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Appraisal Environmental and Social Review Summary

Appraisal Stage

(ESRS Appraisal Stage)

Date Prepared/Updated: 02/24/2023 | Report No: ESRSA02610

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BASIC INFORMATION

A. Basic Project Data

Country	Region	Project ID	Parent Project ID (if any)
Madagascar	EASTERN AND SOUTHERN AFRICA	P178701	
Project Name	Digital and Energy Connectivity for Inclusion in Madagascar (DECIM)		
Practice Area (Lead)	Financing Instrument	Estimated Appraisal Date	Estimated Board Date
Energy & Extractives	Investment Project Financing	2/17/2023	3/30/2023
Borrower(s)	Implementing Agency(ies)		
Ministère de l'Economie et des Finances (MEF)	Ministère de l'Energie et des Hydrocarbures (MEH), Ministère du Développement Numérique, de la Transformation Digitale, des Postes et des Télécommunica		

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Proposed Development Objective

The Project Development Objective is to expand access to renewable energy and digital services in Madagascar.

Financing (in USD Million)	Amount
Total Project Cost	400.00

B. Is the project being prepared in a Situation of Urgent Need of Assistance or Capacity Constraints, as per Bank IPF Policy, para. 12?

No

C. Summary Description of Proposed Project [including overview of Country, Sectoral & Institutional Contexts and Relationship to CPF]

Madagascar has a vast land area and populations living in isolation along thin coastal plains and on rugged high plateaus. Access to infrastructures in Madagascar including electricity and digital are among the lowest in Sub-

Saharan Africa and in the world. Many areas of the country are currently experiencing a decline in the level of electrification as population growth is outpacing the rate of electrification.
The Ministry of Energy and Hydrocarbons (MEH) sets government policy and provides strategic coordination of the energy sector. Public electricity service in Madagascar is provided by JIRAMA ((the national electricity and water company), the vertically integrated state-owned utility that operates most of the country's grid infrastructure responsible for distribution, transmission, and roughly half of generation. For digital sector, Madagascar is marked by significant digital divides, along socio-economic, gender and urban-rural lines, which can further widen inequalities. For example, some 27.1% of the population in urban areas report using internet services regularly, compared to only 5.4% in rural areas. The main agencies in charge of promoting the expansion of digital infrastructure and digital adoption are the line ministry (Ministry of Digital development) and regulator.
Aligned with the goal of boosting shared prosperity and reducing poverty, this proposed project will focus on the role of infrastructure (both physical and digital) in boosting productivity, connecting people to markets, and improving living conditions and access to services. It aims to expand access for approximately 1,000,000 new households and maximize the positive impact on the poor, thereby supporting more equitable growth, and to boost resilience to future crises thanks to enhanced energy and digital connectivity, with spillover benefits to mitigating climate change.

The proposed operation is built around four mutually reinforcing components and a contingent emergency response component.
Component 1: Expanding Energy and Digital Infrastructure (US$160 million)
This component will focus on the deployment of infrastructure and mobilize significant investments of private capital to improve access to energy and ICT in underserved areas, thereby supporting efforts to improve service delivery and bridge the urban-rural divide.
Subcomponent 1.1: Hybridization and digitization of isolated grids (US$35 million equivalent)
This subcomponent will support the hybridization of up to 30 isolated grids with a current installed thermal capacity of 20 MW and an available capacity of 9 MW. Interventions include: (i) improving the supply of electricity through PV hybridization of existing thermal power plants with the addition of storage batteries, (ii) increasing the densification and extension of the networks, (iii) transforming the existing distribution network into a modern platform using state-of-the-art, connected and integrated technologies. The systems could be hybridized up to 12 MW of solar capacity (PV installed capacity ranging from 40kW to 2.7MW per site) and 38 MWh battery energy storage system (BESS), which will lighten the burden of fuel charges. The hybridization will be combined with the deployment of smart grid technologies. Smart metering, smart street lighting, distribution automation, and support for more advanced Supervisory Control and Data Acquisition (SCADA) will be integrated, and the subcomponent will also include TA to support data analytics for more efficient (and greener) grid management.
Subcomponent 1.2: Deployment of digital infrastructure in rural areas (US$65 million equivalent)
This subcomponent aims to address last mile broadband network infrastructure and services gaps in rural areas and among underserved and vulnerable communities. The project will expand the coverage of broadband connectivity networks to selected rural areas characterized by market failures. Specifically, the project will finance (i) a mapping and feasibility study to identify priority coverage areas and exploring how best to leverage public financing to crowd in the private sector to expand last-mile coverage, the development of a manual that would guide the allocation of subsidies; (ii) financial incentives and/or Government contribution to public-private partnerships (PPPs) to encourage mobile operators or infrastructure service providers to extend data-enabled (4G or higher) network coverage; and (iii) the recruitment of an independent monitoring firm to ensure compliance in technical, environment and social and service level requirements during both construction and operations phases.

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The project will finance a competitive award of one-time subsidies to bridge the financing gap for deployment of infrastructure and services. In principle, the public subsidy would apply only to the initial capital expenditure (CAPEX) investment required for the capital investment. Digital infrastructure would typically comprise small cell towers, close to villages or serving dispersed population centers. The infrastructure financed through the project will be energy-efficient and climate-resilient. Only green energy solutions (e.g., solar power and battery storage) will be used to power mobile towers and networks.

Subcomponent 1.3: Greenfield renewable energy mini grids (US$60 million equivalent)

This subcomponent will finance the roll-out of mini-grids with local LV networks and powered by appropriate renewable energy resources (solar photovoltaic in combination with battery or hydro-electric), implemented through private sector led approaches based on a pipeline of pre-identified sites leveraging geospatial planning. The project will provide viability funding grants, covering difference between the developer's cost of system installation and operations and maintenance (O&M) and the tariffs that can be charged based on consumers' affordability. The grants may also be available for existing solar auto-producers of energy willing to use surplus energy to electrify surrounding households. Concrete actions on gender equality will also be taken under this component, focused on enhancing productive uses of energy for women-led businesses in the mini-grid sector.

