the operation phase.

As previously mentioned, given the occurrence of high natural concentrations of suspended dust in the atmosphere and the proximity to the sea, it is to be expected that, similarly to what happens in other photovoltaic uses in the country, an almost permanent cleaning of the panels will be necessary, so as not to jeopardize your income. The exact solution for cleaning the panels will be confirmed as part of the engineering studies to be carried out by the Contractor. However, the recommended basic solution is manual dry cleaning or cleaning with low water consumption and, based on this assumption, it is not expected that cleaning the panels will have any significant impact on the management of water resources in Maio.

In summary, it is expected that negative, low magnitude, localized, probable, temporary, reversible, immediate, direct, and partially minimizable impacts may occur during the operation phase. Overall, they are very insignificant.

5.6 Air Quality

The sensitive receptors, in terms of air quality, nearest to the area of the future solar PV plant are more than 800 m away.

On the other hand, it should be noted the high concentrations of particulate matter (dust) of natural origin that occur in Cabo Verde and specifically in Maio.

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5.6.1 Construction Phase

During the construction phase negative impacts on air quality will occur due to the construction process and the movement of machinery as well as the increase in vehicle traffic needed to transport materials and workers.

The cleaning and regularization of the land, the digging of trenches and excavations for the foundations, as well as the circulation of vehicles on unpaved roads will give rise to the emission of particulate matter (dust). This dust will disperse in the wind direction (which, most of the year is from the Northeast to the Southwest), eventually settling on the ground, the finest at greater distances from the origin, while the coarser dust will settle closer to where it originates. It is not expected that even in occasional situations there may be a temporary increase in dust in the built-up areas closest to the solar PV plant.

The exhaust emissions from vehicles and machinery involved in the construction work will initially be of very little relevance.

Given the above and the temporary nature of the actions that may cause the emission of atmospheric pollutants, the predictable impacts on air quality during the construction phase will be negative, but not significant.

5.6.2 Operation Phase

No negative impacts on air quality are foreseen during the operation phase, given the absence of activities likely to promote the emission of atmospheric pollutants.

On the contrary, it is expected that the solar PV plant will have a positive impact, albeit indirect, due to the production of energy from a renewable source, potentially reducing the need for electricity generation through the burning of fossil fuels and consequent emissions of atmospheric pollutants. This impact will have, however, a reduced significance to the scale of the island and the country.

5.7 Noise and Vibrations

In the immediate surroundings of the future photovoltaic park, there are no residential areas or other uses that are particularly sensitive to noise or vibrations. The closest potential sensitive receptors are more than 300m away.

5.7.1 Construction Phase

During the construction phase some potentially noisy activities may occur, such as trenching and excavation for foundations. However, the absence of sensitive receptors in the immediate surroundings of the plant is, from the outset, sufficient reason not to expect any relevant impacts.

Some of the above activities (e.g., excavation of rock material) may also give rise to vibrations, which may be felt at short distances. The absence of dwellings or other sensitive structures in the immediate vicinity of the plant means that no impacts are expected.

5.7.2 Operation Phase

In the operation phase no noisy activities or equipment will take place, therefore no impacts in terms of noise are expected.

The same consideration applies to vibrations.

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5.8 Landscape

In the current situation, the area where the future solar PV plant is planned to be located presents a landscape with limited scenic value and sensitivity, arid and with an already relevant degree of artificiality and moderate visual exposure.

5.8.1 Construction Phase

During the construction phase, several activities will take place that will imply changes in the plant area, with earth movements and the installation of fencing, panels, and support facilities. Thus, there will be a change in the visual/aesthetic perception of this area, more easily seen from the road, but also from larger areas in the surroundings.

This change will correspond to a negative landscape impact, but not significant and difficult to mitigate.

5.8.2 Operation Phase

In the operation phase, the presence of the artificial structures introduced in the construction phase will become definitive.

The panels will have an important intrusive effect on the landscape (due to their linearity, color and reflectivity).

This is, therefore, an alteration of the landscape at a local level and with relatively wide views, corresponding to a minor impact that is difficult to mitigate.

5.9 Biodiversity and Ecosystem Services

As mentioned above, the solar PV plant is in an area corresponding to a modified habitat, and where human activity has substantially modified the primary ecological functions of the territory and the species composition. Of note is the presence in the study area of a significant number of specimens of American wattle, an exotic and invasive species.

On the other hand, the future plant does not interfere with protected areas.

In the study area, the provisioning and cultural services provided by the ecosystem are quite reduced, in practice null. Also, the regulation and support services provided by the ecosystem are, depending on the biophysical characteristics of the area under study, quite incipient.

5.9.1 Construction Phase

The construction works will involve an increase of artificialization of the area under study. However, bearing in mind what is referred to above about the characteristics of this area, it is not expected that this increase in artificialization will correspond to a significant negative impact in terms of biodiversity and ecosystem services.

5.9.2 Operation Phase

In the operation phase, there will be no additional relevant impact on biodiversity, compared with what previously occurred during construction.

However, solar PV production corresponds to the use of an ecosystem service, specifically, a service of energy provision from a renewable source - solar, which translates into a relevant positive impact.

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5.10 Waste

5.10.1 Construction Phase

The processes and materials that will be used in the construction phase will give rise to waste commonly produced at construction. Among these, used oils and, in general, the residues produced in the maintenance operations of the construction machinery, due to their potential for contamination, should be highlighted (despite not being expected that machinery maintenance will occur at the site). Concrete waste is also expected to be produced, which, if deposited directly into the soil, will degrade it.

The production of significant quantities of packaging waste (packaging of solar PV panels and other equipment) is expected, assuming that an important part may have potential for reuse or recycling.

Assuming compliance with legally established provisions and the adoption of good practices, the impacts potentially arising from the production of this waste will not be significant but, nevertheless, justify the recommendation of specific measures.

It is thus considered that the impacts associated with the production of waste in the construction phase will not be significant.

5.10.2 Operation Phase

In the operation phase it is not expected the production of relevant quantities of waste, so the expected impacts are negligible.

- Waste generation in the operation phase will be very limited and restricted to waste from equipment maintenance, and may include packaging, batteries, broken or damaged panels, and broken electrical or electronic components. The waste, including any components that may have been replaced, will be handed over by the operator in charge of the maintenance to authorized waste management operators.
- Regarding to Waste of Electric and Electronic Equipment (E-waste), the project's strategy for those requires the equipment’s suppliers to commit throughout the contract and to outline a plan for responsibility in tack back for recycle. This arrangement is valid until the country has defined the regulatory framework for Take Back for Recycling and resource management of E-waste, which will become the prevailing law. Furthermore, UGPE is continuing negotiations with ANAS (National Agency for Water and Sanitation) to create the National Strategy for E-Waste Management in 2025.

5.11 Cultural Heritage

There are no known elements of tangible or intangible cultural heritage related to the area under study, which is why no impacts in this area are expected.

The geology of the area, the historical context (of Cabo Verde in general and of the study area in particular) and the fact that the installation of the solar plant will imply movements of earth of reduced expression, lead to not foresee the occurrence of any impacts in this domain.

However, specific measures are included in the ESMP to deal with the discovery of any element of cultural heritage resources (such as archaeological or historical sites, remains or objects/artifacts, cemeteries, or individual graves), complying with the requirements of the World Bank (namely ESS 8) and the legal requirements of Cabo Verde (expressed in Law 85/IX/2020).

5.12 Territorial Planning

According to the existing elements, the intention to develop the photovoltaic park in Maio does not conflict with approved land management instruments or those under development.

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It is a state-owned land that is intended to be used to host a solar energy project.

It is assumed that in the elaboration of the detailed engineering studies, the services associated with the existing infrastructures (central, communication towers and road) will be ensured.

Under these assumptions, it is not expected the occurrence of impacts on territorial planning.

The land where the photovoltaic plant it to be installed (including evacuation lines) is State owned and does not currently support any built occupation or economic activity. The access to the site will be made using existing public roads. The traffic associated with transportation of materials and equipment from the Porto Ingles port (approximately 3 km to the westfrom the site) will pass through several inhabited areas but will temporary and its not expected to affect any houses or other structures or economic activities. Being so, no impacts in terms of physical or economic displacement are expected.

5.13 Physical or Economic Displacement

the land where the photovoltaic plant it to be installed (including the power evacuation lines) is State owned and does not currently support any built occupation or economic activity. No impacts in terms of physical or economic displacement are expected.

5.14 Employment and Working Conditions

5.14.1 Construction Phase

During the construction phase, temporary jobs will be created for civil construction, transport, and equipment assembly activities. The significance of the impacts thus generated will necessarily depend on the number of jobs involved, the duration of the work and, from a geographical perspective, the proportion that can be secured locally or nationally.

As previously mentioned, it is foreseen that the construction of the solar PV plant will take about 4 months and that in the most labor-intensive phase (a period of about 2 months, when the support structures will be installed and the panels assembled), there may be about 50 to 80 jobs.

Most of these temporary jobs could be filled by local and relatively unskilled personnel.

These figures will need to be confirmed at a later stage by the Contractor.

Some of these jobs may certainly be filled by local (island) or national (other islands) staff, but others may have to be filled by staff with specialization requirements that may not be available in the country. It is assumed, at the outset, that there are no constraints regarding gender equity in access to most of the jobs to be created.

The relatively modest job creation and the fact that this is a temporary situation does not allow this impact, although positive, to be considered significant.

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The risk of using forced labor by polysilicon suppliers is well known[6], so it will have to be demonstrated that suppliers of solar PV panels do not use forced and child labor among their workforces, as required by the World Bank[7]. Specific requirements in this regard are included in the ESMP.

5.14.2 Operation Phase

In the operation phase permanent and continuous jobs will be created locally, in addition to external labor that may be required by equipment suppliers.

It is expected that up to 4 permanent jobs will be created during the operation of the PV plant to be supplied locally for cleaning and general maintenance activities. In addition to these jobs, there will be sporadic allocation of specialized personnel, but not necessarily foreigners, for occasional repair or maintenance activities.

Considering the small number of jobs, the impact on employment during the operation phase, even if positive, will be of reduced significance. Also in this phase, no relevant impacts on the ways of life, uses and customs of local communities are foreseen.

5.15 Occupational Health and Safety

5.15.1 Construction Phase

During the construction phase the workforce will be subject to risks of injury linked to various construction machinery and handling operations. In this case, the site does not require any work at height. Injuries are therefore intrinsically linked to construction equipment, mainly trucks and other surface preparation equipment. The risks also concern possible accidents when vehicles are moving around the site or at the entrance to the site. Without prejudice to the need to adopt appropriate preventive measures, it should be noted that the increase in traffic associated with the work will be modest and temporary and very insignificant when compared to the traffic on the EN3-MA-01 road.

During this phase, the main electrical hazards exist during the first commissioning and testing of the installation. The electrical risk is then linked to the presence of live electrical works as soon as they receive solar radiation (risk of electric shock). This risk primarily concerns the personnel employed on the site.

All these risks will need to be considered in the preparation and implementation of the Health and Safety Plan for the construction phase.

5.15.2 Operation Phase

During the operation phase, the risk of harm to people is very low given the absence of personnel on the site for most of the time. However, when personnel come to the site for inspection or maintenance, the risk cannot be completely ruled out. It would then be either linked to the electrical equipment, a possible fire outbreak or linked to an error in handling the equipment (risk of injury or pollution).

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[6] As reported, for instance, in https://assets.cleanenergycouncil.org.au/documents/resources/reports/Addressing-Modern-Slavery-in-the-Clean-Energy-Sector.pdf

[7] https://thedocs.worldbank.org/en/doc/a5d4a4a88227973aecdbab19dd58258e-0290032021/forced-labor-solar-declarations-and-provisions-for-procurement-documents-ext-docx

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During normal operation, the electrical risk is reduced because the PV plant is closed and rarely frequented. However, during servicing and maintenance operations, the risks likely to concern the personnel must not be neglected. The main dangers are due to the presence of live electrical works as soon as they receive solar radiation.

Solar PV panels are close to the ground and do not constitute points preferentially struck by lightning. The protections implemented comply with the Technical Specifications relating to the protection of people and property and include the interconnection of masses and earthing, as well as the installation of various types of surge arresters.

The Health and Safety Plan to be prepared for the operation phase will systematically address the risks associated with this phase.

5.16 Community Health and Safety

The fact that there are no inhabited areas or school facilities in the immediate vicinity of the PV plant expansion is a positive aspect regarding the risks that the development of the PV plant could potentially have on the health and safety of the communities.

It should also be noted that the plant will not be in an area with vulnerability to natural hazards.

5.16.1 Construction Phase

During the construction phase, the circulation of machinery and vehicles assigned to the works will imply an increase in the probability of accidents. Without prejudice to the need to adopt appropriate preventive measures, it should be noted that the increase in traffic associated with the work will be modest and temporary and very insignificant when compared to the traffic on the EN3-MA-01 road.

On the other hand, it should be considered that the area where the work will take place (the area of the future plant) will have an increased risk (due to the presence of machinery in operation, excavations, and other dangers), which justifies starting precisely with its fencing and controlling access by unauthorized personnel.

The absence of inhabited areas or school equipment in the immediate vicinity implies a very low presence of people, particularly children, in the area, which also contributes to the consideration that the risks to the health and safety of the communities will be reduced during the construction phase.

The construction works are not expected to increase the vulnerability of communities, infrastructure, or activities to the effects of climate change or any other natural hazards.

5.16.2 Operation Phase

During the operation phase, the presence of the solar PV plant in operation implies the existence of live elements, i.e., electrical risks. As mentioned earlier, the facilities will have an earth grid and other safety devices, but the potential risk of accidental contact will always exist, especially if unauthorized personnel enter the perimeter of the solar PV plant. Also, in this case the absence of inhabited areas or school equipment in the immediate vicinity of the plant implies a very low presence of people (and in particular, children) in the area, which, together with the fence, also contributes to consider that the risks of accidental contact with live elements are reduced.

It should be noted, however, that the presence of equipment and materials (e.g., electrical cables) with high economic value can provide the occurrence of acts of vandalism/theft), which reinforces the importance of fencing and security (through human means or electronic surveillance). As in other

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comparable facilities in Cabo Verde to date, it is expected that private, unarmed security teams will be hired. In any case, the security services to be used will apply the requirements expressed in national legislation (Law No. 50/VII/2009) and ESS 4.

The line to be built to connect the solar PV plant to the power grid also has inherent this issue of the risks of accidental contact, but also that of human exposure to electromagnetic fields.

The fact that there is no human occupation (particularly residential or equivalent) in the immediate vicinity of the plant allows us to consider these risks as reduced, adding, in the case of electromagnetic fields, the fact that these risks are typically more relevant in the case of very high-voltage lines (more than 110,000 volts), while in this case, the connection to the grid will be made at much lower voltage (20 kV).

During a working meeting held with the Civil Aviation Agency to present the Project and confirm the requirements that that institution could have for its implementation, it was pointed out that the even zone where the installation of the photovoltaic park is foreseen is a relatively short distance (approximately 1.8km) from Maio Airport and that the possible risk of glare caused by reflection from the ground on the solar panels for aircraft approaching this airport should be assessed.

Thus, MRV Energy carried out a specific study in this regard, simulating the potential for glare both in the control tower and on the approach to the airfield runway, concluding that the risks of the photovoltaic park for air navigation are considered non-existent.

