

# GEF-8 PROJECT IDENTIFICATION FORM (PIF)

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## General Project Information

### Project Title

Rural Electrification for Community Well-being in Burundi

Region	GEF Project ID
Burundi	11888
Country(ies)	Type of Project
Burundi	FSP
GEF Agency(ies):	GEF Agency ID
UNDP	9747
Executing Partner	Executing Partner Type
Ministry of Hydraulic, Energy and Mines	Government
GEF Focal Area (s)	Submission Date
Climate Change	3/5/2025

### Project Sector (CCM Only)

Renewable Energy

### Taxonomy

Climate Change, Climate Change Mitigation, Renewable Energy, Influencing models, Stakeholders, Focal Areas, Strengthen institutional capacity and decision-making, Transform policy and regulatory environments, Demonstrate innovative approaches, Deploy innovative financial instruments, Convene multi-stakeholder alliances, Private Sector, Capital providers, Individuals/Entrepreneurs, Large corporations, Financial intermediaries and market facilitators, SMEs, Beneficiaries, Local Communities, Civil Society, Non-Governmental Organization, Community Based Organization, Type of Engagement, Consultation, Partnership, Information Dissemination, Participation, Communications, Behavior change, Strategic Communications, Education, Public Campaigns, Capacity, Knowledge and Research, Enabling Activities, Capacity Development, Knowledge Exchange, Peer-to-Peer, South-South, Conference, Field Visit, Targeted Research, Learning, Theory of change, Adaptive management, Indicators to measure change, Knowledge Generation, Innovation, Training, Workshop, Professional Development, Seminar, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Women groups, Sex-disaggregated indicators, Gender results areas, Participation and leadership, Access to benefits and services, Integrated Programs, Food Security in Sub-Saharan Africa, Commodity Supply Chains, Sustainable Cities, Smallholder Farmers, Adaptive Management, Resilience to climate and shocks, Sustainable Production Systems, Diversified Farming, Smallholder Farming, Multi-stakeholder Platforms, Small and Medium Enterprises, Gender Dimensions, Integrated urban planning, Urban sustainability framework, Buildings, Urban Resilience, Global Platform for Sustainable Cities, Energy efficiency, Urban Biodiversity, Green space, Chemicals and Waste, Waste Management, eWaste, Climate Change Adaptation, Climate finance, Least Developed Countries, Climate resilience, Adaptation Tech Transfer, Private sector, Complementarity, Community-based adaptation, Livelihoods, Technology Transfer, Financing, United Nations Framework Convention on Climate Change, Nationally Determined Contribution, Capacity Building Initiative for Transparency, Paris Agreement

Type of Trust Fund	Project Duration (Months)
GET	48
GEF Project Grant: (a)	GEF Project Non-Grant: (b)

4,863,699.00	0.00
Agency Fee(s) Grant: (c)	Agency Fee(s) Non-Grant (d)
462,051.00	0.00
Total GEF Financing: (a+b+c+d)	Total Co-financing
5,325,750.00	23,300,000.00
PPG Amount: (e)	PPG Agency Fee(s): (f)
150,000.00	14,250.00
PPG total amount: (e+f)	Total GEF Resources: (a+b+c+d+e+f)
164,250.00	5,490,000.00
Project Tags	
CBIT: No NGI: No SGP: No Innovation: No	

## Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? (iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”. (max. 250 words, approximately 1/2 page)

According to the Burundian National Development Plan (NDP 2023-2028), Burundi has an electricity access rate less than 5.5% (the average in sub-Saharan Africa is 26%), and of this 5.5%, 52% are urban households and 2% rural households. The country's electricity consumption is less than 30 kWh/inhabitant/year, lower than the African average estimated at 150 kWh/inhabitant/year. The issue is more accentuated in rural areas where population growth rate has outstripped the rate of electrification. Addressing the energy access challenge in Burundi, will require the mobilization of private sector investments in addition to public sector interventions.