Component 2: Enhancing Energy and Digital Inclusion (US$200million equivalent)

This component aims to accelerate uptake by addressing both demand and supply-side barriers that hamper digital and energy access. For energy services, interventions are needed to increase access in rural areas and increase affordability. For digital services, interventions are needed to facilitate access to physical devices, build digital awareness and skills and create demand for services and products in order to encourage usage and expand socio-economic benefits, and this approach is at the core of this component. By doing so, the activities will aim at creating a consumer market for energy and digital services. Under this component, both private and public institutions will be used to develop a system supporting delivery of digital and energy services to underserved communities through a value chain approach, while addressing skills gaps.

Subcomponent 2.1: Create a system ensuring affordable access to off-grid solar and digital devices for underserved communities and marginalized groups (US$135 million equivalent)

This subcomponent will promote access to off-grid electricity solutions (e.g., solar lamps, solar chargers) and affordable digital devices (e.g., feature phones, basic smartphones). The objective here is to address access to finance and other constraints preventing the accelerated growth of the off-grid solar and digital device markets in Madagascar, including the need for tenor-matched working capital, PAYGO (that is, lease-to-own or rental) cost recovery support, support for expanding customer engagement and distribution footprints, and limited affordability given low purchasing power of the population. The subcomponent will include the provision of digital devices and dedicated mechanisms to provide Results Based Financing (RBF) on the supply-side, demand-side and for productive uses. To further increase product affordability whilst promoting the uptake of mobile money and digital financial inclusion, the RBF will focus on PAYGo business models. Companies will be encouraged to bundle solar kit offerings with a feature phone or basic smartphone. The RBF will also promote the uptake of productive use equipment (PUE) and ICT appliances (laptops, tablets). Specific results-based grants will be offered for the uptake of off-grid solar powered productive use equipment, such as solar irrigation and pumping, cold storage, and milling.

Subcomponent 2.2: Digital and renewable energy literacy and awareness (US$5 million equivalent)

This subcomponent will aim to facilitate the adoption of digital services by improving digital awareness, literacy and skills. Digital literacy courses will be provided for the general population. The project will be informed by a feasibility and sustainability study that will assess and compare several models in terms of effectiveness and sustainability. The

Public Disclosure

curriculum will include specific modules on financial inclusion and PAYGO models for energy services and workplace or commerce use cases, as well as training on leveraging digital tools and services as an adaptation mechanism in case of climate shocks. In parallel, a national awareness-raising campaign will be deployed to enhance awareness about digital services and the opportunities they enable, build trust in digital services, and support cultural and behavioral change.

Specifically for energy, this sub-component will finance targeted consumer education campaign to inform consumers about renewable energies and the opportunities that modern off-grid lighting presents and assist them in making informed purchasing decisions. Some of these activities designed to reach consumers and create behavioral change could include training, road shows, music concerts and local radio programs.

Subcomponent 2.3: Support off-grid solar and broadband connectivity of public institutions to increase service delivery and access for underserved communities (US$60 million equivalent)

This subcomponent will provide connectivity for up to 3000 targeted unconnected or underserved public institutions, specifically schools and health centers. Under this subcomponent, provision of Off-grid solar (OGS) and broadband connectivity services (as a bundled service) will be provided. The project will provide lighting, refrigeration, sterilization, and other services through OGS, resulting in 500 health centers already being electrified. The allocation of smart subsidies will be conducted through a competitive, market-based approach, whereby funds from the projects are used to purchase digital connectivity and OGS for the Government, under long-term supply agreements. On the digital side, this will also include support for upgrading local area networks (e.g., campus WiFi networks) to reliably connect end-users and network maintenance training to technical personnel at connected institutions. The project will support public access through the expansion of last-mile connectivity for free community public Wi-Fi access points. This will include for example schools, public post offices and other community facilities.

Component 3: Supporting the Enabling Environment for Green Energy and Digital Infrastructure (US$20 million)

This component aims to strengthen the policy, legal and regulatory environment in both the digital and energy sectors to maximize success, effectiveness and sustainability of other project activities.

Subcomponent 3.1: Support for digital sector reforms (US$8 million equivalent)

This subcomponent will support the adoption and implementation of fast-tracked, deep reforms in the digital sector. This involves both improving the legal and regulatory framework and strengthening the capacity and independence of the regulator to implement effective regulation. Interventions may include: (i) TA to support the revision of the legal and regulatory framework, (ii) TA to strengthen ARTEC (the Electricity Regulatory Authority) and FDTIC (the ICT Development Fund), (iii) an options and impact assessment of policy and regulatory strategies to improve digital device affordability; and (iv) TA to promote the pooling and sharing of infrastructure across sectors to reduce deployment costs across the technical value chain.

Subcomponent 3.2: Support for energy sector reform (US$8 million equivalent)

This activity will finance targeted reform preparation support, including technical assistance to JIRAMA to assist the utility's path towards financial and operational performance improvement and strengthening the other sectoral institutions. As such, actions are planned at the level of each institution: (i) TA to support the Ministry of Energy (sector studies) and (ii) TA to support JIRAMA (Revision of JIRAMA's connection policy, options assessment, etc)

Subcomponent 3.3. Enabling environment for enhanced climate change adaptation and mitigation (US$4 million equivalent)

This subcomponent will support the transition towards investments in climate-smart infrastructure and capacity building that help increase response capacity and reduce Madagascar's climate footprint. Interventions may include: (i) TA to streamline the inclusion of resilience in the planning and deployment of digital and energy infrastructure and increase the government of Madagascar (GoM)' responsiveness capacities and (ii) TA to develop climate informed

Public Disclosure

policy and regulation in the ICT sector and leveraging digital technologies for climate adaptation and mitigation, including the development of a Green ICT strategy.