The potential reduction of electricity generation from fossil fuel combustion and inherent reduction of atmospheric pollutant emissions translates into a positive impact on the health of the communities on the island, although the impact is not expected to be very significant.

The operation of the solar PV plant is not expected to increase the vulnerability of communities, infrastructure, or activities to the effects of climate change or any other natural hazards.

In summary, it is not expected that the operation of the solar PV plant will lead to significant impacts or risks for the communities.

5.17 Fire

5.17.1 Construction Phase

During the construction phase, the fire risk could occur accidentally. However, fire risk is minimized by the absence of live equipment. The fire can thus result from an electrical malfunction when the installation is first powered on, or from a construction machine possibly.

In any case, specific measures are included in the ESMP to mitigate the fire risk.

5.17.2 Operation Phase

During the operation phase the risk of fire is very low and usually concerns electrical devices (such as transformers). The risk in normal operation is very limited and is still greatly reduced by compliance with construction and operating standards and by the monitoring carried out.

The risk of an external fire reaching the infrastructure cannot be concealed, but it remains very low at the Maio plant given the absence of flammable materials (afforestation) around the site.

In any case, specific measures are included in the ESMP to mitigate the fire risk.

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5.18 Livelihoods and Human Rights

5.18.1 Construction Phase

The reduced expression of temporary employment to be created during construction and the fact that it is intended to increase the use of local labor means that it is not expected very important effects at the level of lifestyles, customs, and habits of local communities.

Cabo Verde has, since 2011, a legal framework on gender-based violence (GBV) and the actions taken to raise awareness and prevent GBV have had positive effects.

Any infrastructural project always has some potential to induce risks on GBV. In this specific case, the construction of the solar PV plant is considered to have a low risk, given the predictably limited scale of the potential labor influx and the current situation in terms of GBV awareness and prevention.

In addition to the Project's Grievance Mechanism, UGPE has prepared codes of conduct for the Implementation of Environmental, Social, Health and Safety (ESHS) and Occupational Health and Safety (OHS) Standards, and for the prevention of Gender Based Violence (GBV) and Violence Against Children (VAC), to be subscribed at the level of companies, managers, and individuals (workers) involved in the Project.

Therefore, it is not expected that the construction of the solar PV plant will entail significant risks or impacts in terms of livelihoods and human rights of the local communities. In any case, the ESMP includes specific measures for the prevention of these risks and impacts.

5.18.2 Operation Phase

The risks related to GBV noted above as reduced in the construction phase will be even lower in the operation phase. In any case, the prevention measures indicated in the ESMP essentially apply.

5.19 Risks and Impacts during the Decommissioning Phase

The main actions generating impacts during the decommissioning phase of the solar PV plant will correspond to the dismantling of solar PV modules and associated infrastructure.

Thus, there will be an increase, temporary and of shorter duration than during construction, in the movement of vehicles, machinery and people. This increase will be associated with the same types of risks and impacts analyzed for the construction phase, generally not significant.

Given that during the construction phase there will have been no major earth movements (excavations or embankments), the morphology of the terrain will remain essentially unchanged. The removal of the artificial structures, especially the panels, will have a positive but not very significant impact on the landscape.

The impact on biodiversity will be negligible, but a slight positive impact can be admitted, depending on the implementation of an environmental requalification plan and if the future use of the plant area has a component of promotion of natural values.

An environmentally relevant aspect of the decommissioning phase has to do with the waste that may then be produced. However, it should be noted that most of the materials used in solar PV plants, including the panels, are to a large extent reusable or recyclable. The metallic structures and electric cables also have great potential for recovery. Therefore, assuming that appropriate schemes will be

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adopted for the recovery of waste produced in the decommissioning phase, it is not expected the occurrence of significant impacts in this area.

Recycling Overview

Crystalline-silicon solar panels dominate the market. These panels consist of several key materials, including an aluminum frame, glass, copper wiring, polymer layers, a backsheet, silicon solar cells, and a plastic junction box. While the polymer layers protect the panel from weather conditions, they also complicate the recycling process, as high temperatures are often needed to break down the adhesive for disassembly.

A significant portion of a solar panel's components can be recycled. Glass, which accounts for roughly 75% of the panel's total weight, benefits from an already well-developed recycling industry. Other easily recyclable materials include the aluminum frame, copper wiring, and plastic junction box.

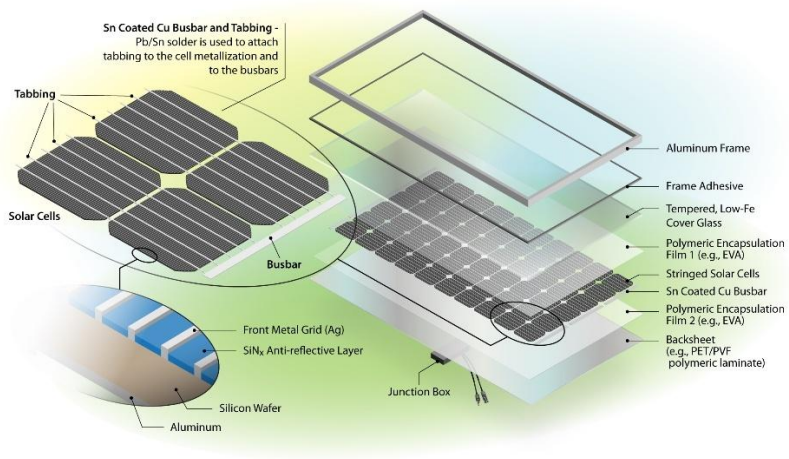

Figure 12 - PV Panel position (Source National Renewable Energy Laboratory)

A recycling system aims to recover the maximum number of materials from solar panels.

Various recycling techniques exist, typically involving some or all of the following steps:

- Frame and Junction Box Removal – The aluminum frame and plastic junction box are detached.
- Glass and Silicon Wafer Separation – This can be done through thermal, mechanical, or chemical processes.
- Silicon Cells and Metal Recovery – Specialized chemical and electrical techniques extract and purify valuable metals such as silver, tin, lead, and copper.

While solar panel recycling is still an emerging industry, researchers are actively working on scaling up cost-effective methods to recover most components. Large-scale recycling remains limited. There are few specialized contractors in Europe, often granted by governments.

Existing recycling industries for glass, metals, and electronics can accommodate solar panels and other system components. These typically undergo crushing, shredding, and milling after the frame and junction box are removed. This allows for the recovery of glass, aluminum, and copper, while other materials, including silicon solar cells, may be incinerated.

Another way to keep solar panels out of landfills is through panel reuse, either by direct reuse or after refurbishment. When reused, solar panels get a second life generating clean energy at a different location. The secondary market has not yet gained traction. However, there are many beneficial ways

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solar panels could be reused in situations where they aren't connected to the electrical grid, including vehicle charging stations, or other remote locations.

The lifecycle of a photovoltaic power plant is approximately 25 to 30 years. It is possible that the country will have established a local recycling sector or entered into service contracts with specialized companies at the international level.

The deactivation of the solar plant will imply the loss of the few jobs related to its operation. The personnel to be demobilized will have training that should facilitate their reintegration into the labor market, so it is expected that this impact will be minor. On the other hand, decommissioning activities will naturally require some labor, part of which may be satisfied locally. However, given that this will be a temporary and short-term situation, the positive impact will be negligible.

Overall, the risks and impacts foreseeable during the decommissioning phase will be insignificant, and not particularly serious environmental or social situation should be highlighted.

5.20 Summary of Risks and Impacts

The results of the analysis in the previous sections indicate that no risks or impacts on the biophysical or socio-economic environment have been identified that might raise doubts about the environmental and social sustainability of the solar PV plant. A summary matrix of the analysis of risks and impacts associated with this venture is presented on the next page, also containing indications of the mitigation measures that are considered justifiable in view of the results of this analysis.

The criteria for assigning significance to the risks and impacts are those described in section 5.1.

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Table 7 - Summary of Risks and Impacts

Risks or impacts not identified

Risks or negative impacts - low significance

Risks or negative impacts - moderate significance

Risks or negative impacts - high significance

Positive impacts – low significance

Positive impacts – moderate significance

Positive impacts – high significance

Environmental and social factors	Construction		Operation		Deactivation	
	Evaluation	Observations / orientations for mitigation	Evaluation	Observations / orientations for mitigation	Evaluation	Observations / orientations for mitigation
Climate		Risks and impacts not identified		In line with the climate change mitigation strategy established by Cabo Verde		Risks and impacts not identified
Geology, geotechnics, and geomorphology		Risks and impacts not identified		Risks and impacts not identified		Risks and impacts not identified
Soil and Land Use		Justifiable mitigation of overlanding and possible pollution situations (spills and wastewater)		Justifiable mitigation of overlanding and possible pollution situations (spills and wastewater)		Justifiable mitigation of overlanding and possible pollution situations (spills and wastewater)

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Environmental and social factors	Construction		Operation		Deactivation	
	Evaluation	Observations / orientations for mitigation	Evaluation	Observations / orientations for mitigation	Evaluation	Observations / orientations for mitigation
Water Resources		Justifiable mitigation of overlanding and possible pollution situations (spills and wastewater)		Justifiable mitigation of overlanding and possible pollution situations (spills and wastewater)		Justifiable mitigation of overlanding and possible pollution situations (spills and wastewater)
Air Quality		Justifiable mitigation of overlanding and possible pollution situations (spills and wastewater)		Decreased burning of fossil fuels (emission reduction)		Justifiable mitigation of overlanding and possible pollution situations (spills and wastewater)
Noise and vibrations		Not expected to affect sensitive receptors		Not expected to affect sensitive receptors		Not expected to affect sensitive receptors
Landscape		Impact difficult to mitigate		Impact difficult to mitigate		Depends on the future use of the land
Biodiversity and ecosystem services		Modified habitat. Incipient ecosystem services		Solar PV production corresponds to the use of an ecosystem service (provision)		Depends on the future use of the land
Waste		Justifiable mitigation (surplus soil, waste management, excavation materials and concrete remains)		Justified mitigation (waste management)		Justifiable mitigation (waste management and maximization of material recovery)

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Environmental and social factors	Construction		Operation		Deactivation	
	Evaluation	Observations / orientations for mitigation	Evaluation	Observations / orientations for mitigation	Evaluation	Observations / orientations for mitigation
Cultural Heritage		Procedure for dealing with very unlikely discovery of archaeological remains		Risks and impacts not identified		Risks and impacts not identified
Land planning		Project compatible with land planning instruments		Project compatible with land planning instruments		Project compatible with land planning instruments
Physical or economic displacement		State land, without occupation or economic activity. Risks and impacts not identified		State land, without occupation or economic activity. Risks and impacts not identified		State land, without occupation or economic activity. Risks and impacts not identified
Employment and working conditions		Increase in temporary employment. Justifiable to favor local labor, to be trained and to ensure the prevention of the use of forced labor (in the production of the panels)		Creation of a small number of jobs. Possible recourse to local labor, to be trained		Loss of few jobs (operation staff) and creation of temporary jobs (decommissioning work)
Occupational Health and Safety		Justifiable mitigation (Health and Safety Plan)		Justifiable mitigation (Health and Safety Plan)		Justifiable mitigation (Health and Safety Plan)
Community health and safety		Justifiable accident prevention and emergency preparedness		Justifiable risk prevention (electrical, vandalism / theft) and emergency preparedness. The use of		Justifiable accident prevention and emergency preparedness

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Environmental and social factors	Construction		Operation		Deactivation	
	Evaluation	Observations / orientations for mitigation	Evaluation	Observations / orientations for mitigation	Evaluation	Observations / orientations for mitigation
				security teams should comply with the principles of proportionality, good international practice, and applicable legislation.		
Fire		Justifiable accident prevention and emergency preparedness		Justifiable accident prevention and emergency preparedness		Justifiable accident prevention and emergency preparedness
Livelihoods and human rights		Justified prevention of GBV		Justified prevention of GBV		Justified prevention of GBV

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The analyzed risks and negative impacts will not be significant, and it is expected that the photovoltaic park will even provide some positive impacts, especially in terms of reducing dependence on fossil fuels for electricity production in the island of Maio, mitigating greenhouse gas emissions greenhouse effect and improving air quality.

The use of the intended area for solar PV production corresponds to a relevant use of an ecosystem service, specifically, a service of provision of energy from a renewable source - solar, without the loss of any other ecosystem service relevant, which translates into a relevant positive impact.

No impacts specifically associated with the evacuation line were identified.

In view of the risks and impacts analyzed, it is considered that the consideration of possible alternative locations for the photovoltaic park is not justifiable. The proximity of the plot of land to the current Electric Power Station is a positive aspect, as it will facilitate the connection of the photovoltaic park to the electricity grid.

The non-implementation of this photovoltaic park, the so-called zero alternative, would go against the development strategy of renewable energies in Cape Verde and would make its contribution to the Project's objectives unfeasible.

Taking as a reference, the Environmental and Social Standards (ESS) contained in the World Bank's Environmental and Social Framework (ESF), the following can be mentioned regarding the implications that the development of the project has in relation to these standards:

- Environmental and Social Standard 1. Assessment and Management of Socio-environmental Risks and Impacts: this assessment, as well as the other instruments prepared within the scope of the Project, namely the Environmental and Social Management Framework (ESMF), the Resettlement Policy Framework (RPF), the of Labor Management Plan (LMP), Environmental and Social Commitment Plan (ESCP), Grievance Redress Mechanism (GRM) and Stakeholder Engagement Plan (SEP), aim to provide a procedural response to the requirements of this ESS, corresponding to a first stage assessment of risk and impact management. In the following stages of designing the solar PV plant, the instruments now developed must be complemented and deepened. In any case, they were not, at this stage,
- Environmental and Social Standard 2. Labor and Working Conditions: job creation in the construction and operation of the solar PV plant will be relatively small and, as such, the resulting impact will be insignificant. No relevant risks or negative impacts were identified at this stage considering the requirements of this ESS. In any case, the project includes a Labor Management Plan, and it will be important to ensure the prevention of the risks of resorting to forced labor in the production of solar PV panels and the rights of workers in the construction, operation, and decommissioning phases of the solar PV plant.
- Environmental and Social Standard 3. Resource Efficiency and Pollution Prevention and Management: The use of solar energy for electricity production has, in general and specifically in the current context of Cabo Verde, a strong alignment with resource efficiency. No significant risks or negative impacts were identified in terms of pollution, but nevertheless there will be a need to implement measures to prevent possible soil contamination.
- Environmental and Social Standard 4. Community Health and Safety: it is expected that the development of the solar PV plant will not imply risks or significant impacts on health and safety for the communities. However, the presence of electrical risks will require specific management measures and, on the other hand, the need to safeguard the installations from possible situations of intrusion and theft will imply the use of security services to protect the installations, which must comply with the requirements of this ESS (namely those contained in its section B, paragraphs 24 to

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27). Even if considered low, the risks of gender-based violence and violence against children will also be subject to specific prevention measures.