Burundi is endowed with renewable energy such as solar and hydrological resources. Hence, renewable minigrids offer an opportunity for increasing rural electrification. Further, private sector participation in rural electrification will be key in addressing the energy access challenge and at the same time improving well-being of the most vulnerable population in rural Burundi. National energy and climate change mitigation policies are supportive for the promotion of renewable minigrids and private sector participation. However, there are several barriers that increase investment risks perceived by private actors in renewable minigrids. Based on UNDP’s derisking renewable energy investment (DREI) framework, these risks are: energy market risk, developer risk, end-user credit risk, financing risk, currency risk and technology risk.

Supported by the DREI theory of change, the project will support access to clean energy by increasing viability and promoting scaled-up commercial investment in renewable minigrids in Burundi with a focus on cost-reduction levers and innovative business models. It is framed around four components, including: (i) Component 1 - *Policy and regulatory framework, and institutional arrangements* that will put in place the enabling conditions for incentivizing private sector investments in renewable minigrids; (ii) Component 2 – *Scaled-up de-risking financing* mechanism and accompanying financial instruments to incentivize investments in the development of renewable minigrids; (iii) Component 3 – *Innovative business models with private sector* for operationalizing innovative business models based on cost reduction to support and

strengthen private participation in renewables minigrid development; and (iv) Component 4 - *Digital, knowledge management, and scale-up strategy* for increasing awareness and network opportunities in the minigrid market and among stakeholders, and lessons learned for scaling up rural electrification using renewables minigrids. *Monitoring and Evaluation* will be carried out using standard UNDP and GEF procedures, and the reports will also include tracking progress in the implementation of the Gender Action Plan, and gender-related indicators in the project results framework.

Under Component 3, the project will support the installation of four solar minigrids for a total capacity of 540KW<sup>[1]</sup> and will leverage on the experience of the Rural Energy Services for Population Resilience in Burundi Project - UMUCO W'ITERAMBERE co-funded by European Union and UNDP. It will also draw lessons learned from UNDP's regional AMP project, and Phase 1 and Phase 2 AMP child projects. The project will directly benefit more than 6,500 households (38,640 persons: 19,487 women and 19,253 men), and about twenty community infrastructures (schools, health centers), and local economic activities. The project is expected to avoid approximately 11,527 tCO2 direct lifetime emissions.

<sup>[1]</sup> The geographical zones were confirmed via a multistakeholder meeting on Friday 13 December. The three solar minigrids will be in the sites named Gatabma, Mugeni Sud, Mushara, and Muhuzu. More details on this are in the section on geographical zones.

## Indicative Project Overview

### Project Objective

Support access to clean energy by increasing viability, and promoting scaled-up commercial investment in renewable minigrids in Burundi with a focus on cost-reduction levers and innovative business models.

### Project Components

#### 1. Policy and regulation framework, and institutional arrangement

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
900,000.00	3,000,000.00

Outcome:

Enabling conditions in place for incentivizing private investments in renewable minigrids

Output:

Output 1.1: A DREI minigrid study carried out using UNDP's methodology.

Output 1.2: A Rural Electrification Strategy and Investment Plan developed using the results of Output 2.1 and adopted.

Output 1.3: International standards for solar PV panels and minigrid components domesticated.

Output 1.4: A methodology is developed and adopted for calculating cost-reflective solar PV minigrids tariffs.

Output 1.5: Burundi Renewable Energy Association (BUREA) supported and strengthened to promote minigrid development.

Output 1.6: A strategy and guidelines for waste management of decommissioned minigrids developed.

## 2. Scaled-up derisking financing mechanism

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
1,050,000.00	3,280,000.00

Outcome:

Financing mechanism and accompanying financial instruments deployed to incentivize investments in the development of renewable minigrids

Output:

Output 2.1: Innovative financing solutions for minigrid development are identified and implemented through Ministry of Hydraulic, Energy and Mines.

Output 2.2: Feasibility study support provided to minigrid developers, creating a pipeline of investible assets.

Output 2.3: Bankable concept note developed for accessing climate financing for scaling-up investments in renewable minigrids.

Output 2.4: General market intelligence study on minigrids prepared and disseminated amongst public officials and finance community.

Output 2.5: Capacity building provided to minigrid developers and investors on measuring and reporting on impact indicators, building credibility in impact investment as an asset class.