Component 4: Project Management and Implementation Support (US$20 million equivalent)
The Component will support project management and implementation functions and strengthen the GoM' coordination and management capacity. This includes operating and staff costs of the planned project implementation unit (PIU) and the recruitment of expert consultants in key areas, such as project management, procurement, and financial management (FM), environmental and social (E&S) management, as well as technical specialists relevant to the various project components. It will also include support for inter-ministerial and stakeholder coordination efforts, to be conducted through a project steering committee (PSC) as well as citizen engagement and communications.
Component 5: Contingent Emergency Response Component (US$0 million)
The objective of this component is to support the GoM's response to an eligible emergency. If an eligible emergency is being declared, the GoM may request the World Bank to reallocate project funds to support the response effort.

D. Environmental and Social Overview

D.1. Detailed project location(s) and salient physical characteristics relevant to the E&S assessment [geographic, environmental, social]

Madagascar's infrastructure access to electricity and digital is among the lowest in Sub-Saharan Africa and in the world. Topography plays a part of the country's challenge, with much of the population living in isolation along thin coastlines and on rugged highlands. On the energy sector, only about 15 percent of the population is connected to the electricity grid, compared with an average 47 percent for Sub-Saharan Africa , which places the country in the list of the top 20 access-deficit countries in the world. Even in larger and better-connected urban centers, electricity service quality is poor, severely impairing key export-oriented industries. On the digital sector, the Government of Madagascar (GoM) has put ICT at the heart of its 2018 development strategy, "Madagascar's Emergence Initiative". The strategy identifies the development of ICT as one of its six priority sectors for economic growth and digital transformation indeed holds great promise for Madagascar. However, despite progress in recent years, Madagascar ranks relatively low in terms of connectivity and accessibility of broadband services. Internet usage is rapidly progressing, reaching some 22 percent of the population in 2021, up from just 5.1 percent in 2016. Nevertheless, this penetration rate remains one of the lowest in the world and is notably well below the regional average for Sub-Saharan Africa.
This proposed Digital and Energy Connectivity for Inclusion aims to expand access to energy and digital services and increase inclusion. It has a national scope and will likely cover all the 23 regions but with a focus to the unserved rural areas. Madagascar has a population of 28.1 million people (2021 Third General Population and Housing Census). Digital exclusion is primarily an issue of poverty and socioeconomic factors. Women, the elderly, those who live in rural areas, those who have lower levels of income or education and other vulnerable groups, including persons with disabilities are less likely to adopt mobile internet because the above-mentioned demand-side barriers are starker for them. Access to broadband Internet is mainly in urban areas, and there is a very large digital disruption between Antananarivo, the capital, and the rest of the country. Precise project location information for each component is still unknown at this stage, and will be better identified during implementation as a result of the proposed comprehensive area-based ESIA. The potential environment and social profile from ESMF have noted that it is expected that activities will mostly occur within the modified habitats on urban and rural areas. Following the project components and their

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compliance with the applicable Environment and Social Standards (ESS), nine (09) ESS are relevant to this proposed operation: (i) ESS1 on the direct and indirect environmental and social impacts and risks associated to the project, (ii) ESS2 on the activities associated with ESS2 related to OHS for different types of workers; (iii) ESS3 related to environmental pollution and resources efficiency use, (iv) ESS4 related to community health and safety, (v) ESS 5 related to potential impact on involuntary resettlement and lost of revenue linked to the construction of small and medium infrastructure, (vi) ESS6 related to biodiversity loss, clearing of habitats, (vii) ESS8 related to potential damage to cultural heritage, not yet reported; (viii) ESS9 related risks to the Financial Intermediary and (ix) ESS10 related to multiple stakeholders with diverse interest and influence on project activities.

D. 2. Borrower's Institutional Capacity

The Ministry of Energy and Hydrocarbons (MEH) and the Ministry of Digital Transformation, Postal services and Telecommunications (MNDPT) are the implementing agencies of the project. Project activities will be carried out by a Project Coordination Unit (PCU), which will be staffed with a project coordinator, a deputy coordinator for energy and a deputy coordinator for digital activities. Each deputy coordinator will be given a clear list of activities for which he/she will be responsible according to the energy/digital/joint sub-components to ensure clear accountability mechanisms. Additional consultants for procurement, FM, governance, M&E, communications and environment and social safeguards, among others, will further strengthen the capacity of the PCU. During project preparation, the team has evaluated the implementation capacity of existing PCUs tasked with implementation of Bank-funded projects in MEH (the Madagascar - Least-Cost Electricity Access Development -P163870) and decide whether the newly recruited staff could be imbedded in the existing structure. The MEH has led implementation of previous bank-financed projects including the LEAD project (P163870) and the Electricity Sec Operations & Governance Improvement Project (ESOGIP -P151785). Both projects were implemented under safeguards policies, and it is anticipated that capacity-building will be required on the ESF. The overall safeguards rating for the LEAD project is Satisfactory and ESOGIP Moderately Unsatisfactory. Issues on the latter project include delays in providing closure reports on ESMPs and on the complaints mechanism as well as lack of prior notification to the Bank of modifications to project design (transmission line routing) with consequent changes to E&S impacts including land-take and RAP implementation. On digital side, the Ministry in charge of Digital Development has not yet implemented any WB funded projects. Both the Ministry in charge of Energy and the Ministry in charge of Digital Development have no experience working under the new Environmental and Social Framework (ESF); therefore it would be necessary to improve the procedures and processes of environmental and social risk management not only within the PIUs but also with the local level partners, private or public, institutions, and stakeholders.

The detailed assessment of the actual needs and existing gaps in implementing the ESF have been conducted in the ESMF to ensure the borrower's capacity to manage environmental and social risks adequately. Any capacity gaps/strengthening measures for the implementation of the Environmental and Social Standards (ESSs) at both ministries have been provided in Environmental and Social Management Framework (ESMF) and reflected in the Environmental and Social Commitment Plan (ESCP). A proposal for an institutional capacity building program is part of the ESMF, with the hiring of a full-time environmental specialist, social specialist, GBV specialist and Electrical and Electronic Equipment Waste Management Specialist within the PCU.