- Environmental and Social Standard 5. Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement: The area of the future solar PV plant does not currently support any built occupation or economic activity. Taking this into account and the fact that the ZDER land belongs to the State (confirmation process under way), no impacts are expected in terms of physical or economic displacement.
- Environmental and Social Standard 6. Biodiversity Conservation and Sustainable Management of Living Natural Resources: the development of the solar PV plant will not involve any natural or critical habitat, or any legally protected area internationally recognized for the high value of biodiversity. Likewise, it is not expected to have any effect in terms of introducing invasive alien species or interfering with the sustainable management of living natural resources. Solar PV production corresponds to the use of an ecosystem service, specifically, a service of providing energy from a renewable source – solar, which translates into a relevant positive impact, especially considering that this will be achieved without penalizing another service currently provided by the local ecosystem.
- Environmental and Social Standard 8. Cultural Heritage: no relevant risks or impacts were identified. In any case, the possibility of discovering any element of cultural heritage must be safeguarded, with the adoption of specific measures established in the ESMP.
- Environmental and Social Standard 9. Financial Intermediaries: not verified within the scope of this assessment.
- Environmental and Social Standard 10. Involvement of Stakeholders and Disclosure of Information: as part of the preparation of this study, the involvement of stakeholders was triggered, in a manner considered proportional to the nature and size of the Project, as well as its possible risks and impacts. Stakeholders' expectations regarding the Project are generally positive, namely in relation to the use of local labor and the reduction in the cost of electricity, with no significant concerns being expressed. Within the scope of the Project, among other instruments, a Grievance Redress Mechanism (GRM) and a Stakeholder Engagement Plan (SEP) were prepared.

6. ANALYSIS OF ALTERNATIVES

6.1 Analysis of With or Without Project Scenario

The “zero” (no action) alternative would correspond to not implementing the expansion of the solar PV plant on Maio Island and would go against the objectives of the Renewable Energy and Improved Utility Performance Project and the priority needs of the Government of Cape Verde as identified in the Electricity Sector Master Plan.

It is anticipated that in case of no implementation of the PV plant the land (state owned) will become part of the planned industrial park to be developed by the Maio Municipality or continue without specific use.

6.2 Location and Cable Route Alternatives

No alternative locations are currently being considered.

This location under consideration was considered to be adequate for the installation of the PV plant, namely in terms of available area, solar exposure, and ease of connection to the electricity grid.

No environmental and social constraints were then identified in relation with this location and the P-ESIA was prepared considering that the PV plant would be located therein.

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No alternative routes were considered for the power evacuation line, given the proximity to the existing power plant (interconnection point).

Given the process followed to select the site under assessment and the fact that this site does not present significant risks or impacts according to the analysis presented in the previous chapter, it is considered acceptable not to explore alternative sites.

7. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

7.1 Objectives of Public Consultation

The key objectives of public consultation in the scope of the Project and specifically for the implementation of the PV plant are:

- To allow stakeholders to understand the risks and impacts of the project, and potential opportunities.
- To create the conditions for stakeholders to provide input for the environmental and social assessment of the project, namely by expressing their views on project risks, impacts, and mitigation measures.
- To provide project-affected parties with accessible and inclusive means to raise issues and grievances and allow UGPE to respond to and manage such grievances.
- To provide regular updates to stakeholders on project performance and possible changes in scope or schedule.
- To seek feedback from stakeholders on the environmental and social performance of the project and the implementation of the mitigation measures.
- To be accessible and culturally appropriate and be proportionate to the risks and impacts of the project.

7.2 Legal Requirement

As mentioned in section 3.2, the national legal requirements on public consultation and information disclosure are less comprehensive that those set by World Bank ESS.

Being so, it is intended that the public consultation and information disclosure actions throughout the development of the project are aligned with good practice and the requirements of the World Bank.

7.3 Approach to Public Consultation

In July 2020 members of the local community (18 persons, 8 women, 10 men) were interviewed with the objective of presenting the project and get their views on project risks, impacts, and possible mitigation measures. .

Questions were raised and answers were provided about the following aspects:

- Location of the project and timing of implementation.
- Jobs to be created and benefits for the local community.

Expected reduction of the electricity price as a result of the Project The following recommendations were made by the participants:

- Recruitment of local workers.
- Reduction of the electricity price.

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- .

In July 2021 a stakeholder meeting was undertaken in the municipality of Maio with the following objectives:

- To present the Project's objectives and planned activities.
- To present the Grievance Redress Mechanism implemented for the by UGPE.
- To establish the Local Complaints Management Committee for the Project.

This meeting was followed by a visit to the site of the PV plant, with the participants validating the information provided in the P-ESIA relating to this site.

The attendance list (6 women, 8 men) for this meeting is presented in Appendix 2.

7.4 Information Disclosure

In addition to the information disclosure component of the actions described above, a public meeting is planned to be held as soon as the contractor is appointed and before the start of the works.

The objectives of this meeting will include:

- To present the Project's environmental and social safeguards, with emphasis on the Gender Based Violence and Violence Against Children prevention measures, and to disseminate the Project's Grievance Redress Mechanism.
- To introduce the Contractor, who, in turn, will describe his work plan (activities to be carried out and respective expected start and end dates).

Information disclosure activities will continue throughout the implementation of the project.

Note : The expansion of the solar power plant will be built on the same site as the solar plant currently under development. Therefore, no new public consultations have been planned. However, during the training scheduled at the start of the Phase 1 works (ongoing EPC contract), a presentation on the expansion works will be made to the local communities. Comments or questions raised during this session will be included in an updated version of the Environmental and Social Management Plan.

8. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.1 Introduction

Environmental and social management is an essential tool for adopting the best and most appropriate practices for managing the risks and impacts of a project.

The present Environmental and Social Management Plan (ESMP) therefore intends to constitute itself as an instrument that frames and establishes the bases for monitoring the subproject corresponding to the expansion of the solar PV plant to be installed in the island of Maio, within the scope of Subcomponent 1.1 ("Integration of small-scale renewable energies") of the Project "Renewable Energy Project and Improvement of Energy Efficiency in Public Services".

The ESMP is also a commitment towards the interested and affected parties, with the rules and standards of good environmental and social management applicable through the execution of the programs recommended below.

It should be noted that it is intended that environmental and social management has a dynamic and flexible nature, ensuring compliance with the guidelines now formulated and those that may result

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from future formal processes of environmental impact assessment, but allowing for their updating, reformulation and adaptation to the circumstances that are found in the following stages of the process. Thus, this ESMP must be detailed and complemented by the EPC Contractor and, subsequently, by the solar PV plant operator, demonstrating how the requirements now established will be implemented.

8.2 Scope and Objectives

The ESMP applies to the pre-construction (planning), construction and operation phases of the expansion of the solar PV plant to be implemented in the island of Maio and constitutes a document that structures the main guidelines for minimizing risks and negative impacts and for potentiation of positive impacts, as well as for the recommended monitoring for the follow-up and control of the effects of the projects.

The main objective of this ESMP is to provide clear mitigation measures for identified potential social and environmental impacts. Having this in mind, the ESMP must:

- Be proportionate to the significance of the identified environmental and social risks and impacts.
- Ensure compliance with applicable legal, regulatory, or normative requirements.
- Assign responsibilities to the various entities involved in all phases of the project.
- Define a list of the mitigating measures to be adopted, in mitigation hierarchy logic, and the monitoring plans to be carried out.
- Define the bases for the procedures to be prepared and adopted and which ensure compliance with the measures to mitigate risks and environmental impacts.
- Promote the application of best environmental and social practices.
- Promote the prevention of environmental and social risk situations.
- Define the necessary records for the environmental and social management of projects, namely with regard to the environmental monitoring of construction.
- Define the communication mechanisms (internal and external) considered adequate.

8.3 Table of Responsibilities

The following distribution of direct responsibilities in the environmental and social management of Project implementation is assumed:

- Special Projects Management Unit (UGPE):

  UGPE, through a Project Implementation Unit and on behalf of the "Project Owner" (the Ministry of Industry, Trade and Energy), will establish from the outset the terms of reference to be followed for the environmental and social management of the Project, taking into account the applicable legal requirements and the requirements of the entity financing the Project, and will ensure that these terms of reference are complied with.

  The UGPE will oversee the obtaining of licenses and permits to carry out the Project, the formal articulation with the various official bodies involved in the process, and the implementation of the Grievance Redress Mechanism (GRM).

- “Owner's Engineer” (OE):

  The activities for which the OE will be responsible include assisting UGPE in the procurement of goods and services related to sub-component 1.1 of the project, controlling and supervising construction works, supporting the implementation of the training program, and supporting and monitoring the

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implementation of environmental and social safeguards. Under this specific aspect, the intervention will focus on the following aspects:

- Support the UGPE in the implementation of the training scheme associated with the implementation of the Project.
- Review and approve the plans and other documentation to be prepared by the Contractor in accordance with the provisions of this ESMP.
- Develop and put into practice a system for supervising the works covered by the Contractor, to verify the implementation of plans and safeguard measures and, in general, the performance in environmental and social matters of that contract.
- Prepare periodic reports for the UGPE on the environmental, social, health and safety management of the project.

- EPC Contractor ““Contractor”)

  The Contractor for the EPC (Engineering, Procurement and Construction) contract will be responsible for the detailed engineering studies, the supply of materials and equipment necessary for this, carrying out the construction work on the expansion of the solar PV plant, the physical execution of the works, under the supervision of the Owner's Engineer (OE) and will thus be the main agent in the generation of environmental and social impacts during the construction phase. The Contractor will also be responsible for starting up the operation of the solar PV plant, as well as its maintenance for a period of 2 years.

  The Contractor will have, in its organization, the necessary means to carry out these works and to manage the different areas involved, such as quality, hygiene, safety and environment, including an Environmental Specialist with demonstrated in Health and Safety management, as well as an experienced Social Socialist. These specialists will be present full-time at the construction sites.

- Operation and Maintenance Contractor (“Operator”)

  In an initial period, the Operation and Maintenance (O&M) of the expansion of the solar PV Plant will be ensured by the Contractor and, subsequently, by an Operator to be selected through a tender to be launched for this purpose. Thus, the Operator will be responsible for the long-term environmental and social management of the solar PV plant.

8.4 Measures for the Preparatory Phase

8.4.1 Implementation of the Grievance Redress Mechanism (GRM)

UGPE has implemented the GRM, namely with the constitution of the Local Complaints Management Committees (LCMC), one in each municipality where the Project is developed, and the Central Complaints Management Committee (CCMC), and with the creation of the means and procedures necessary for the operation of the GRM.

Within the scope of the GRM, complaints are categorized as follows:

- Category A - Complaints related to the management and execution of the project:
  - Stakeholder participation and dissemination of information.
  - Environmental and social risks and effects.
  - Labor and working conditions.
  - Rational use of resources and prevention of pollution.
  - Community health and safety.
  - Land acquisition, restrictions on land use and involuntary resettlement.
  - Biodiversity conservation and management.

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- Cultural heritage.
- Mobilization of partners and information/communication.

- Category B – Gender-Based Violence and Violence Against Children.
- Category C – Project Performance.

Any person or group of persons involved in the project, partner institutions, NGOs and community-based associations, local councils and any individual or group affected by the project can raise a grievance. Anonymous suggestions and complaints are accepted.

Suggestions and complaints can be submitted locally or centrally (UGPE), in several ways:

- By telephone ("Linha Verde").
- Email.
- Specific form.
- Community meetings.
- Personally.

The GRM contains provisions related to the reception and registration of complaints, their treatment, analysis and investigation, verification and subsequent actions and the follow-up, monitoring and reporting of the situations complained of, as well as the communication strategy to be adopted.

Before the start of works, the UGPE will promote the dissemination of the GRM among the different interested and affected parties, including the Project workers (see section on training and awareness of workers, below).

During the implementation phase of the Solar PV plant, the Contractor will ensure that the GRM will be easily accessible and that its existence will be disseminated among the direct and indirect workers at its service. The Contractor will have internal procedures to receive worker's grievances and liaise with the Project's GRM. Any grievances received by the Contractor must be reported to UGPE.

Responsibility: UGPE

8.4.2 Codes of Conduct

The Contractor will try to subscribe and implement the Codes of Conduct for the Implementation of Environmental, Social, Health and Safety (ESHS) and Occupational Health and Safety (OHS) Standards, and prevention of Gender-Based Violence (GBV) and Violence Against Children (VAC) presented in Appendix 2

- Company Code of Conduct: Commits the company to address GBV and VAC issues.
- Manager's Code of Conduct: Commits managers to implement the Company's Code of Conduct, as well as those signed by individual workers.
- Individual Code of Conduct: Code of Conduct for everyone working on the Project, including managers.

Responsibility: Contractor

8.4.3 Community Engagement

Conduct a public meeting in the municipality of Maio, in order to:

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- Introduce the Contractor, who, in turn, will describe his work plan (activities to be carried out and respective expected start and end dates);
- Present environmental and social safeguards, with emphasis on GBV and VAC prevention measures, and disseminate the Project's GRM.

Responsibility: UGPE, with the support of the OE and participation of the Contractor

8.4.4 Prevention of Forced Labor

The risk of using forced labor by polysilicon suppliers is known, so it will have to be demonstrated that the suppliers of solar PV panels for the project do not use forced labor and child labor among their workforces. Thus, the Contractor will have to submit two declarations: a Forced Labor Performance Declaration (which covers past performance) and a Forced Labor Declaration (which covers future commitments to prevent, monitor and report on any forced labor, also applicable to their own subcontractors and suppliers).

Responsibility: Contractor

8.4.5 Articulation With Other Entities

Close articulation should be maintained, right from the project and planning phase, extending during construction, with the City Council, with the Roads Institute and with linear infrastructure operators (for example water, energy, or telecommunications) that may be affected by the project or condition its execution. Particular attention should be paid to interventions in areas where recent works have been completed, and which are eventually guarantee of good performance. The connection of the solar PV plant to the public electricity grid should, naturally, deserve the greatest attention.

Within the scope of this articulation, a first planning of deviations or other interferences with infrastructures (water, electricity, or communications) must be produced, which must be updated and detailed already in the construction phase, with the involvement of the Contractor.

The procedures to be adopted in the event of accidental (unforeseen) damage to any of these infrastructures should also be established.

The procedures to be adopted in the event of accidental (unforeseen) damage to any of these infrastructures should also be established.

The installation of the construction yard will be communicated to the local City Council and the Delegation of the Ministry of Agriculture and Environment.

Responsibility: Contractor, with knowledge of the UGPE and the OE

8.4.6 Labor Management

An LMP, including Labor Management Procedures has been prepared for the Project. The Contractor must take in consideration the requirements set in the LMP when preparing the CESMP.

Among other aspects, the Contractor must prepare a recruitment plan that is transparent in order to guarantee that the community in the area of direct influence has priority in the selection process, whenever this is compatible with the needs of the contract.

The recruitment process should also be equitable in terms of gender, with the aim of boosting the recruitment of women.

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All staff recruited (directly by the Contractor or its subcontractors) must sign the code of conduct relating to GBV and VAC and will be subject to specific awareness rising on these matters.

Responsibility: Contractor

8.4.7 Completion and Detailing of the Environmental and Social Management Plan

As part of the preparation of the work, the Contractor will complete and detail the general requirements established in this ESMP, depending on the specificities of its organization and the human and material resources that will be assigned to the work.

The revised ESMP will be submitted for approval by the UGPE (assisted by the OE) before the start of work. Once approved, the revised document will become the Contractor's ESMP (CESMP).

Responsibility: Contractor

8.4.8 Health and Safety Plan

The Contractor will prepare a Health and Safety Plan (HSP) that responds to the requirements established in Decree 64/2010. Thus, the HSP should include an identification of hazards and risk assessment and the definition of preventive measures to be adopted, considering the following aspects:

- The types of work to be carried out, with emphasis on those with special risks (e.g., electrical) and the respective phasing.
- The specificities of the places where the work is carried out and the infrastructure and activities found there.
- The construction processes, materials, and products to be used.