## 3. Innovative Business Models with the private sector

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
1,521,190.00	13,000,000.00

Outcome:

Innovative business models based on cost reduction operationalized to support and strengthen private participation in renewable minigrid development

Output:

Output 3.1: Pilots developed, including productive use/innovative appliances and modular hardware/system design, leading to cost-reduction in minigrids and sufficient growing demand for minigrid systems.

## 3. Innovative Business Models and Financial Scale Up with the private sector

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
430,000.00	900,000.00

Outcome:

Innovative business models based on cost reduction operationalized to support and strengthen private participation in **renewable** minigrid development

Output:

**Output 3.2: Standardized online Ministry of Hydraulic, Energy and Mines Calls for Proposals for enhanced transparency in developers' bidding process.**

**Output 3.3: Scaled up support for upstream equipment manufacturers and suppliers.**

Output **3.4:** Capacity of potential tender bidders (private sector developers) strengthened to consider innovative business models and cost-reduction levers.

Output **3.5:** Capacity building provided to public officials (regulator, and ministries) specifically to design procurement/tender processes that incorporate cost-reduction levers and innovative business models.

**Output 3.6:** Capacity of winning tender bidders (private sector developers) strengthened to develop and implement innovative business models and cost-reduction levers.

#### 4. Digital, knowledge management, monitoring and evaluation, and scale-up strategy

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
589,244.00	1,500,000.00

Outcome:

Increased awareness and network opportunities in the minigrid market and among stakeholders, and lessons learned for scaling up rural electrification using renewable minigrids

Output:

Output 4.1: Lessons learned captured and disseminated at the national level.

Output 4.2: Replication plan (including investment plan) for scaling up rural energy access developed.

Output 4.3: Project Digital Strategy developed/implemented, and Quality Assurance Framework augmented and independent verification process in place for measuring, reporting and verification of the sustainable develop impacts of MGs, including GHG emission reductions.

#### M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)

141,661.00

500,000.00

Outcome:

Project results are monitored and evaluated to foster adaptive management and sustainability

Output:

Output 5.1: Inception workshop.

Output 5.2: Project monitoring.

Output 5.3: Project evaluations.

## Component Balances

Project Components	GEF Project Financing (\$)	Co-financing (\$)
1. Policy and regulation framework, and institutional arrangement	900,000.00	3,000,000.00
2. Scaled-up derisking financing mechanism	1,050,000.00	3,280,000.00
3. Innovative Business Models with the private sector	1,521,190.00	13,000,000.00
3. Innovative Business Models and Financial Scale Up with the private sector	430,000.00	900,000.00
4. Digital, knowledge management, monitoring and evaluation, and scale-up strategy	589,244.00	1,500,000.00
M&E	141,661.00	500,000.00
<b>Subtotal</b>	<b>4,632,095.00</b>	<b>22,180,000.00</b>
Project Management Cost	231,604.00	1,120,000.00
<b>Total Project Cost (\$)</b>	<b>4,863,699.00</b>	<b>23,300,000.00</b>

Please provide justification

## PROJECT OUTLINE

### A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as

population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

## **1. Context and Justification**

The Republic of Burundi, located in the Great Lakes Region of Africa, shares borders with the Democratic Republic of Congo, Tanzania, and Rwanda. With a population of 13.24 million and an annual growth rate of 2.6%, Burundi is one of the most densely populated countries in Africa, with a density of 547 people per km<sup>2</sup>. The country covers a total land area of 25,680 km<sup>2</sup> (9,915 sq. miles), and only 14.5% of the population resides in urban areas.

Burundi is classified as a Least Developed Country (LDC), with 62.1% of the population living below the World Bank's poverty line of \$2.15 per day. The country's economy is largely dependent on subsistence agriculture, employing 80–90% of the population. However, with a youth unemployment rate of approximately 65%, limited industrial development contributing less than 20% of GDP, and weak purchasing power restricting the services sector to 35% of GDP, economic growth remains constrained.