II. SUMMARY OF ENVIRONMENTAL AND SOCIAL (ES) RISKS AND IMPACTS

A. Environmental and Social Risk Classification (ESRC)	Substantial
Environmental Risk Rating	Substantial

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The Environmental Risk Rating has been determined as “Substantial”. Although there are no significant and/or irreversible adverse environmental issues anticipated from the project activities, the project components include civil works and activities employing labor with potentially adverse environmental and social risks and impacts, mainly due to key environmental risks and impacts stemming from Component 1, that are associated with occupational health and safety, waste management, and environmental pollution. Community health and safety risks are also associated with all interventions requiring face-to-face interactions in all Components of the project, particularly those involving construction machinery use, earth movement and excavations, work at heights, etc. Moreover, such interactions can lead to the transmission of communicable diseases such as COVID-19. Regarding Component 1 and 2, environmental pollution risks are associated with transportation, installation, storage, operation, and disposal of Electrical and Electronics Equipment (EEE) as well as civil construction works. The civil works construction of local small to medium-infrastructure (such as solar power plant, hydropower up to 30 MW: micro, mini and small hydro, i.e. less than 30MW with run-of-river and diversion dams (up to 4m) without reservoirbut equipped of pressure line to the power plant with site specific transmission lines, mobile network tower, connectivity devices for public services, small office, ...etc.) are associated with community health and safety concerns and other OHS related issues with the use of vehicles, construction equipment, and machinery to direct and indirect contracted workers, as well as work at height and/or in the vicinity of electromagnetic field. However, substantial impacts are expected such as: activities associated with ESS2 related to OHS for different types of workers, ESS3 related to environmental pollution and resources efficiency use, ESS4 related to community health and safety, as well, ESS 5 related to potential impact linked to the construction of small and medium infrastructure, ESS6 related to biodiversity loss, clearing of habitats, and potential damage to ecologically sensitive areas, natural and/or critical habitats, and ESS8 related to potential damage to cultural heritage, not yet reported. In addition, it is noted a low institutional capacity of the 2 Ministries stemming from the unfamiliarity with the new Environmental and Social Framework and the key environmental risks and impacts related to: (i) solid waste from the construction phase, (ii) management of waste of electrical and electronic equipment (WEEE) and hazardous waste including end-of-life batteries, (iii) community health and safety risk, (vi) noise and vibration caused by generators, and (vi) downstream impacts likely to be generated by TA activities. However, preliminary screening of the project shows that it does not include activities associated with potentially significant and irreversible negative environmental risks and impacts through the implementation of established mitigation measures. The utilization of financial services, the Risk-Sharing Facility, under Component 2.1 has ESS9 related risks that will require the Financial Intermediary to put in place and maintain an Environmental and Social Management System for environmental risk management.

Social Risk Rating Substantial

The social risk rating (SRR) for this project is considered to be “Substantial”. The project activities will largely benefit the population as it aims to increase access to reliable and affordable energy and digital infrastructure and increase inclusion among underserved communities. Project interventions may include (i) hybridization of isolated grids and installation of a renewable power generation source (likely solar PV) and a battery backup; (ii) deployment of mobile broadband infrastructure and services as well as capital subsidy to private sector for the digital infrastructure such as the small cell towers; (iii) an affordable ICT devices and provision of off grids solar and broadband connectivity services for public institutions; and (iv) several TA activities to strengthen the analysis and institutions. However, potential social risk identified at this stage relates to potential economic and physical displacement resulting from the component 1 (the installation of renewable off grids) and e-waste management with associated potential civil works leading to safety and health hazards for workers and communities. Other main risks that may induce by the project activities are (i) the gaps between digitally included and excluded people are possibly widening for some groups such as poor or low-income household members, people with disabilities, elderly, people with lower education or no

Public Disclosure

digital literacy, and herders living in remote areas. However, these can be mitigated through a robust and inclusive stakeholder engagement process which will be developed by the project and the TA interventions under component 3 which will help the vulnerable groups to ensure their equitable participation and that design training programs suit their needs; (ii) risks related to health and safety of workers to be hired by the project or the private operators; and (iii) labor influx risks including sexual exploitation and abuse/sexual harassment (SEA/SH) and exposure to COVID-19 induced by the civil works but also due to the hiring of construction workers under component 1. Moreover, based on the available information at this stage, it is not certain that the future Project Implementation Unit (PIU) will have environmental and social risk management capacity especially on the ESF, but the project will ensure that the PIU will have environmental and social risk and impact management specialists and implement ongoing capacity building trainings for project staff.

B. Environment and Social Standards (ESSs) that Apply to the Activities Being Considered

B.1. General Assessment

ESS1 Assessment and Management of Environmental and Social Risks and Impacts

Overview of the relevance of the Standard for the Project:

ESS1 is relevant. Overall, the project will have positive environmental benefits increasing usage of renewable resources from solar panel installation and usage and decreased GHG and air pollutants emissions as a result of improved grid connections. The anticipated environmental and social impacts, related to Component 1 and 2 that will finance subprojects on the hybridization of isolated grids, installation of a renewable power generation source, upgrading the distribution network and subsidy for the construction of digital infrastructures such as the cell towers, might cause a series of direct environmental and social risks and will likely generate adverse site-specific risks and impacts such as: (i) increased environmental pollution with solid, liquid and electronic waste generation, (ii) noise generated from the use of construction machinery and vehicle movements as well as from electric stations, (iii) community and occupational health and safety risks for workers including risk of accidents and propagation of the COVID-19 at the workplace and surrounding communities during civil works operational phases, (iv) the scope of civil work envisaged is likely to be small-medium and temporary but could involve small-scale land acquisition and temporary disruption socio-economic activity; (v) impacts of lack of experience in implementing ESF; (vi) SEA/SH risks that may arise from the labor influx, the direct contact of workers and community beneficiaries, but also in the context of the project gender-sensitive approach which may bring changes in household power dynamics or social cohesion in communities and (vii) forced and child labor risk.