Specifically in relation to the prevention of epidemics or outbreak, such as Dengue fever in 2024, the following aspects should be ensured right from the planning stage:

- Strict compliance with the determinations of the national health authorities and the follow-up of the guidelines of international institutions
- Implementation of verification of the procedures for epidemic prevention related to:
    - General hygiene care.
    - Cleaning and waste management.
    - Health care available on the island.
    - Protocol for identifying and handling cases.
    - Training and communication with workers.
    - Communication and contact with the community.

At least one qualified first aider must be present at all times and appropriately equipped first-aid stations must be easily accessible on site. All the personnel must be aware of the actions to be taken in an emergency.

Where hazardous substances are stored and/or handled, there must be means (absorbent products - sand or sawdust - utensils and containers to collect spilled products), which allow for quick action in the event of a spill, to reduce the amount of spilled product and the extent of the affected area. Personnel working in these locations must have specific training on what to do in the event of a spill.

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Where flammable substances are stored and/or handled, means of first intervention in the event of fire must be available (at least fire extinguishers of the appropriate class for the type of substances in question) and the staff must have specific training for their use.

During the entire duration of the construction work, the Contractor must ensure the capacity to respond promptly, even outside normal working hours and on weekends and holidays, to any accident or emergency related to the work (on the construction site or on any of the work fronts), and for this purpose keep personnel in a state of readiness and in conditions to be contacted.

This procedure should provide for articulation with local civil protection and fire services and security forces (National Police), to:

- Ensure that these local services are familiarized with the specificities of the actions and infrastructure related to the solar PV plant; and
- Confirm the exact ways in which those local services and/or the National Police can be alerted and mobilized to respond to an emergency (use of the national emergency number – 112 – or another mechanism to be indicated.

The HSP and the detailed procedure to be adopted in case of emergency must be prepared by the Contractor and be submitted for approval by the UGPE (assisted by the OE) before the start of the works. This procedure must reflect the specificities of the organization and of the human and material resources that will be assigned to the contract.

Once approved, the revised document will become the Contractor's HSP (CHSP).

Responsibility: Contractor

8.5 Measures for the Construction Phase

8.5.1 Staff Training and Awareness

Before the start of the work, the UGPE will promote, with the support of the OE and other entities, namely ICIEG - Cabo Verdean Institute for Gender Equality and Equity, the training of the Contractor's management team, the environment, health and safety and social specialists, and work supervisor(s), covering the following topics:

- Environmental effects that the work may cause and corresponding good practices and preventive and corrective measures to be adopted.
- Rules and procedures for managing waste on site.
- Health and safety risks associated with works and corresponding preventive measures and behaviors to be adopted.
- First aid and action in the event of an accident.
- General norms for dealing with local populations.
- GBV and VAC prevention code of conduct.
- Risks and prevention of sexually transmitted diseases.
- Measures to be taken in case of discovery of archaeological remains.
- Grievance redress mechanism for workers and its use.

Subsequently, the Contractor's management team must ensure the provision of training and awareness actions aimed at all on-site staff at its service (including the staff of its subcontractors), in

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order to improve their knowledge of the actions they must take in order to prevent or minimize the environmental effects of its activity and to promote better relations with local populations. The presence and content of these actions must be duly registered.

Whenever new workers are admitted, they must be given identical training and awareness.

During the work and following the follow-up and monitoring activities, the need for complementary training and awareness actions may be determined if it appears that the previous actions have not produced the desired effects.

Responsibility: UGPE, with support from OE and ICIEG, and Contractor

8.5.2 Location and Operation of the Construction Yard

8.5.2.1 Location

The site and the material plant should be located inside the perimeter of the solar PV plant, preferably in areas where it is necessary to proceed with the destruction of vegetation and relevant earthworks.

Responsibility: Contractor

8.5.2.2 Water Supply for Work

The water supply for the work should be done primarily from the existing public systems.

If it is necessary to use water sources other than public systems, the Contractor must ensure that they are licensed water sources and that their use does not result in damage or limitations for local populations.

The reuse of treated wastewater for irrigation (dust suppression or landfilling) should be promoted if public systems are capable of supplying sufficient amounts of such water and the quality is guaranteed to be compatible with such uses (i.e., if re-use does not pose a risk to the health of workers or the public).

The use of being given in the work to waters of different origins must be compatible with the respective qualities. For example, do not use potable water for washing or watering floors.

The provision of guaranteed potable water in sufficient quantity to meet the needs of workers while at work should deserve particular attention.

Responsibility: Contractor

8.5.3 Waste and Wastewater Management

Wastewater generated in sanitary facilities and any other contaminated wastewater generated in other areas of the construction yard must be drained and, if necessary, subject to adequate treatment in view of the type of contamination they present, prior to its discharge into the receiving environment. At a minimum, the wastewater generated in the sanitary installations must be directed to a septic tank (which must remain to serve the installations in the operation phase).

The construction yard must have adequate sanitary facilities for the number of workers, as follows:

- Separate toilets for females and males
- Fixed toilets (connected to a septic tank, as mentioned above), supplementary by mobile toilets where workers may be more than 200m from the fixed toilets.

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- As a rule, there should be one toilet for every 12 workers.
- Mobile toilets must be cleaned (and emptied into a septic tank) daily or more frequently if necessary.

The discharge of wastewater is subject to licensing, under legal terms (Water and Sanitation Code, Legislative Decree 3/2015).

Before the start of work, the Contractor must establish the necessary agreements/contracts to ensure the proper management of waste produced during construction, in strict compliance with applicable legal provisions and applicable good practices to prevent risks and environmental and social impacts associated with inadequate disposal of that waste.

The construction yard must be equipped with adequate technical conditions for the storage of different types of waste while awaiting transportation for recycling, treatment, or disposal.

The different types of waste, which must be duly marked, must not be mixed, and must not be exposed to meteorological conditions that could cause its degradation or lead to soil, water or air contamination.

Waste originating on site must be stored, separately, in appropriate containers, until it is removed for recycling, treatment or disposal by duly licensed / authorized operators for this purpose.

Waste management operations produced on site will have to comply with the requirements established in the general regime applicable to waste prevention, production, and management (Decree 56/2015). Any transport of waste generated on site must comply with the legal requirements relating to the accompanying guides for this waste. The waste monitoring guides must be included in the monthly reports to be prepared by the Contractor.

Responsibility: Contractor

8.5.4 Storage and Handling of Hazardous Substances

The storage and handling of fuels, oils, lubricants, or other substances likely to cause contamination of soil and surface or groundwater must be carried out in places specially adapted for this purpose, to safeguard environmental values and human health.

At the very least, if it is necessary to handle oils and fuels, waterproof and limited areas must be provided to contain any spillage.

Responsibility: Contractor

8.5.5 Machinery Overhauls and Maintenance

Overhauls and maintenance of machinery should not be carried out at the workplace, but in properly prepared workshops.

In cases where this type of intervention must be carried out in the workplace, the necessary care must be taken to prevent soil and water contamination and to collect the resulting waste, which must subsequently be sent for recycling, treatment or disposal.

Responsibility: Contractor

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8.5.6 Execution of Works

8.5.6.1 Fencing and Signaling of Works and Conditioning of Pedestrian and Car Circulation

If any intervention takes place outside the perimeter of the solar PV plant, namely for the construction of the line to connect to the electricity grid, the Contractor must at all times ensure the signaling of the work areas, restricting the movement of people, machinery and equipment to the accesses defined and limiting the actions of the construction process to the intervention areas, thus avoiding the allocation of areas not strictly necessary for the proper execution of the work.

No excavation outside the perimeter of the solar PV plant (for example for the installation of the connection line to the electricity grid) may be left open at night or on days (weekends or holidays) when work is stopped without signage and suitable protection. Signaling and protection conditions will be adequate both for car traffic and for pedestrians.

The restrictions to be imposed on car and foot traffic on the access roads to the PV farm area, namely in terms of signage and fencing, speed limits more restrictive than the pre-existing ones or other restrictions applicable to the circulation of vehicles and pedestrians will be systematized in a specific traffic management plan that will be part of the ESMP. This traffic management plan should pay particular attention to periods of higher traffic intensity generated by the works (particularly in the transportation of materials and equipment for the construction of the solar PV plant) and to periods and places where there may be interventions outside the perimeter of the plant.

Responsibility: Contractor

8.5.6.2 Exploration of Borrow Pits

Priority should be given to obtaining aggregates (sand, in particular) for the work in existing explorations, instead of resorting to explorations started purposely for the Project.

In the case of recourse to existing operations, the use of aggregates from non-licensed operations will be prohibited (i.e., the licensing of operations must be evidenced).

Responsibility: Contractor

8.5.6.3 Management of Materials Resulting from Excavations

Uncontaminated soil from excavation operations must be reused for refilling trenches or foundations. Any remaining quantities that cannot be reused, constitute waste, and must be sent to an appropriate destination, with its indiscriminate spreading in places where this could cause damage being prohibited.

In the case of soils that have been contaminated by some accidental action, their disposal must be planned in a controlled manner, in coordination with the municipal services. In case of contamination by hydrocarbons, before its deposition the soils must be treated, for example in biopiles.

Responsibility: Contractor

8.5.6.4 Washing of Concrete Mixers and Concrete Residues

Concrete mixer washing water and concrete residues that may be produced by the works should not be thrown onto the ground, but preferably reused or else collected and packaged for controlled disposal in places where they cannot cause environmental damage (for example in places used by municipal services for the disposal of urban solid waste).

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Responsibility: Contractor

8.5.6.5 Preservation of Air Quality and Noise Reduction

All equipment, machines and vehicles allocated to the work with a combustion engine must be in good working order, to limit the undesirable emission of atmospheric pollutants and noise.

Whenever there is room for machinery and vehicles to circulate on unpaved paths or for soil mobilization and, as a result, dust is raised that may disturb or cause damage, watering these paths or work fronts must be carried out to mitigate this dust. When carrying out this irrigation, priority should be given to the use of non-drinking water (see point on water supply for the work).

The open-air burning of any type of urban, industrial, toxic, or dangerous waste is prohibited, as well as all types of material commonly referred to as scrap (article 40 of Decree-Law no. 5/2003).

Responsibility: Contractor

8.5.6.6 Fire Prevention

Carrying out hot work (namely cutting and welding work), as well as any operation or activity that involves setting fires, must not be allowed in places where there is a presence of combustible material (namely dry vegetation) that could aggravate the risk of fire.

Any work or activities involving a risk of fire must be preceded by clearing the vegetation around the specific places where those activities are to take place and be carried out in the presence of immediately mobilizable firefighting means, namely chemical powder extinguishers (ABC).

Responsibility: Contractor

8.5.6.7 Discovery of Archaeological Remains

The work management personnel and the personnel directly involved in the earthworks to be carried out for the installation of the solar PV plant will receive specific training on the actions to be taken in the event of the discovery of any archaeological remains during those works.

In the event of the discovery of archaeological remains, the work must be immediately interrupted and the person in charge of the work front must be immediately notified so that the following actions can be taken.

Thus, the discovery area and its immediate surroundings must be immediately fenced, with a ban on work and the presence of personnel inside it and with any findings duly protected and subject to photographic record without being removed from the site.

The works management will communicate with the OE, and this will be responsible for communicating the occurrence to the UGPE which, in turn, will inform the Environmental and Social Consultant and the World Bank.

The UGPE will also, under the terms of paragraph 1 of article 39 of Law 85/IX/2020, inform “Immediate knowledge to the local authority, which, in turn, must inform the Ministry of guardianship in order to take the necessary steps”.

Under paragraph 2 of the article, “The local authority must ensure the safeguarding of these testimonies, namely by resorting to scientific entities of recognized repute that carry out studies without prejudice to the immediate communication to the responsible Ministry”.

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Works will not be resumed in the isolated area without authorization from the local authority, transmitted to the UGPE which, in turn, will instruct the Contractor and the OE accordingly.

Any changes or details of these requirements will be subject to a procedure to be drawn up by the Contractor, to be submitted for approval by the UGPE (assisted by the OE).

Responsibility: Contractor, OE and UGPE

8.5.7 Completion of Works

8.5.7.1 Remediation of Intervened Areas

After installing the infrastructures and vacating the site, the intervened areas that are not occupied by the solar PV plant must be promptly recovered, to restore them to their previous state, unless future uses are foreseen and proven that benefit from the maintenance of existing conditions.

Responsibility: Contractor

8.6 Measures for the Operation Phase

8.6.1 Labor Recruitment

The recruitment of personnel for the operation and maintenance activities of the solar PV plant must be transparent in order to guarantee that the community in the area of direct influence has priority in the selection process, whenever this is compatible with the needs of the contract.

The recruitment process should also be equitable in terms of gender, with the aim of boosting the recruitment of women.

Responsibility: Contractor/Operator

8.6.2 Codes of Conduct

The Operator will try to subscribe and implement the Codes of Conduct for the Implementation of Environmental, Social, Health and Safety (ESHS) and Occupational Health and Safety (OHS) Standards, and prevention of Gender-Based Violence (GBV) and Violence Against Children (VAC) presented in Annex 2:

- Company Code of Conduct: Commits the company to address GBV and VAC issues.
- Manager's Code of Conduct: Commits managers to implement the Company's Code of Conduct, as well as those signed by individual workers.
- Individual Code of Conduct: Code of Conduct for everyone working on the project, including managers.

Responsibility: Operator

8.6.3 Update of the Environmental and Social Management Plan for the operation phase

Before starting the operation and maintenance of the solar PV plant, the Contractor and, subsequently, the Operator will complete and detail the general requirements established in this ESMP, depending on the specificities of their organization and the human and material resources that will be allocated to the operation and maintenance of the solar PV plant.

The revised ESMP will be submitted for approval by the UGPE (assisted by the OE) before the start of work. Once approved, the revised document will become the Operator’s ESMP (OESMP).

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Responsibility: Contractor/Operator

8.6.4 Health and Safety Plan

The Contractor and, subsequently, the Operator, will draw up the respective Health and Safety Plans (HSP) for the operation and maintenance of the solar PV plant. Thus, these HSP should include an identification of hazards and risk assessment that leads to the definition of preventive measures to be adopted, considering the following aspects:

- The types of work to be carried out, with emphasis on those with special risks (e.g., electrical) and the respective phasing.
- The specificities of the places where the work is carried out and the infrastructure and activities found there.

Specifically in relation to the prevention of epidemics or outbreak, such as Dengue fever in 2024, the following aspects should be ensured right from the planning stage:

- Strict compliance with the determinations of the national health authorities and the follow-up of the guidelines of international institutions
- Implementation of verification procedures for epidemic prevention related to:
  - General hygiene care.
  - Cleaning and waste management.
  - Health care available on the island.
  - Protocol for identifying and handling cases.
  - Training and communication with workers.
  - Communication and contact with the community.

In the places where the work is carried out, there must be first aid means (human and material) appropriate to the risks involved and the number of workers involved, and the personnel must be aware of the actions to be taken in an emergency.

Where hazardous substances are stored and/or handled, there must be means (absorbent products - sand or sawdust - utensils and containers to collect spilled products), which allow for quick action in the event of a spill, to reduce the amount of spilled product and the extent of the affected area. Personnel working in these locations must have specific training on what to do in the event of a spill.

Where flammable substances are stored and/or handled, means of first intervention in the event of fire must be available (at least fire extinguishers of the appropriate class for the type of substances in question) and the staff must have specific training for their use.

During the entire useful life of the solar PV plant, the Contractor / Operator must ensure the capacity to respond promptly, even outside normal working hours and on weekends and holidays, to any accident or emergency related to the solar PV plant, and for this purpose keep personnel in a state of readiness and in conditions to be contacted.

The solar PV plant must have a procedure for responding to emergencies, in which the measures and action protocols are systematized that allow a prompt response to possible emergency situations, to mitigate the potentially resulting environmental and social damages. Such planning should consider the risks of:

- Natural disasters (earthquakes, extreme weather phenomena).

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- Acts of vandalism or sabotage.
- Accidents or fire in areas adjacent to the plant or the associated transmission line.

The emergency plan must specify, at a minimum:

- The protection and prevention measures to be adopted.
- The communication protocols to be adopted to alert and mobilize civil protection services and firefighters and/or security forces to respond to an emergency (use of the national emergency number - 112 - or another mechanism to be indicated).
- Procedures for resuming operations.
- Protocols for disclosing information.

This procedure should provide for articulation with local civil protection and fire services and security forces (National Police), to:

- ensure that these local services are familiarized with the specificities of the actions and infrastructure related to the solar PV plant; and
- confirm the exact ways in which those local services and/or the National Police can be alerted and mobilized to respond to an emergency (use of the national emergency number – 112 – or another mechanism to be indicated.

The HSP and the detailed procedure to be adopted in case of emergency must be prepared by the Contractor / Operator and be submitted for approval by the UGPE (assisted by the OE) before the start of the operation. This procedure must reflect the specificities of the organization and of the human and material resources that will be assigned to the operation.

Once approved, the revised document will become the Operator's HSP (OHSP).

Responsibility: Contractor/Operator

8.6.5 Staff Training and Awareness

Before the start of the operation, the UGPE will promote, with the support of the OE and other entities, namely ICIEG - Cabo Verdean Institute for Gender Equality and Equity, the training of the personnel responsible for the Contractor / Operator, namely the environment, health and safety technician(s), foreman(s) and work management personnel, covering the following topics:

- Environmental effects that the operation and maintenance of the solar PV plant on site may cause and corresponding good practices and preventive and corrective measures to be adopted.
- Rules and procedures for the management of waste produced in the solar PV plant.
- Security risks associated with the solar PV plant and corresponding preventive measures and behaviors to be adopted.
- First aid and action in the event of an accident.
- General norms for dealing with local populations.
- GBV and VAC prevention code of conduct.
- Risks and prevention of sexually transmitted diseases.
- Grievance Redress Mechanism for workers and its use.

Subsequently, the Contractor/Operator's management team must ensure the provision of training and awareness-raising actions aimed at all on-site personnel at its service (including the personnel of

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its subcontractors), to improve their knowledge of the actions that should have in order to prevent or minimize the environmental effects of their activity and to promote the best relationship with the local populations. The presence and content of these actions must be duly registered.

Whenever new workers are admitted, they must be given identical training and awareness.

During the operation and maintenance of the solar PV plant and following the follow-up and monitoring activities, the need for complementary training and awareness actions can be determined, if it appears that the previous actions have not produced the desired effects.

Responsibility: UGPE, with support from OE and ICIEG, and Contractor/Operator.

8.6.6 Facility Security

The solar PV plant must be fenced and with access control, to prevent the entry of strangers to the work and a guard service can be implemented with physical or electronic presence, as deemed appropriate.

The security services that may be provided must be guided by the principles of proportionality and good practices and will comply with the applicable legislation (namely Law No. 50/VII/2009 private security personnel) in relation to the hiring, standards of conduct, training, and provision of equipment and monitoring of such security teams.

The use of force will not be acceptable during the provision of security services, except when such use of force is used for preventive and defensive purposes, proportionate to the nature and extent of the threat.

Responsibility: Contractor / Operator

8.6.7 Efficient Use of Water

Depending on the exact solution that is implemented for cleaning the panels, there may be a greater or lesser consumption of water for this essential activity for maintaining the good performance of the installation in terms of solar PV generation.

If the solution adopted includes the use of water, the personnel involved in cleaning the panels must be instructed in the sense of preventing waste and all the equipment to be used for this purpose must be kept in good condition, in order to avoid any losses of water.

Likewise, if the solution adopted for cleaning the panels includes the use of water, priority should be given to using water that is not potable, safeguarding the health and safety of the personnel involved in the cleaning activities, ensuring, in all cases, the use of legally authorized water sources and the prevention of conflicts of use.

Responsibility: Contractor / Operator

8.6.8 Waste and Wastewater Management

The solar PV plant must have adequate sanitary facilities for the number of workers.

Wastewater generated in sanitary installations and any other contaminated wastewater must be drained and, if necessary, subjected to adequate treatment in view of the type of contamination they present, prior to its discharge into the receiving environment.

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The plant must have adequate technical conditions for the storage of different types of waste while awaiting transportation for recycling, treatment, or disposal.

The different types of waste, which must be duly marked, must not be mixed, and must not be exposed to meteorological conditions that could cause its degradation or lead to soil, water, or air contamination.

Waste must be placed, separately, in appropriate containers until it is removed for recycling, treatment or disposal by duly licensed / authorized operators for this purpose.

Any transport of waste generated in the solar PV plant must comply with the legal requirements regarding the accompanying guides for this waste.

The above provisions on waste management also apply in cases where any infrastructure or equipment installed in the solar PV plant must be decommissioning:

- Any waste produced as part of the decommissioning of the plant (in whole or in part) must not be mixed and must not be exposed to weather conditions that could cause its degradation or lead to soil, water, or air contamination.
- Such waste must be stored, separately, in appropriate containers, until it is removed to be subject to recycling, treatment or disposal by duly licensed / authorized operators for this purpose.
- Given the high potential for recovery (reuse or recycling) of various components (such as solar PV panels, metal structures and electrical cables), the management of materials resulting from decommissioning the plant should be carried out in such a way as to maximize this recovery, namely through a careful segregation of the different types of materials and, when applicable, the prevention of damage to equipment that can be reused as it is. Since Cabo Verde lacks a waste recycling policy, these components will be stored in designated areas assigned by local or national authorities.

Responsibility: Contractor/Operator

8.6.9 Storage and Handling of Hazardous Substances

The storage and handling of oils, lubricants, or other substances likely to cause contamination of surface or underground waters and soils must be carried out in places specially adapted for this purpose, in order to safeguard environmental values and human health.

At the very least, if it is necessary to handle oils and fuels, waterproof and limited areas must be provided to contain any spillage.

A routine shall be established for monitoring possible leaks from the oil-filled transformers. In the event of a leak from a transformer, the respective spill containment tray must be emptied into a dedicated and labelled transformer oil container for safekeeping pending transport to a recycling/disposal facility abroad.

Responsibility: Contractor / Operator

8.6.10 Fire prevention

Carrying out hot work (namely cutting and welding work), as well as any operation or activity that involves setting fires, must not be allowed in places where there is a presence of combustible material (namely dry vegetation) that could aggravate the risk of fire.

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Any work or activities involving a risk of fire must be preceded by clearing the vegetation around the specific places where those activities are to take place and be carried out in the presence of immediately mobilizable firefighting means.

Responsibility: Contractor / Operator

8.6.11 Emergency Response

In the solar PV plant, there must be first aid means (human and material) appropriate to the risks involved and the number of workers involved, and the staff must be aware of the procedure to be followed in an emergency.

In places where dangerous substances are stored and/or handled, there must be means (absorbent products - sand or sawdust - utensils and containers to collect spilled products), which allow for quick action in the event of a spill, to reduce the amount of spilled product and extent of affected area. Personnel working in these locations must have specific training on what to do in the event of a spill.

In places where flammable substances are stored and/or handled, means of first intervention in case of fire must be available (at least fire extinguishers of the appropriate class for the type of substances in question) and the staff must have specific training for their use.

There must always be capacity to respond promptly, even outside normal working hours and on weekends and holidays, to any accident or emergency related to the solar PV plant, and for this purpose, staff must be on standby and able to be contacted.

Responsibility: Contractor / Operator.

8.7 Measures for the Decommissioning Phase

The environmental and social management measures for the decommissioning phase will be, in essence and with the necessary adaptations, identical to those recommended for the construction phase.

An aspect not applicable to the construction phase but relevant to the decommissioning phase will be the reuse or recycling of materials and equipment in the solar PV plant. A circular economy logic should be adopted, using the technologically and economically viable options that are available at the time (predictably very different from those that exist at the present time).

When electrical transformers installed on site reach the end of their useful life, they must be handled with special care to prevent oil leakage and transported to a safe, designated location for processing. This process must include the removal of oil from the transformers, with the oil obtained then being sent abroad for recycling or disposal.

Another aspect to be safeguarded will be that of the personnel to be demobilized, who should benefit from training to facilitate their reintegration into the labor market.

Responsibility: Operator.

8.8 Environmental and Social Monitoring

The analysis of environmental and social risks and impacts carried out did not lead to the identification of the need to implement complex monitoring plans on any specific environmental or social component.

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However, it will be necessary to monitor the implementation of the envisaged environmental and social management measures and verify whether these measures yield the expected results.

The following points describe how such monitoring should be carried out, with the aim of proportioning the effort to be applied in this monitoring to the (limited) scale of the risks and impacts foreseen for the implementation of the solar PV plant.

8.8.1 Responsibilities

Responsibilities for the implementation of the mitigation measure have already been identified in the previous sections. The responsibilities for monitoring their implementation and effectiveness are now specified.

8.8.1.1 Construction Phase and Initial Period of Operation (scope of the EPC contract)

As general principles, the following should be considered:

- During its action, the Contractor resorts to good practices, complies with legal requirements and implements the measures that are under its responsibility, creating records that demonstrate this implementation.
    - Weekly it takes stock of the situation, with a factual description of the most relevant facts in environmental and social matters and monthly presents a detailed report containing all the records produced and an assessment of the occurrences in that period.
    - The monthly report to be produced by the Contractor, with the structure defined in the revised ESMP, will have to be delivered to the OE by the 5th of the month following the month to which the report refers.
- Verification of the Contractor's performance will be the responsibility of the OE, verifying and validating the records produced by the Contractor.
- Upon finding serious failures or omissions, the OE will be responsible for directly instructing the Contractor to correct them.
- The OE will keep the UGPE informed about the progress of the work, making a monthly status report covering the most relevant facts in environmental and social matters, without prejudice to ad hoc communication in the event of urgent situations.
- The performance requirements related to the long-term operation and maintenance of the solar PV plant (by the Operator) will be detailed when preparing the terms of reference for the tender for selection of the Operator.

8.8.1.2 Operation Phase

In the operation phase, the same requirements established above for the construction phase and initial period of operation will apply, assuming that in this phase the attributions indicated above for the UGPE will be ensured by DNICE, without the intervention of the OE, whose intervention by the State Budget will have ended at this stage.

8.8.2 Indicators

The monitoring of the Subproject's environmental and social management will be done using the following set of indicators to be reported by the Contractor (and subsequently the Operator) in their monthly reports:

- Number of new jobs created.
- Number of jobs eliminated.

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- Number of permanent jobs created / eliminated.
- Number of jobs for women created / eliminated.
- Number of workers in the month in question.
- Number of accidents (with sick leave, including fatalities, and without sick leave).
- Number of days lost due to accidents at work.
- Number of hours of exposure to risk or number of working hours.
- Work accident frequency index[8].
- Index of incidence of accidents at work[9]
- Occupational accident severity index[10].
- Number of workers participating in training and awareness sessions.
- Quantity of water consumed (m^3), by sources (public supply system, other).
- Quantity of aggregates (sand, gravel, rock, in tons), with verification of licensed origin.
- Quantity of waste produced (by typology provided for in the National Waste List, with verification through the respective Monitoring Guides).
- Quantity of waste, by type of management operation to which it was subjected, with verification through the respective Monitoring Guides).

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[8]Frequency index: The frequency index indicates how many accidents with sick leave, including fatal ones, occur in every million man-hours performed and is represented by the expression:

$$IF = \frac{N*10^6}{T}$$

N= Number of accidents at work with sick leave, including fatal ones.

T= No. of hours of exposure to risk.

[9]Incidence rate: The incidence rate indicates the number of accidents with sick leave, including fatal ones, per thousand workers and is calculated using the expression:

$$I_i = \frac{N*10^3}{NT}$$

N= Number of accidents at work with sick leave.

NT = Average number of workers

[10]Severity index: The severity index indicates the number of days lost due to an accident at work per thousand man-hours performed, calculated using the expression:

$$I_g = \frac{Dp*10^3}{T}$$

Dp = Number of days lost due to accidents at work.

T= Number of hours of exposure at risk.

According to a resolution of the 6th International Conference of Labor Statisticians, a fatal accident is equivalent to the loss of 7,500 days of work.

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These indicators will be considered by the OE in the preparation of its monthly report to the UGPE, which will also contain the following indicators:

- Non-conformity: Number of non-conformities (non-compliance with environmental and social management measures) identified by the OE.
- Complaints received number of complaints received through the MGR.
- Average time to resolve identified nonconformity.
- Average response time to complaints received.
- Average time taken to resolve the issues in question in the complaints received.

8.9 Time Schedule for Implementation of the ESMP

Within a maximum period of 2 weeks before the start of the works, the Contractor will present for approval by the UGPE (assisted by the OE) the revision of this ESMP (including the HSP), complementing and detailing it, explaining its understanding regarding the impacts envisaged environmental and social measures and the corresponding mitigation measures, describing:

- The organization and human and material resources that will be allocated to the environmental and social management of its intervention.
- The methods, procedures, equipment, and materials to be used to carry out the work, with a view to preventing, correcting, or compensating for the environmental and social impacts of its intervention.
- The plan for the construction yard, with particular detailing of the planned measures to respond to the established environmental and social requirements.
- The way in which it will articulate environmental management with the management of safety and health at work.
- The records that will be produced to demonstrate compliance with the planned mitigation measures and the proposed structure for the monthly reports to be presented during the term of the contract.
- The specific timetable for the environmental and social management actions and measures to be implemented and their relationship with the general timetable for the works.

Two weeks before the start of the initial period of operation (under the EPC contract) the Contractor will submit for approval by the UGPE the updated ESMP, including the HSP, for the operation phase.

The requirements for the implementation of the ESMP by the Operator (phase subsequent to the initial period of operation to be borne by the Contractor) will be established when drawing up the terms of reference for contracting the Operator but will in principle comply with the same general principles established above for the Contractor.

These requirements will also cover the deactivation phase of the solar PV plant, assuming that this will be carried out by the Operator.

8.10 ESMP Review

The provisions set out in this ESMP should be reviewed whenever it becomes necessary to update the applicable legislation, change the actions/procedures to be implemented depending on the effectively verified impacts and the monitoring results.

It will be up to the UGPE, with the support of the OE, to work with the various stakeholders to ensure that these updates are made and communicated to all parties whose actions may be subject to change.

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8.11 Capacity Building

Apart from the Project workers training mentioned above, the ESCP considers a series of capacity-building initiatives for the UGPE, other institutions and Project implementing partners, covering themes as:

- Health and safety.
- Working conditions.
- Risk management.
- Waste management.
- Gender based violence.
- Grievance redress mechanism.