The selection of micro-hydropower system location is not yet available during the project preparation. The potential risks and impacts could be: (1) weak capacity (human and resources) of the client/project implementation unit to assess and manage environment and social risks and impacts; (2) poor labor and working conditions and risks related to occupational health and safety during the civil works; (3) Environmental damage due to improper management of excess material and organic waste from vegetation clearing, pushing of excavated earth, extracted tress and/or their parts, and other construction waste down steep slopes or their dumping into nearby forest stands, restriction on use of natural resources through the alteration of the natural river (environmental flow, decrease of river's flow), water, air and biodiversity perturbation; (4) possible risks of exclusion of vulnerable groups in project design and benefits; (5) potential impacts generated by the access roads, erection of labor camp and Community health and safety such as risks related to Gender Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) and spread of infectious diseases, accidents and road safety, emergency preparedness and response (flooding risks and mini-hydropower

Public Disclosure

infrastructures breakage), and possible social conflict due to potential increased pressure on available land, (6) potential influx into the project area during construction owing to opportunistic settlements and migrant workers seeking employment (7) temporary or permanent land use restriction, land acquisition and significant physical relocation and potential economic relocation/impacts; 8) Intervention to hilly and forested terrain may result in damage of vegetation and wildlife disturbance in their habitats. Impacts on the environment are expected both on power plant and hydropower with run-of-river and diversion dams (up to 4m) without reservoirsite and in the corridors of access roads to be built and retained as service roads during operation as well as potential impact on ecosystem services that local people depend on; and (9) possible impact on cultural heritage mainly on tangible but possibly also intangible sites. A standalone ESIA with its ESMP is required for any hydropower up to 30 MW: micro, mini and small hydro, i.e. less than 30MW with run-of-river and diversion dams (up to 4m) without reservoir and transmission lines for each selected site to be submitted to WB's review and approval prior to launching bidding document. No aquatic barriers for migratory species could be generated by this type of hydropower infrastructures.
During preparation, the ESMF has demonstrated that the project will apply the ESF, WBG EHS General Guidelines, and WBG EHS Guidelines for Electric Power Transmission and Distribution, Climate Change Screening Tool and Risk Hazard Assessment (RHA) to better identify and assess the potential expected risks in rural and urban areas. Solar batteries and panels management guidelines will also be applied. A geographical prioritization exercise will be carried out during project preparation and will allow selecting specific areas with high poverty and vulnerability, the potential for impact, and viability of implementation. Although the specific location of subproject activities are not yet known, it is expected that activities will mostly occur within the modified habitats on urban and rural areas. In fact, following the environmental and social profile and the anthropic pressures on the natural resources in the rural and urban habited zones, these zones are mainly composed of agriculture parcels, savanna, and rupicola forests, feeder roads. The project could also cause clearing of habitats, and potential damage to ecologically sensitive areas, natural and/or critical habitats if the required measures are not adopted.
In addition, social risks are also associated to the various technical assistances (component 2 and 3) to enhance the Energy and Digital Inclusion and create an enabling environment for digital and energy development including possible case of elite capture in digital access and some downstream impacts on social exclusion related to larger digital divide within communities. To avoid and manage the risk of discrimination under this standard, the project will be designed around the principle of energy and digital inclusion for target groups under the component 2 with a focus on low income and rural households, women, the elderly and disabled who constitute vulnerable populations. Risks on the security and confidentiality of data collected, related to the provision of energy and broadband connectivity services for schools, health centers, government offices and other public service points under the component 2, may occur. The Republic of Madagascar has a clear legal framework governing digitalization: mainly law 2014- 006 on the dematerialization of administrative procedures, law 2014- 038 on personal data protection, and law 2014-006 related to the fight against cyber criminality.
Most of these risks and impacts are expected to be small to medium scale, temporary by nature, and mitigated by applying the provisions of the Environmental and Social Management Framework that the project will elaborate during the preparation and will include the adapted measures tailored to relevant risks and impacts, including GBV and SEA/SH, cumulative impacts, project susceptibility to natural / climate related hazards and emergency preparedness.
In line with ESF requirements, the Borrower has developed (i) the Environmental and Social commitment plan (ESCP) which could be adjusted during the project life keeping with the evolution of environmental and social risk and impacts; (ii) an inclusive stakeholder engagement plan (SEP) that has listed the training sessions to be included in the capacity-building programs and which include an accessible grievance mechanism (GM) ; (iii) a draft Environmental

Public Disclosure

and Social Management Framework (ESMF) given that the exact locations of the activities are not yet well identified. The ESMF include: (a) a SEA-SH Action Plan, (b), exclusion list for subprojects, (c) screening procedures to address and screen out subproject activities proposed that may have direct, indirect, or cumulative impacts on critical habitats or sensitive natural habitats, (d) specific provisions for pandemic health barrier measures such as COVID-19 for communities as well as for Project workers;(e) traffic management and road safety measures, Security Management Plan (SMP), (f) emergency response management, (g) a waste electrical and electronic equipment management plan (EEWMP), (h) and chance finds procedures (iv) a Labor Management Procedures (LMP) which will be used to manage labor related risks; (v) a draft Resettlement Framework (RF) to capture the scope of mitigation measures retaliated to involuntary resettlement. During the implementation the exact location of subproject to be financed by the project will be identified, the E&S screening form in the ESMF will determine the scope and consistency of ESIA/ESMP to be prepared for WB's review and approval prior launching bidding document. . The ESIA should analyze the multi-option Study with respect to direct, indirect, and cumulative environmental and social (E&S) impacts of each option. It will be covered the following aspects: legacy issues, analysis of alternatives: a comparison of each option on technical, economic, environmental and social merits, stakeholder engagement, assessment of E&S risks and impacts, and cumulative impacts. The ESIA will include E&S management plans for all engineering and civil works, including plans for community health and safety, traffic safety, Occupational Health and Safety (OHS), developed specific traffic management and road safety measures, Security Management Plan (SMP); emergency response management; waste electrical and electronic equipment management plan, labor management, GBV/Sexual Exploitation and Abuse and grievance redress mechanism.
Final version of the ESMF shall be developed, and disclosed prior to disbursement of component 1 and 2 of the Project.