8.11.1 Budget

The following table summarizes the environmental and social management activities to be implemented for the subcomponent 1.1 of Project (photovoltaic pant and their respective interconnections with the electric grid and the battery storage systems), indicating also the responsible parties and the estimated cost.

Table 8 – ESMP Implementation Bubget

Activity	Responsibility	Estimated cost	Comments

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Implementation of mitigation measures (Contractor and Operator)	Contractor, Operator	-	The environmental and social management measures to be implemented by the contractor and the operator will relate exclusively to compliance with the applicable legal requirements and/or best practices and will have a reduced cost, which should be included in the general budget of the respective contracts. It is not foreseen the need to implement any environmental or social measure that implies investment costs.
Environmental and Social Monitoring and Auditing	UGPE	12,000 USD	Lump sum estimation of the costs associated with E&S monitoring and auditing of the project, including possible audits to be carried out by the external entities (eg National Directorate for the Environment, Delegations of the Environment and Agriculture Ministry, Municipalities). The operational costs of the Owner's Engineer and UGPE teams are not included in this estimation
Stakeholder Engagement	UGPE	5,000 USD	Lump sum estimation of the costs associated with the stakeholder engagement, including public meetings, disclosure of information documents. The operational costs of the Owner's Engineer and UGPE teams are not included in this estimation
Grievance Mechanism	UGPE, Local and Central Grievances Management Committees	10,000 USD	Lump sum estimation of the costs associated with the GRM, including the Local and Grievances Management Committees. The operational costs of the UGPE team are not included in this estimation.
Capacity Building (as detailed in the Environmental and Social Commitment Plan)	Owner's Engineer, Contractor, Operator, ICIEG	21,500 USD	Lump sum estimation of the costs associated with organizing and delivering the capacity building sessions, including mobilization of participants. The operational costs of the Owner's Engineer and UGPE teams are not included in this estimation
Training of Project Workers (initial training of the Contractor's and Operator's management staff before ensuring the training of the workers)	Owner's Engineer, Contractor, Operator, ICIEG	10,000 USD	Lump sum estimation of the costs associated with organizing and delivering the training sessions. The operational costs of the Contractor's, Operator's, Owner's Engineer and UGPE teams are not included in this estimation
Total		58,500 USD	

The environmental and social management measures borne by the Contractor (and the Operator) are entirely related to compliance with legal requirements and/or applicable good practices and will have a reduced cost that must be included in the general budget of the contract.

It is not foreseen the need to implement any environmental or social measure that implies investment costs.

The costs with the implementation of the GRM and with the training borne by the UGPE are covered by the general budget of the Project.

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9. FINAL CONSIDERATIONS

The work carried out led to the conclusion that the development of the photovoltaic park in the island of Maio is feasible from an environmental and social point of view, with no significant risks or negative impacts being neither foreseen, nor finding justification for equating alternatives to the indicated location. However, a set of measures is recommended that are considered relevant to ensure the intended sustainability for the use of solar energy in this photovoltaic park.

During the work that led to the presentation of the present assessment, no gaps in knowledge were identified that could condition or limit in a decisive way the conclusions that are now presented.

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11. APPENDICES

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Appendix 1 - Comparison between the national legal framework and the World Bank's ESF requirements

ENVIRONMENTAL AND SOCIAL STANDARDS (World Bank)	NATIONAL LEGISLATION	GAPS OR CONFLICTS
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts		
Objectives of ESS 1: • Identify, assess, and manage the project's socio-environmental risks and impacts in a manner consistent with the ESS. • Adopt a hierarchy approach to mitigating risks and impacts. • Adopt differentiated measures so that negative impacts do not fall disproportionately on the disadvantaged or vulnerable and that they are not disadvantaged in the sharing of development benefits and opportunities resulting from the project. • Use national environmental and social institutions, systems, laws, regulations, and procedures in project evaluation, development, and implementation, where appropriate. • Promote improved environmental and social performance to recognize and strengthen the capacity of the Borrower. In the case of projects with multiple sub-projects, ESS 1 provides that these sub-projects may be of: High Risk, Substantial Risk, Moderate Risk, or Low Risk.	The Legal Framework for Environmental Impact Assessment (EIA) in Cabo Verde was recently revised (Decree 27/2020) with the objective, among others, to achieve a more evident and systematic adherence of national requirements to good practices and the typical requirements of international financial and development support institutions. The new RJAIA provides for 3 categories of EIA: Category A, applicable to types of projects with a higher environmental risk profile and corresponding to the need to prepare an Environmental Impact Study (EIS); Category B, applicable to types of projects with an intermediate environmental risk profile, for which it is necessary to prepare a Simplified Environmental Study (SES); and Category C, applicable to types of projects with a lower environmental risk profile, requiring the submission of Environmental Management Measures to be implemented.	No significant gaps or conflicts are identified between the requirements of ESS 1 and those of national EIA legislation.
ESS 2: Labor and Working Conditions		
Objectives OF ESS 2: • Promote safe and healthy working conditions. • Promote fair treatment, non-discrimination, and equal opportunity for project workers. • Protect project workers, including vulnerable categories of workers such as women, individuals with disabilities, children (of working age in accordance with this ESS) and migrant workers, contract workers, community workers, and primary supply workers.	Cabo Verde has ratified conventions of the International Labor Organization, namely all 8 Fundamental Conventions (on Forced Labor, Freedom of Association and Protection of the Right to Organize, Right to Organize and Collective Bargaining, Equal Remuneration, Abolition of Forced Labor, Minimum Age and Worst Forms of Child Labor), 2 of the 4 Governance Conventions (Labor Inspection and Tripartite Consultations Concerning International Labor Standards) and 6 of the Technical Conventions: Worker's Compensation (Accidents), Equal Treatment (Accident Compensation), Social Security (minimum	No significant gaps or conflicts are identified between the requirements of ESS 2 and those of national legislation on labor and working conditions. At most, it should be noted that national legislation does not have as explicit requirements as ESS 2 on labor management procedures or the adoption of a formal project-specific code of conduct, aspects that thus should be addressed in accordance with ESS 2.

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• Avoid the use of all forms of forced and child labor. • Support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law. • Provide accessible means for project workers to raise concerns in the workplace.	wage), Equal Treatment (Social Security), Occupational Safety and Health, and Maritime Labor). Cabo Verde's labor legislation ("Labor Code") was updated in 2016 (Regulatory Decree 1/2016) and key issues covered include, among others: • The principles of non-discrimination (with respect to gender, race, color, religion, political opinion, or social origin) and equal opportunity. • The law allows workers to form and join unions of their choice without prior authorization or undue requirements. The law allows unions to conduct their activities without government interference and gives union members the right to strike. • The law provides for the right of workers to bargain collectively. • The law prohibits anti-union discrimination. • The law prohibits forced or compulsory labor, including by children. • Currently, the legal minimum age for employment is 15. • The minimum wage in Cabo Verde is currently 13 000 ECV (118 Euro). 14 000 ECV in 2023. • The law sets the maximum work week for adults at 44 hours, prohibits excessive mandatory overtime, and requires that a premium be paid for any overtime worked. Also of note is Decree Law 55/99, September 6, establishing health and safety standards at work, and Decree Law 64/2010, December 27, establishing general rules for planning, organization, and coordination to promote health and safety on construction sites.	

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ESS 3: Resource Efficiency, Pollution Prevention and Management		
Objectives of ESS3: • Promote the sustainable use of resources, including energy, water, and raw materials. • Avoid or minimize negative impacts on human health and the environment by avoiding or minimizing pollution from project activities. • Avoid or minimize project-related emissions of short and long-lived pollutants. • Avoid or minimize the generation of hazardous and non-hazardous waste. • Minimize and manage risks and impacts associated with pesticide use.	In the field of waste, to mention Decree-Law No. 56/2015 of 17 October establishes the general waste regime, applicable to the prevention, production and management of waste, Decree-Law No. 26/2020 of 19 March establishing the legal regime for solid urban waste management services, Decree-Law No. 65/2018 approving the National Waste List, Decree-Law No. 32/2016 approving the National Strategic Plan for Waste Management and Ordinance No. 18/2016 establishing the guide model for monitoring waste road transport. In terms of water and sanitation, Legislative Decree no. 3/2005, of October 19 approves the Water and Sanitation Code, Decree-Law no. 8/2004 regulates the criteria and standards for water quality and its classification, Decree-Law no. 7/2004 regulates the discharge of wastewater, and Regulatory Decree no. 4/2020, of March 4, establishes the criteria and parameters intended to control the quality of water for irrigation, of surface or underground origin, desalinated water, reclaimed rainwater or treated wastewater; The Decree-Law No. 5/2003 of March 31 defines the national system for the protection and control of air quality. Law nº 34/VIII/13 of July 24th establishes the prevention and control of noise pollution, aiming to safeguard people's rest, tranquility, and well-being.	The legal framework is relatively complete but lacks specific regulations in many areas; national practice in emission control and environmental quality monitoring is relatively incipient. This justifies the use of best practices and international guidelines to complement the existing gaps in the country.
ESS 4: Community Health and Safety		
Objectives of ESS 4: • Anticipate and avoid adverse health and safety impacts on communities affected by the project during its life cycle, both in routine and non-routine circumstances. • Promote quality and safety, as well as climate change considerations, in the design and construction of infrastructure, including dams.	The consideration of health and safety risks associated with the implementation of the Project adequate to the specificities of the Project and its area of influence is one of the requirements of RJAIA (Decree 27/2020). Law No. 84/VII/2011 establishes the measures to prevent and repress the crime of gender-based violence (GBV Law).	No significant gaps or conflicts are identified between the requirements of ESS 4 and those of national legislation, which, however, does not have requirements as explicit as ESS 4 which should therefore be considered. Specifically, regarding proven security services, the requirements in national legislation are

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• Avoid or minimize community exposure to project-related road and traffic safety risks, diseases, and hazardous materials. • Having effective measures in place to deal with emergencies. • Ensure the protection of employees and property to avoid or minimize risks to project-affected communities.	Legislative Decree No. 4/2005 (amended by Legislative Decree No. 1/2007 of May 11 - Cabo Verdean Labor Code approves the Road Code. Law No. 8/V/96, of November 11, amended by Law No. 59/VII/2010, of April 19 prohibits the driving of vehicles by individuals under the influence of alcohol. Law nº 50/VII/2009 defines the legal regime for the exercise of private security activities.	considerably aligned with the requirements set forth in ESS 4.
ESS 5: Land acquisition, restrictions on land use, and involuntary resettlement		
Objectives of ESS 5: • Avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives. • Avoid forced eviction. • Mitigate unavoidable negative social and economic impacts linked to land acquisition or restrictions on land use by (a) providing compensation, in a timely manner, for the loss of assets at replacement cost and (b) assisting displaced individuals in their efforts to improve, or at least restore, their livelihoods and standard of living, in real terms, to the levels prevailing prior to the start of project implementation, whichever is greater. • Improve the living conditions of poor or vulnerable individuals who are physically displaced through the provision of adequate housing, access to services and facilities, and security of tenure. • Design and implement resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced individuals to benefit directly from the project, as the nature of the project may justify. • Ensure that resettlement activities are planned and implemented with adequate information dissemination, relevant consultation, and informed participation of affected individuals.	Legislative Decree No. 2/2007, of July 19 approves the Land Law. Legislative-Decree no. 3/2007, of July 19 establishes the requirements for expropriation of property for public utility reasons.	The national legislation presents significant gaps vis-à-vis the requirements of ESS5. Thus, while there is convergence on aspects such as the types of payment, in-kind compensation, the consideration of squatters and the determination of the eligibility date, in several other aspects there are gaps or even divergence between national legislation and ESS 5, namely with regard to persons eligible for compensation, the fact that irregular occupants are not covered, relocation assistance, compensation alternatives, the failure to consider economic displacement, the absence of specific provisions to protect vulnerable groups, adequate dissemination of information, relevant consultation and informed participation, or monitoring and evaluation procedures. In other terms, the sole consideration of national legislation does not allow safeguarding an important set of requirements of ESS 5, so the use of the instruments and the observation of the requirements foreseen in this ESS should be foreseen.

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ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources		
Objectives of ESS 6: • Protect and conserve biodiversity and habitats. • Apply the mitigation hierarchy and the precautionary strategy in the design and implementation of projects that may have an impact on biodiversity. • Promote sustainable management of living natural resources. • Support local community livelihoods, including Indigenous Peoples, and inclusive economic development through the adoption of practices that integrate conservation needs and development priorities.	Decree-Law No. 3/2003 of February 24, as amended by Decree-Law No. 44/2006 of August 28, which establishes the legal regime relating to natural spaces, landscapes, monuments, and other spaces that deserve special protection and must be integrated in the National Network of Protected Areas, due to their ecological function, importance for the conservation of biodiversity and interest from a socioeconomic, cultural, or scientific point of view.	The requirements of ESS 6 should be applied complementarily to what follows from national legislation (specifically in relation to protected areas).
ESS 8: Cultural Heritage		
Objectives of ESS 8: • Protect cultural heritage from negative impacts of project activities and support its preservation. • Address cultural heritage as a key aspect of sustainable development. • Promote relevant consultation with stakeholders in relation to cultural heritage. • Promote equitable distribution of benefits of cultural heritage use.	Law nº 85/IX/2020 of April 20th establishes the Legal Regime of Protection and Values of the Cultural Heritage	Recent national legislation is reasonably aligned with ESS8 requirements, with no significant gaps or conflicts identified.

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ESS 10: Stakeholder Engagement and Information Disclosure		
ESS 10 Objectives: • Establish systematic stakeholder engagement strategies that will help the Borrowers create and maintain a constructive relationship with stakeholders and in particular with project-affected parties. • Assess the level of stakeholder interest and support for the project and enable their views to be considered in project design and environmental and social performance. • Promote and provide means for the effective and inclusive involvement of project-affected parties throughout the project life cycle on issues that could affect them. • Ensure that appropriate information about the project's environmental and social risks and impacts is disseminated to stakeholders in a timely, accessible, understandable, and appropriate manner. • Ensure that project-affected communities have accessible and inclusive means to raise issues and complaints and allow Borrowers to respond to and manage such issues and complaints.	The new RJAIA (Decree 27/2020) has specific provisions for the participatory component in the different stages of the EIA processes.	Despite the improvements introduced with the new RJAIA, the options adopted in terms of stakeholder involvement and information disclosure do not fully meet the requirements of ESS 6, and therefore the use of the tools and compliance with the requirements of this ESS should be foreseen.

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Appendix 2 - Public Consultation and Information Disclosure – attendance lists

Attendance List - interviews with local stakeholders held in 23/07/2021

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Encontro de Implementação do Mecanismo de Gestão de Reclamações da UGPE a nível Local - Maio

Lista de Presenças

23 - 07-2021

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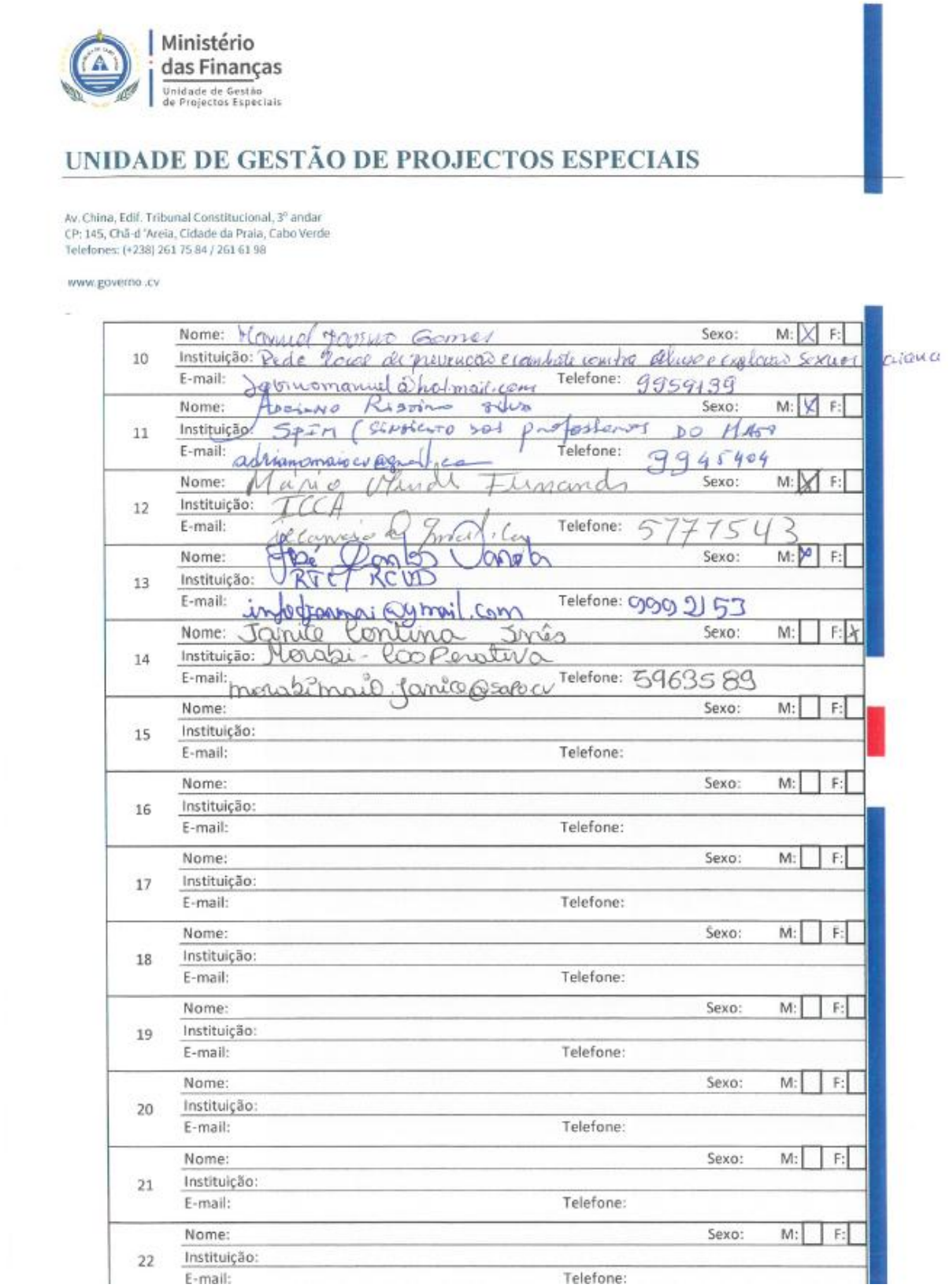

Ministério das Finanças
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15	Nome:	Sexo:	M:	F:		
	Instituição:					
	E-mail:	Telefone:				
16	Nome:	Sexo:	M:	F:		
	Instituição:					
	E-mail:	Telefone:				
17	Nome:	Sexo:	M:	F:		
	Instituição:					
	E-mail:	Telefone:				
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Appendix 3 - Codes of Conduct for the Implementation of Environmental, Social, Health and Safety (ESHS) and Occupational Health and Safety (OHS) Standards, and Prevention of Gender-Based Violence (GBV) and Violence Against Children (VAC)

CODES OF CONDUCT FOR IMPLEMENTING ENVIRONMENTAL, SOCIAL AND HEALTH AND SAFETY STANDARDS, OCCUPATIONAL HEALTH AND SAFETY STANDARDS, PREVENTION OF GENDER BASED VIOLENCE, AND PREVENTION OF VIOLENCE AGAINST CHILDREN

(Source: UGPE, 2022)

1. Objectives

The objective of these Codes of Conduct for the Implementation of Environmental, Social, Health and Safety (ESHS) and Occupational Health and Safety (OHS) Standards, and Prevention of Gender-Based Violence (GBV) and Violence Against Children (VAC) is to introduce a set of key definitions, fundamental codes of conduct and guidelines that:

Clearly define the obligations for all project workers (including subcontractors and casual workers) regarding the application of the project's environmental, social, health and safety (ESHS) and occupational health and safety (OHS) standards and,

Help prevent, report, and respond to GBV and VAC in the workplace and in the immediate surrounding communities.

Application of these Codes of Conduct will help ensure that the project meets its ESHS and OHS objectives, as well as prevent and/or mitigate the risks of GBV and VAC on the project and in local communities.

These Codes of Conduct should be adopted by those working on the project and are intended to:

- Raise awareness about ESHS and OHS expectations associated with the project.
- Create a common awareness of the VBG and VAC and:
    - Ensure a shared understanding that it is not permissible on the project.
    - Create a clear system for identifying, responding to, and sanctioning incidents related to GBV and VAC.
- Ensuring that all project workers understand the values underlying the project and the conduct expected of them and recognize the consequences in the event of violation of these values, will contribute to the creation of a respectful and productive work environment, and to the achievement of project goals.

2. Definitions

The following definitions apply:

- Environment, Social, Health and Safety (ESHS): This is a term covering issues related to the impact of the project on the environment, communities, and workers.
- Occupational Health and Safety (OHS): Occupational health and safety focus on protecting the safety, health, and well-being of workers. The enjoyment of these standards at the highest level is a basic human right that should be accessible to all workers.
- Gender-Based Violence (GBV): This is a term that encompasses any harmful act that is perpetrated against a person's will and is based on socially ascribed differences (i.e., gender) between men and

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women. It includes acts that inflict physical, sexual, or mental harm or suffering, threats of such acts, coercion and other deprivations of liberty. These acts can occur in public or in private. The term GBV is used to highlight the systemic inequality between men and women (which exists in every society in the world) and acts as a unifying and fundamental characteristic of most forms of violence perpetrated against women and girls. The 1993 United Nations Declaration on the Elimination of Violence against Women defines violence against women as "any act of gender-based violence that results in or is likely to result in physical, sexual or psychological harm or suffering to women."

The six main types of GBV are:

- Rape: Non-consensual penetration (even if slight) of the vagina, anus or mouth with a penis, other body parts or an object.
    - Sexual Assault: Any form of non-consensual sexual contact that does not result in or include penetration. Examples include attempted rape, as well as unwanted kissing, fondling, or touching of genitals and buttocks.
    - Sexual Harassment: These are unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature. Sexual harassment is not always explicit or obvious, it may include implicit and subtle acts, but it always involves a power and gender dynamic where one person in power uses their position to harass another based on their gender. Sexual conduct is unwelcome whenever the person subjected to it considers it undesirable (e.g., looking someone up and down; kissing; howling or making inappropriate sounds; walking around someone; whistling; in some cases, giving personal gifts).
- Sexual Favors: This is a form of sexual harassment and includes making promises of favorable treatment (e.g., promotion) or threats of unfavorable treatment (e.g., job loss) contingent on sexual acts - or other forms of demeaning, degrading or exploitative behavior.
- Physical Assault: An act of physical violence that is not sexual in nature. Examples include hitting, slapping, choking, and cutting, pushing, burning, shooting, or using any weapon, acid attacks or any other act that results in pain, discomfort, or injury.
- **Forced Marriage:** The marriage of a person against their will.

Denial of Resources, Opportunities or Services: Denial of legitimate access to economic/active resources or opportunities for livelihood, education, health, or other social services (e.g., a widow prevented from receiving an inheritance, income forcibly taken away by an intimate partner or family member, a woman prevented from using contraceptives, a girl prevented from attending school, etc.).

- Psychological/Emotional Abuse: Infliction of mental or emotional pain or injury. Examples include threats of physical or sexual violence, intimidation, humiliation, forced isolation, stalking, harassment, unwanted attention, remarks, gestures, or written words of a sexual and/or threatening nature, destruction of cherished things, etc.
- **Violence Against Children (VAC):** Is defined as physical, sexual, emotional, and/or psychological harm, neglect, or negligent treatment of children under the age of 18 (i.e., under 18 years), including exposure to such harm that results in actual or potential harm to the child's health, survival, development, or dignity in the context of a relationship of responsibility, trust, or power. This includes the use of children for profit, work, sexual gratification, or some other personal or financial advantage. It also includes other activities such as using computers, cell phones, video and digital cameras, or any other means to exploit or harass children or access child pornography.
- **Grooming:** These are behaviors that make it easier to find a child for sexual activity. For example, an abuser may build a trusting relationship with a child, and then seek to sexualize that relationship

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(e.g., by encouraging romantic feelings or exposing the child to sexual concepts through pornography).

- **Online Grooming:** The act of sending an electronic message with indecent content to a recipient whom the sender believes to be a minor, with the intention that the recipient will engage in or submit to some type of sexual activity with another person, including but not necessarily including the sender.
- **Accountability Measures:** These are the measures in place to ensure the confidentiality of survivors and to hold contractors, consultants, and the client accountable for implementing a fair system for handling cases of GBV and VAC.
- **Construction Environmental and Social Management Plan (C-ESMP):** This is the plan prepared by the contractor that describes how construction activities will be implemented in accordance with the environmental and social management plan defined for the Project (ESMP).
- **Child**: Term used interchangeably with the term "minor" and refers to a person under the age of 18. This definition is in accordance with Article 1 of the United Nations Convention on the Rights of the Child.
- **Child Protection (CP):** Is an activity or initiative aimed at protecting children from any form of harm, particularly from VAC.
- **Consent:** Is the informed choice underlying an individual's free and voluntary intention, acceptance, or agreement to do something. It is not considered consent when such acceptance or agreement is obtained through the use of threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the World Bank considers that consent cannot be given by children under the age of 18, even if the national legislation of the country in which the Code of Conduct is applied provides for a lower age. The mistaken belief about the age of the child and the child's consent is not a defense.
- **Consultant:** Is any company, organization or other institution that has been awarded a contract to provide consulting services for the project and has hired managers and/or employees to carry out this work.
- **Contractor:** is any company, organization or other institution that has been awarded a contract to carry out infrastructure development work for the project and has hired managers and/or employees to carry out this work. This also includes subcontractors hired to perform activities on behalf of the contractor.
- **Worker:** Any person who provides individual labor to the contractor or consultant within the country, on or off-site, under a formal or informal employment contract, typically but not necessarily (including unpaid interns and volunteers), in exchange for a salary, without responsibility for managing or supervising other workers.
- **Manager:** Any individual person who provides labor to the contractor or consultant, on or off the job, under a formal or informal employment contract and in exchange for a salary, with responsibility for controlling or directing the activities of a contractor's or consultant's team, unit, division or similar, and for supervising and managing a predefined number of workers.
- **GBV and VAC Allegation Procedure:** The procedure for reporting incidents of GBV or VAC.
- **GBV and VAC Codes of Conduct:** The Codes of Conduct adopted for the project that cover the company's commitment as well as the responsibilities of managers and individuals with respect to GBV and VAC.
- **GBV and VCA Compliance Team (GCCT):** Experts responsible for addressing GBV and VAC issues associated with the project.

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- **Feedback and Grievance Redress Mechanism (FGRM):** The procedure established by a project to receive and respond to suggestions and complaints.
- **Aggressor:** The person(s) committing or threatening to commit an act or acts of GBV or VAC.
- **Response Protocol:** The mechanisms established to respond to cases of GBV and VAC.
- **Survivors:** The person(s) adversely affected by GBV or VAC. Women, men, and children can be survivors of GBV; children can be survivors of VAC.
- **Work Site:** The area in which infrastructure development work is being conducted as part of the project. Consulting assignments are considered to have the areas in which they are active as work sites.
- **Work Site Surroundings:** The "Project Area of Influence" is any area, urban or rural, directly affected by the project, including all human settlements found therein.

3. Codes of Conduct

This chapter presents three Codes of Conduct for use:

- Company Code of Conduct commits the company to address issues of GBV and VAC.
- Manager Code of Conduct: Commits managers to implement the Company's Code of Conduct as well as those subscribed to by employees on an individual level.
- Individual Code of Conduct: Code of Conduct for everyone working on the project, including managers.

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Company Code of Conduct

Implementation of ESS and OHS Standards

Prevention of Gender Based Violence and Violence Against Children

The company is committed to ensuring that the project is implemented in a way that minimizes any negative impacts on the local environment, communities, and its workers. This will be done by respecting environmental, social, health and safety standards (ESHS) and ensuring that appropriate occupational health and safety standards (OHSS) are met. The company is also committed to creating and maintaining an environment in which gender-based violence (GBV) and violence against children (VAC) do not occur and are not tolerated by any employee, subcontractor, supplier, associate, or representative of the company.

Therefore, to ensure that all project participants are aware of this commitment, the company commits to the following fundamental principles and minimum standards of behavior applicable to all employees, associates, and company representatives, including subcontractors and suppliers, without exception:

General

1. The company, and therefore all employees, associates, representatives, subcontractors, and suppliers, undertake to comply with all relevant national laws, rules, and regulations.

2. The company commits to fully implement its Construction Environmental and Social Management Plan (C-ESMP).

3. The company undertakes to treat women, children (under 18) and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic, or social origin, property, disability, birth or other status. The acts of VBG and VAC violate this commitment.

4. The company will ensure that interactions with members of the local community are conducted respectfully and without discrimination.

5. Humiliation, threatening, harassing, abusive, culturally inappropriate, or sexually provocative language and behavior are prohibited among all company employees, associates and their representatives, including subcontractors and suppliers.

6. The company will follow all reasonable work instructions (including environmental and social standards).

7. The company will protect and ensure the proper use of assets (e.g., to prohibit theft, carelessness, or waste).

Health and Safety

8. The company will ensure that the project's Occupational Health and Safety Management Plan (OH&SMP) is effectively implemented by company employees, as well as subcontractors and suppliers.

9. The company will ensure that everyone in the workplace wears prescribed and appropriate personal protective equipment, preventing preventable accidents and reporting conditions or practices that pose a safety hazard or threaten the environment.

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10. The company shall prohibit:

i. The use of alcohol during work activities.

ii. The use of narcotics or other substances that may impair the faculties.

11. The company will ensure that adequate toilet facilities are available on site and in any worker, accommodations provided to those working on the project.

Gender-Based Violence and Violence Against Children

12. Acts of GBV or VAC constitute serious misconduct and are therefore grounds for sanctions on perpetrators, which will depend on the act, and may in the most serious cases result in termination of employment, and, where appropriate, notification of the authorities.

13. All forms of GBV and VAC, including grooming, are unacceptable, regardless of whether they take place in the workplace, in the workplace environment, on construction sites or in local communities.

i. Sexual harassment - for example, making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, including subtle acts of such behavior - is prohibited.

ii. Sexual favors - for example, making promises or favorable treatment contingent upon sexual acts - or other forms of humiliating, degrading or exploitative behavior are prohibited.

14. Sexual contact or activity with children under the age of 18 - including through digital means - is prohibited. A mistaken belief about a child's age is not a justification. The child's consent also cannot be used as a justification or excuse.