Public Disclosure

ESS10 Stakeholder Engagement and Information Disclosure

ESS10 is relevant. The project will involve multiple stakeholders with diverse interest and influence on project activities. At this stage, stakeholders identified for the project would include, but are not limited to: (i) the Ministry in charge of Energy and Hydrocarbons (MEH), (ii) the Ministry in charge of Digital Development, (iii) the Ministry of Economy and Finance and (vii) other relevant Sectoral Ministries; (iv) key public institutions under component 2 (the JIRAMA, the Communication Technology Regulatory Authority called ARTEC, the Universal Access Fund - FDTIC, etc.) ; (v) several private sector organizations and digital companies involved in the subsidy mechanism under component 1; (vi) firms and/or contractors that might be hired for the civil works and diverses studies; and (vii) the large project's direct and indirect beneficiaries including those directly and indirectly affected by project impacts, and also those linked to civil works.
The Borrower has developed a Stakeholder Engagement Plan (SEP) consistent with ESS 10. The SEP: (i) provides an overview of project stakeholders; (ii) establish a systematic approach for consultation and their engagement in the project's preparation and implementation; and (iii) provides guidelines regarding the maintenance of a constructive relationship with them through a participatory approach that takes into account their concerns and views. The SEP focused on project's direct and indirect beneficiaries, their needs and the communication/consultation approach necessary to ensure that (i) project benefits are delivered inclusively and with consideration for the vulnerable and marginalized; and (ii) potentially affected people are meaningfully consulted on project impacts and mitigation measures. Different strategies for consulting stakeholders has been considered/developed for rural zones where there will be new greenfield transmission corridors or off-grid solutions, versus urban or peri-urban zones where

there will be an extensive coverage of telecom services. The SEP includes an inclusive communication plan to be developed on the usefulness of digital technology with special consideration to bridge the digital divide between rural and urban areas that will be applied by the project. The SEP also ensures that respective provisions on gender equality and the mitigation of gender-based violence will be implemented; to avoid potential adverse impacts but also to ensure strong participation of women in the development of the country's digital sector. To minimize the risk of leaving certain vulnerable groups behind, the SEP described the measures that will be used to remove obstacles to participation, and how the views of differently affected groups will be captured. The SEP development process includes consultations with the organization of persons with disabilities (OPDs) during project preparation and this approach will be maintained throughout project implementation to respond to the actual situation and needs of persons with disabilities. The SEP also includes involvement of Civil society Organization to reinforce aspect related to citizen engagement within the energy and digital sectors.
Moreover, the SEP includes mechanisms to communicate on environmental and social risks associated with the project as well as to get feedback on these risks from concerned stakeholders. It will follow a precautionary approach in the context of the COVID19 pandemic and will propose engagement methods that minimize the risk of transmission of the virus in line with the World bank ''Technical Note: Public Consultations and Stakeholder Engagement in WB supported operations when there are constraints on conducting public meetings''. The SEP also includes a grievance mechanism (GM) to ensure complaints and concerns of stakeholders are adequately managed. The SEP should be disclosed both in-country and on the World Bank's website prior to appraisal.

Public Disclosure

B.2. Specific Risks and Impacts

A brief description of the potential environmental and social risks and impacts relevant to the Project.

ESS2 Labor and Working Conditions

The ESS2 is relevant. The project is likely to engage various types of workers, including (i) direct project workers mainly will be hired to constitute the PIU, (ii) civil servants working for the line Ministries, (iii) contracted workers such as the contruction companies to install the off grids and renewable energy sources as well as technical consultants firms for preparatory studies and supporting the project in some TA interventions; (iv) primary supply workers such as people employed by Borrower's primary suppliers including the solar panel and IT equipment suppliers and the construction materials suppliers (Component 1). The project does not expected to employ community workers.
Risks identified under ESS2 include (i) OHS induced by civil works under component 1 but also workers may work on Solar grids and IT equipment installation and could face risk relating to exposure to electromagnetic fields stemming from proximity to transmitting antennas emitting radio waves and microwaves and general hazards of working with electrical equipment; (ii) exposure to COVID19 during the implementation of all project activities; (iii) risks associated with terms and conditions of employment and the protection of the labor force; (iv) risks of GBV/SEA/SH in the workplace and (v) risks of forced and child labor related to solar panel industry, the risk of workers' exposure to hazardous waste when handling/installing and disposal of the solar panels.
The Republic of Madagascar has a clear legal framework governing the right of workers (the law 2003-044 of July 28, 2004, which established the Labor Code). This code preserves the worker's essential interests (trade union rights, employment contract, health and safety, intimidation, sexual harassment). Various laws and regulations supplement

the Labor Code, mainly the Law 66-003 of July 2nd, 1966, on the General Theory of Obligations to provide a system in which to raise workers' concerns.
To mitigate risk above, the borrower has developed (i) Labor Management Procedures (LMP) including a worker's Grievance Mechanism (GM) which could address all workers complaints and the sample of the code of conduct to be signed by all project workers to prevent and address potential harassment, child labor, gender discrimination or GBV/SEA issues, intimidation and/or exploitation during the implementation of all activities financed under this project. The LMP willbe disclosed prior the appraisal.
In addition during project preparation, the project design and the ESMF will be further developed to support and enable the better control of OHS risks while promoting employee well-being and a safer work environment.
Mitigation measures to manage potential risks of GBV and SEA/SH has been be included as part of the ESMF and the LMP, as well as in the bidding documents, direct workers and contractors' contracts, into OHS plans and C-ESMP to be developed by contractors in case. The ESMF, the LMP and the procurement contracts also include measures to prevent procurement of solar equipment that has used child / forced labor in its manufacturing.