15. Unless there is full consent of all parties involved in the sexual act, sexual interactions between company employees (at any level) and members of the communities surrounding the workplace are prohibited. This includes relationships that involve withholding/promising to actually provide benefits (monetary or non-monetary) to community members in exchange for sex - such sexual activity is considered "non-consensual" under this Code.

16. In addition to company sanctions, prosecution of those who commit acts of GBV or VAC will be initiated if appropriate.

17. All employees, including volunteers and subcontractors, are strongly encouraged to report suspected or actual acts of GBV and/or VAC by a colleague, whether in the same company or not. Reports must be made in accordance with the project's GBV and VAC allegation procedures.

18. Managers are required to report and take action in the event of suspected or actual acts of GBV and/or VAC, as they have a responsibility to respect the company's commitments.

Implementation

To ensure that the above principles are effectively implemented, the company undertakes to ensure that:

19. All managers sign the 'Manager's Code of Conduct' established for the project, detailing their responsibilities in carrying out the company's commitments and applying the responsibilities set out in the 'Individual Code of Conduct'.

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20. All employees sign the 'Individual Code of Conduct' established for the project, confirming their acceptance regarding compliance with NASSS and HSO, and to not committing acts that result in GBV or VAC.

21. Company Codes of Conduct as well as Individual Codes of Conduct are displayed prominently and in conspicuous places on construction sites, offices and in public areas of the workspace. For example, in waiting areas, rest areas, canteen and medical office.

22. Company Codes of Conduct as well as Individual Codes of Conduct are translated into local languages.

23. The company will appoint a "Focal Point" to address GBV and VAC issues, including representing the company on the GBV and VAC Compliance Team, which is composed of representatives from the customer, contractor(s), supervisory consultant, and local service provider.

24. Effective GBV and VAC action plans will be developed consistent with the GBV Prevention and Response Action Plan prepared for the Project.

25. The company effectively implements the action plans for GBV and VAC, providing feedback to the GBV and VAC Compliance Team for improvements and updates as appropriate.

26. All employees attend an induction training course before starting work on site to ensure they are familiar with the company's NESHS and SSO commitments, as well as the Project's GBV and VAC Code of Conduct.

27. All employees receive regular periodic training, following induction training, to reinforce their understanding of ESHS and HSO and the GBV and VAC Code of Conduct.

I hereby acknowledge that I have read the Company's Code of Conduct, and on behalf of the Company agree to abide by the provisions set forth therein. I understand my role and responsibilities in supporting ESHS and OHS standards and in preventing and responding to GBV and VAC. I understand that any act inconsistent with this Company Code of Conduct or failure to act mandated by this Company Code of Conduct may result in disciplinary sanctions.

Company Name: _____

Signature: _____

Printed Name: _____

Title:

_____

Date:

_____

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Manager Code of Conduct

Implementation of ESHS and OHS Standards

Preventing Gender Based Violence and Violence against Children

Managers at all levels have a responsibility to uphold the company's commitment to implement ESHS and OHS standards, and prevent and respond to acts of GBV and VAC. This means that managers have responsibility to create and maintain an environment that respects these standards and prevents GBV and VAC. Managers need to support and promote the implementation of the Company's Code of Conduct. To this end, managers must adhere to this Code of Conduct, and sign the Individual Code of Conduct. This commits them to support the implementation of the C-ESMP and the OHSMP, and to develop systems that facilitate the implementation of the GBV and VAC Prevention and Response Action Plan. They need to ensure a safe workplace, as well as an environment free of GBV and VAC, both in the workplace and in local communities. These responsibilities include, but are not limited to the following:

Implementation

1. To ensure maximum effectiveness of the Company Code of Conduct and Individual Codes of Conduct:

    i. Display these codes prominently and in conspicuous locations on construction sites, offices and in public areas of the workspace. For example, in waiting areas, break areas, canteen and medical office.

    ii. Ensure that these codes are translated into local languages.

2. Verbally and in writing explain to all employees the Company Code of Conduct and the Individual Codes of Conduct.

3. Ensure that:

    i. All employees sign the "Individual Code of Conduct", including an acknowledgement that they have read and agree to the Code.

    ii. Employee lists and signed copies of the Individual Code of Conduct are provided to the OHS Manager, the GBV and VAC Compliance Team, and the customer.

    iii. Participates in training and ensures that all employees also participate as described below.

    iv. Create an FGRM for workers:

    v. Staff are encouraged to report suspected or actual GBV or VAC issues, emphasizing staff responsibility to the Company and the country hosting their employment, and emphasizing respect for confidentiality.

4. In accordance with applicable laws and to the best of their ability, prevent perpetrators of sexual exploitation and abuse from being hired, rehired or promoted. Request a criminal background check from all workers.

5. Ensure that when entering into partnership agreements, subcontractors, suppliers or the like, these agreements:

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i. Incorporate the ESHS, OHS, VBG and VAC Codes of Conduct.

ii. Use appropriate language requiring such contractors and individuals, as well as their employees and volunteers, to comply with the Individual Codes of Conduct.

iii. Have expressly stated that the failure of such entities or individuals, as the case may be, to ensure compliance with ESHSS and OHS, to take preventive measures against GBV and VAC, to investigate alleged acts of GBV and VAC, or to adopt and implement corrective measures when such allegations are confirmed, will not only constitute grounds for sanctions in accordance with the Individual Codes of Conduct, but also grounds for termination of agreements to work on or provide the Project.

6. Provide support and resources to the GBV and VAC Compliance Team to create and disseminate internal awareness initiatives through the awareness strategy under the GBV and VAC Prevention and Response Action Plan.

7. Ensure that any act of GBV or VAC that warrants police action is immediately reported to law enforcement, the client, and the World Bank.

8. Present and act on the protocol for responding to any suspected or actual acts of GBV and/or VAC.

9. Ensure that any incidents of ESHS or OHS significance are immediately reported to the client and the supervising engineer.

Training

10. Managers are responsible for:

i. Ensuring the implementation of the OHSMP, with appropriate training required for all personnel, including subcontractors and suppliers; and,

ii. Making sure that all workers have an adequate understanding of the C-ESMP and have adequate training to implement the C-ESMP.

11. All managers are required to attend a manager training course prior to starting work on site to ensure that they are familiar with their roles and responsibilities in maintaining the VBG and VAC elements of these Codes of Conduct. This training will be separate from the induction training course required of all workers and will provide managers with the understanding and technical knowledge necessary to implement the GBV and VAC Prevention and Response Action Plan.

12. Managers are required to attend and participate in periodic training courses provided to workers on a regular basis. Managers will be required to present the trainings and announce self-assessments, including the collection of satisfaction surveys to evaluate training experiences and provide advice on improving training effectiveness.

13. Make sure that time is given during working hours for workers to receive training and that all workers receive initial induction training before they start work covering the following topics:

i. ESHS and OHS; and,

ii. VBG and VAC.

Response

14. Managers will be required to take appropriate action to resolve any ESHSS or OHS incidents.

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15. With regard to GBV and VAC:

i. They shall contribute to the GBV and VAC allegation procedures and Response Protocol developed by the GCCT under the GBV and VAC Prevention and Response Action Plan.

ii. Once the GBV and VAC Prevention and Response Action Plan is adopted by the Company, managers will ensure that the necessary measures are in place to ensure the confidentiality of all employees who report or (allegedly) commit acts of GBV and VAC (unless it is a breach of confidentiality necessary to protect persons or property from serious harm or required by law.

iii. If a manager has concerns or suspicions of acts of GBV or VAC regarding one of their workers or workers of another contractor involved in the work, they are required to report the matter using the FGRM.

iv. Once a decision has been made to impose a sanction on an employee, the manager is personally responsible for ensuring that the measure is effectively enforced, no later than 14 days from the date the sanction decision was made.

v. If the manager has a conflict of interest due to personal or family relationships with the survivor and/or offender, he/she must notify the respective company and the GBV and VAC Compliance Team. The Company will be required to appoint another manager without a conflict of interest to handle the claim in question.

vi. Ensure that any act of GBV or VAC that warrants police action is immediately reported to the police authorities, the client, and the World Bank.

16. Managers who fail to address ESHS or OHS related incidents, or who fail to report or comply with the provisions applicable to GBV and VAC may be subject to disciplinary measures, to be defined by the CEO, Managing Director, or equivalent manager of the company. Such measures may include:

i. Informal warning.

ii. Formal warning.

iii. Additional training.

iv. Loss of up to one week's salary.

v. Suspension from employment (without pay), for a minimum of 1 month up to a maximum of 6 months.

vi. Termination of employment.

17. Ultimately, the failure of company managers to respond effectively to HSE, HSO, GBV and VAC cases in the workplace is grounds for legal action by the authorities.

I hereby acknowledge that I have read the above manager's code of conduct, agree to abide by the provisions set forth therein, and understand my roles and responsibilities for preventing and responding to HSE, HSP, GBV and VAC requirements. I understand that any action inconsistent with this Manager's Code of Conduct or failure to act mandated by this Manager's Code of Conduct may result in disciplinary action.

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Company Name: _____

Signature: _____

Printed Name: _____

Title: _____

Date: _____

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Individual Code of Conduct

Implementation of ESHS and OHS Standards

Prevention of Gender-Based Violence and Violence Against Children

I, (insert employee's full name),

acknowledge that subscribing to the Project's environmental, social, and health and safety (ESHS) and occupational health and safety (OHS) requirements and preventing Gender-Based Violence (GBV) and Violence Against Children (VAC) is important.

The Company considers non-compliance with ESHSS and OHS standards, or participation in GBV or VAC activities, whether in the workplace, its surroundings, on the construction sites or in the surrounding communities, to constitute an act of misconduct subject to sanctions that may culminate in termination of employment. Reporting to the police those committing acts of GBV or VAC will be carried out as appropriate.

I agree that while working on the Project:

1. I will participate in training courses related to ESHSS, OHS, HIV/AIDS, GBV and VAC as requested by my employer.

2. I will wear my personal protective equipment (PPE) whenever I am in the workplace or engaged in Project-related activities.

3. I will take all practical steps to implement the Construction Environmental and Social Management Plan (C-ESMP).

4. I will implement the OHS Management Plan.

5. I will adhere to a zero-alcohol policy during working hours and refrain from the use of narcotics or other substances that may impair my faculties.

6. I will consent to a criminal background check.

7. I will treat women, children (persons under the age of 18) and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic, or social origin, property, disability, birth, or other status.

8. I will not use inappropriate, harassing, abusive, sexually provocative, demeaning, or culturally inappropriate language or behavior toward women, children, or men.

9. I will not engage in sexually harassing acts, such as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, including subtle acts of such behavior (e.g., looking down on someone; kissing, howling, or making inappropriate sounds; walking around someone; whistling; giving personal gifts; making comments about someone's sex life; etc.).

10. I will not engage in sexual favors, for example, making promises or favorable treatment contingent on sexual acts or other forms of demeaning, degrading, or exploitative behavior.

11. I will not engage in sexual contact or activity with children, including grooming, or contact through digital means. Mistaken belief about a child's age will not be considered a defense. Nor may the child's consent be used as a defense or excuse.

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12. Unless there is full consent of all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships that involve withholding or promising to effectively provide benefits (monetary or non-monetary) to community members in exchange for sex, such sexual activity is considered "non-consensual" under this Code.

13. I will report through the MFRR or to my manager any suspected or actual acts of GBV or CCV committed by a fellow employee, whether or not employed by my company, or any violations of this Code of Conduct.

Regarding the children under the age of 18:

14. Whenever possible, I will make sure another adult is present while working near children.

15. I will not invite unaccompanied unrelated children into my home unless they are at immediate risk of injury or in physical danger.

16. I will not use computers, cell phones, video and digital cameras, or any other means to exploit or harass children or access child pornography (see also "Use of child images for work purposes" below).

17. I will not apply physical or disciplinary punishment to children.

18. I will refrain from hiring children under the age of 14 (or such higher age as may be referred to in national law) to perform domestic or other work, or any work that places them at significant risk of injury.

19. I will comply with all relevant legal provisions, including labor laws in relation to child labor, and World Bank safeguard policies on child labor and minimum age.

20. I will be careful when photographing or filming children.

The Use of Children's Images for Work-Related Purposes

When photographing or filming a child for work-related purposes, I must:

21. Before photographing or filming a child, evaluate and strive to comply with local traditions or restrictions on reproduction of personal images.

22. Before photographing or filming a child, obtain the informed consent of the child and a parent or guardian. As part of this, I must explain how the photograph or film will be used.

23. Ensure that photographs, films, videos, and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner. Children should be appropriately dressed and not be in poses that could be considered sexually suggestive.

24. Make sure that images are honest representations of context and facts.

25. Make sure that digital file labels for electronic submission do not reveal information about the child's identity.

Sanctions

I understand that if I violate this Individual Code of Conduct, my employer will take disciplinary action that may include:

1. Informal warning.

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2. Formal warning.

3. Additional training.

4. Loss of up to one week's pay.

5. Suspension from employment (without pay), for a minimum of 1 month up to a maximum of 6 months.

6. Termination of employment.

7. Reporting to the police, if necessary.

I understand that it is my responsibility to ensure that environmental, social, and health and safety standards are met. That I will adhere to the occupational and health management plan. That I will avoid actions or behavior that could be construed as GBV or VAC. Such actions will be a violation of this Individual Code of Conduct.

I hereby acknowledge that I have read the above Individual Code of Conduct, agree to abide by the provisions contained therein, and understand my roles and responsibilities for preventing and responding to ESHS, OHS, GBV and VAC issues. I understand that any action inconsistent with this Individual Code of Conduct or failure to take action mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

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Appendix 4 – Declaraço Nº12/PROC. Nº188/DGPCP/2020

Ministério das Finanças
Direção Geral do Património e de Contratação Pública

DECLARAÇÃO Nº12/PROC. Nº 188/DGPCP/2020

A Direção de Geral do Património e de Contratação Publica enquanto órgão competente para gerir o património do Estado, nos termos do Decreto-Lei nº 2/97 de 21 de janeiro, declara que os terrenos destinados à concessão para instalação de um parque de energia solar, pertencem ao Estado de Cabo Verde, sendo eles os seguintes:

- Um lote de terreno localizado na cidade de Porto Inglês, concelho do Maio, com área de 21613, 140 m² (vinte e um mi, seiscentos e treze virgula cento e quarenta metros quadrados), designado ZDER Esgrover;
- Um lote de terreno sito na cidade de Santa Maria, concelho do Sal, com área de 80000m2 (oitenta mil metros quadrados), designado ZDER do Sal;
- Um lote de terreno localizado na zona de Chã do Brejo, concelho do Porto Novo, com área de 46049,428 m² (quarenta e seis mil e quarenta e nove metros quadrados), designado ZDER de Porto Novo;
- Um lote de terreno na localidade de Preguiça concelho de Ribeira Brava, com área total de 40000 m² (quarenta mil metros quadrados), designada como ZDER de Preguiça;
- Um lote de terreno localizado na zona de Baia concelho de São Vicente, com área de 120000m² (cento e vinte mil metros quadrados);

Por ser verdade e nos ter solicitado, vai a presente declaração devidamente assinada pelo Diretor Geral e autenticada com carimbo a óleo em uso nesta instituição.

Praia, 07 de setembro de 2020

/João de Pina Fortes Tomar /

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