ESS3 Resource Efficiency and Pollution Prevention and Management

ESS3 is relevant. In line with the WBG Climate Change Action Plan 2021-2025 and the Paris Agreement, both the energy sector and the digital sector are major generators of greenhouse gases (GHG), but equally they can be part of the solution for climate change mitigation. Renewable energy sources can significantly help to reduce GHG emissions and achieve climate change mitigation. Likewise, greater use of digital technologies can substitute for the physical movement of people and goods, hence reducing GHG emissions. Therefore, the proposed project could contribute positively to transitioning towards economy-wide digital transformation, supported by accelerated energy access, a key driver of improved resilience and adaptation through enhanced and uninterrupted access to basic services and public assistance in times of emergencies, continuity of critical communications and commerce and supporting a transition away from natural resource intensive and climatically vulnerable sources of growth and job creation. The gross GHG emissions estimation will be evaluated like the results and impacts of this operation prior completion. The proposed construction/upgrading and installation of digital and/or energy infrastructure of the component 1 and 2 in relation to the civil works, potential adverse risks and impacts related to waste management, environmental pollution, water usage, timber forest product usage, construction materials extraction, and GHG and air pollutants emissions are foreseen from construction activities. Also, as the project will provide support to enable a digital Environnement, potential e-waste from ICT and electronic equipment may occur and the risk related to recycling/disposal of these hazardous materials contained in the solar panels. The potential cumulative impacts on the existing waste disposal facilities at national level is also addressed with the support of Ministry of Environment.
The resource efficiency issue including raw material, water and energy uses in both construction and operation stages of the project need to be discussed more systematically by referring to ESS3 requirements and WBG EHS Guidelines that are applicable to the project. The assessment of the above issues and adequate mitigation measures will be addressed in the ESIAs, and ESMPs. WBG EHS Guidelines for Electric Power Transmission and Distribution and solar batteries and panels management guidelines will be applied. Civil works contractor(s) will be required to develop C-ESMP that will include an HSE plan, a waste management plan, and adequate measures for resource efficiency as per the ESMF, ESIAs, and ESMPs.
Inadequate solid waste management of construction wastes and household wastes from the worker camps may leave an environmental footprint. In addition, environmental pollution risks are associated with transportation, installation, storage, operation, and disposal of fuel, lubricants, paints, WEEE, etc. Water usage is expected during the

Public Disclosure

construction and operation of the off-grid connections and mini-grids as well as the hydropower exploitation. Modest quantities of GHG and air pollutants emissions may be produced during the construction phase, but overall GHG and air pollutants emissions are expected to decrease as a result of improved grid connections.
End-of-life batteries and electronic equipment that may be replaced will have to be disposed of in a manner that follows specific guidelines as articulated in the WEEEMP acceptable by the Association. The WEEEMP will include a separation and collection procedure for different types of e-waste, a recycling process for the reuse of spare parts, the establishment of storage centers for collection for a group of regional and local offices and their disposal in close cooperation with the Ministry in charge of Environment at the national level. The plan will also integrate a comprehensive and clear monitoring and reporting system. Management of non-hazardous and hazardous waste (liquid and solid) from the construction phase, management of waste of electrical and electronic equipment (WEEE) are being considered for the entire project life cycle and reflected in the ESMF and subsequent instruments accordingly, as well as project susceptibility to climate related hazards should be assessed (landslide, flooding, extreme weather conditions). An Electrical and Electronic Equipment Waste Management Specialist will be hired to ensure correct implementation of WEEMP. The use of water, energy and raw materials will be assessed considering the mitigation hierarchy and efficient use for both construction and during entire project life cycle in an adequate manner and has been reflected in the ESMF and subsequent instruments accordingly.

ESS4 Community Health and Safety

ESS4 is relevant. Project activities could involve pollution from the contruction of grids and installation of renewable energy source, the transport of construction materials and installation of ITC equipment to expand broadband network to rural areas which can lead to potential community health and safety issues. Key issues identified include traffic and road safety, exposure to dust, noise and vibration disturbance caused by construction works of some energy and digital infrastructures. Risks and impacts on community health and safety has been addressed as part of the ESMF, and will be considered when preparing subsequent instruments accordingly, including but not limited to accessibility to project sites, community and worker safety, electrical safety, surrounding environment, security aspects and fire risks and emergency preparedness during construction and operation phases. The component 2 and 3 activities related to capacity building activities may expose the community to potential safety concerns such as the propagation of covid-19 and SEA/H risks in relation to community and school, when there will be direct contact between workers and beneficiaries during the digital literracy courses and overall activities related to women and vulnerable beneficiaries that the project will finance under the component 2. GBV risk screening has classified the SEA/H risk as substantial which is mainly linked to labor influx in targeted regions, unavailability of adequate services to support SEA/H case, the existence of SEA/H-related factors linked to cultures and traditions in the areas of intervention, and the need to create new GBV skills within the project implementation unit.

The ESMF and LMP include COVID-19 mitigation measures. To mitigate risks related to Sexual Exploitation and Abuse/Sexual Harassments (SEA/SH) in relation to community and school, worker Codes of Conduct has been developed, and included into the LMP, and will be also integrated into bidding documents for civil works and other contractors. Appropriate measures will be taken to address COVID related issues and minimize spreading of the disease, such as physical distancing, use of facial mask as required, hand washing system or hand sanitizer, number of employees limited to minimum as required. The ESMF also assessed all community health and safety risks to mitigate dust, noise, and vibration that are associated with potential adverse impacts on community health and safety issues and proposed appropriate mitigation measures and if needed. Site specific ESIA/ESMP will be

Public Disclosure

developed by the Borrower will assess : (i) the ecosystem services to the local community and a site-specific safety risk assessment (SRA) of the Project sites, (ii) safety risks associated with the design of energy production and storage system on the issues such as electrical fire, blast, surrounding environment, electrical protection, access and egress, risk to local communities, risk to workers, and (iii) a subsequent a safety management plan (SMP). The project has also developed a SEA/SH Action Plan as an annex to the ESMF. A SEA/SH specialist shall be hired as part of the PIU. The selection of the hydropower with run-of-river and diversion dams (up to 4m) without reservoir but equipped of pressure line to the power plant location is not yet available during the project preparation. A standalone ESIA with its ESMP is required for any hydropower with run-of-river and diversion dams (up to 4m) without reservoir and transmission lines for each selected site to be submitted to WB's review and approval prior launching bidding document. It will be developed, adopted and implemented the small dam manual in accordance with ESS4 to manage the environmental and social risks of hydropower systems, as part of relevant subproject instruments (ESIA/ESMP) on basis of E&S ToR approved by the Bank.

ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

ESS5 is relevant. In component 1, project activities may finance the hybridization of isolated grids, the installation of renewable energy, upgrading the distribution network, construction of cell towers through the subsidy for private sector, which may associated with permanent or temporary physical and economic displacement resulting from land acquisition. Also, the installation of renewable energy source such as the solar panel arrays could require portion of lands. The exact locations and the specific types of activities are not yet known. Therefore, a draft Resettlement Framework (RF) compliant with the national legal and regulatory framework and ESS5 has been developed for the project. The RF includes principles that will be used during the implementation phase of the project where site specific Resettlement Plans (RPs) and /or livelihoods restoration plans will be prepared in case for each component of civil works of the project. This advanced draft of RF will be disclosed, both in the country and on the World Bank's web site prior to appraisal. Final version of the RF shall be developed, and disclosed prior to disbursement of component 1of the Project.

Public Disclosure

ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources

ESS6 is relevant for the project. As the exact locations of physical infrastructure are not identified, the potential risks and impacts relevant to ESS6 are not known. In fact, following the environmental and social profile and the anthropic pressures on the natural resources in the rural and urban habited areas, these areas are mainly composed of agriculture parcels, bush and savanna, and rupicola forests, roads and feeder roads. The project could also cause clearing of habitats, and potential damage to ecologically sensitive areas, natural and/or critical habitats if the required measures are not adopted. Environmental and social assessment will evaluate direct, indirect and cumulative impacts associated with the project implementation and operation phases. The ESMF provides guidance on screening and mitigation hierarchy to define measures (including exclusion of activities) to minimize impacts on environmental sensitive receptors, critical habitats and the biodiversity that they support. It includes a screening procedure/exclusion criteria to screen out any potential site locations where critical habitats could be impacted. The hydropower infrastructure design will be less than 30MW with run-of-river and diversion dams (up to 4m) without reservoir. No aquatic barriers for migratory species could be generated by this type of hydropower infrastructures. An ESIA with its ESMP for each selected site with E&S terms of reference approved by the association should be prepared prior the launching of the tender documents.

ESS7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

ESS7 is not relevant for the project. There are no Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities that meet the criteria of IP/SSHAUTLCs, per the requirements of this Standard, in the project area.

ESS8 Cultural Heritage

ESS8 is relevant to the project. Although small and medium civil works are not expected to have direct physical impacts on heritage monuments, indirect impacts due to the movement of construction machinery and the presence of labor could affect these areas. In addition, the exact locations of the physical infrastructure are not identified, so the potential risks and impacts are not known. For that reason, the ESMF and subsequent ESIA/ESMP will include a provision to screen and assess cultural heritage values for proposed project locations, measures to avoid and mitigate harm and Chance Finds Procedures. The Borrower will adopt and implement the Chance Finds procedure which as described in the ESMF. In the event of a Chance Find or the observation of a cultural practice, the Project will follow the guidelines detailed in the ESMF and contact the relevant government agencies that is entrusted with the protection of cultural heritage in Madagascar to assist to preserve such finds.

ESS9 Financial Intermediaries

ESS9 is relevant to the Project as the sub-component 2.1 will enable OGS companies and MFIs, as Financial Intermediaries, to extend credit and sell OGS products to households and micro, small, and medium enterprises through the Off-grid Market Development Fund (OMDF). The subcomponent will expand the scope of the OMDF to include the provision of digital devices and dedicated mechanisms to provide Results Based Financing (RBF) on the supply-side, demand-side and for productive uses.
The entity to be the Risk-Sharing Facility has not been identified, however, the identified Financial Intermediary will be required to put in place and maintain an Environmental and Social Management System to manage E&S risks. For all subprojects generating significant risks or impacts on the environment, community health and safety, labor and working conditions, biodiversity or cultural heritage, the FI should apply the relevant requirements of ESSs, regardless how these projects are categorized in the FI own risk classification system. The PIU will ensure the requirement for FI to have, or if not, to develop and adopt, an Environmental and Social Management System (ESMS) accepatable by the Association, covering policy, procedures, organizational capacity monitoring and reporting and stakeholder engagement as well as compliance with the legal agreement and in compliance the exlusion list (Any activity deemed illegal under host country laws or regulations or international conventions and agreements, or subject to international bans including goods containing PCBs; High risk sub-project; Sub-project involving harmful or exploitative forms of forced labor / child labor; Biomass power generation; FI sub-project involving Production, trade, storage, or transport of significant volumes of hazardous .
Cf: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/ifcexclusionlist. These ESMS should be consistent with national laws and practices, consistent with relevant ESSs, proportionate to the nature and level of potential risks and impacts, and Regularly reviewed and revised as needed. The ESMS should be reviewed and approved by the Bank's prior launching the activities.

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C. Legal Operational Policies that Apply

OP 7.50 Projects on International Waterways	No
OP 7.60 Projects in Disputed Areas	No

B.3. Reliance on Borrower's policy, legal and institutional framework, relevant to the Project risks and impacts

Is this project being prepared for use of Borrower Framework?	No

Areas where "Use of Borrower Framework" is being considered:

The Borrower's E&S Framework is not being considered for this project, either in whole or in part.

IV. CONTACT POINTS

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VI. APPROVAL

Task Team Leader(s):	Lara Born, Justin Marie Bienvenu Beleoken Sanguen, Timothy John Charles Kelly
Practice Manager (ENR/Social)	David Seth Warren Cleared on 23-Feb-2023 at 13:25:47 EST
Safeguards Advisor ESSA	Julia Bucknall (SAESSA) Concurred on 24-Feb-2023 at 02:19:38 EST

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