Burundi's economic landscape is further characterized by high inflation and low human development. As of 2023, the country had an annual inflation rate of 26.9%, a Human Development Index (HDI) score of 0.42, and a GNI per capita of \$712 (2017 PPP). Only 11% of the population had internet access in 2022, and the expected years of schooling stood at just 3.31 years. In terms of environmental sustainability, Burundi had annual CO<sub>2</sub> emissions of 709.7 ktCO<sub>2</sub> in 2023, and its Multidimensional Poverty Index (MPI) was recorded at 0.409 in 2021.

## **2. The Importance of Energy Access for Climate and Development**

More than 95% of Burundi's population relies on biomass such as wood and charcoal for energy, which has led to widespread deforestation, biodiversity loss, and carbon emissions. Firewood remains the primary energy source, used by 94.2% of the population, followed by charcoal at 5.1%. Coal and Liquid Petroleum Gas (LPG) contribute minimally to the energy mix, with shares of 0.2% each.

The clean cooking sector remains severely underdeveloped. The access rate for clean cooking solutions declined from 0.3% in 2018 to just 0.1%, reflecting stagnation in efforts to transition away from traditional biomass fuels. Additionally, the reliance on biomass for agro-industrial activities, such as brick-making and tea drying, contributes to the unsustainable exploitation of woodlands. Without updated afforestation management plans, the risk of resource depletion is high.

Energy insecurity in Burundi has severe implications for health, the environment, and the economy. Indoor air pollution from biomass burning has been linked to respiratory diseases, disproportionately affecting women and children. Chronic deforestation exacerbates soil erosion and biodiversity loss, while limited energy access stifles economic productivity in agriculture, small businesses, and public services.

Expanding access to renewable energy, particularly solar photovoltaic (PV) minigrids, presents an opportunity to mitigate these challenges. Transitioning to renewable energy sources can significantly reduce greenhouse gas emissions by replacing inefficient biomass and diesel generators. It also enhances climate resilience by diversifying energy sources and reducing dependence on climate-sensitive hydropower. Moreover, improved energy access fosters economic growth by powering businesses, agricultural processing, and essential services, ultimately stimulating local economies. Additionally, reducing firewood demand helps slow deforestation and soil degradation, contributing to forest conservation efforts.

### 3. Energy Access and Barriers to Expansion

Despite an annual electricity access growth rate of 6.24%, Burundi's overall electricity access remains critically low at 10.28% as of 2022. Rural electrification is particularly poor, with only 1.63% of the rural population having access to electricity, compared to 64% in urban areas.

Limited financial resources present a major barrier to energy expansion. The domestic financial sector is weak, making it difficult to secure capital for energy projects. High upfront costs for minigrids infrastructure further exacerbate financial constraints, while currency risks associated with importing energy technology and fluctuating exchange rates add additional challenges.

Market and technical barriers also hinder electrification efforts. The private and public sector has limited experience with rural electrification models, and the absence of clear technical standards for renewable energy systems creates quality assurance challenges. Additionally, affordability remains a significant issue for rural consumers, further limiting commercial viability. Most private companies do not see value in providing electricity to such a population.

According to the World Bank's Regulatory Indicators for Sustainable Energy (RISE), Burundi scores particularly low on critical indicators for energy access. Electrification planning received a score of just 5 out of 100, while the minigrids framework and consumer affordability of electricity were rated at 43 and 32, respectively. Utility transparency and monitoring scored relatively higher at 75, indicating some progress in governance but insufficient action in energy access planning and affordability.

Burundi possesses significant renewable energy resources that, if leveraged effectively, could help close the energy gap. The country has an estimated hydropower potential of 1,700 MW, of which 20% is considered economically viable. Solar energy potential stands at 2,000 kWh/m<sup>2</sup>/year, while wind energy potential is limited due to average wind speeds below 4.8 m/s. Additionally, Burundi has 600 million tons of peat reserves, with 47–58 million tons deemed exploitable.

Recent UNDP initiatives include the installation of 11 solar PV minigrids with battery storage across five underserved provinces. These projects demonstrate the potential of public-sector participation in Burundi's nascent minigrid market. However, they were primarily grant-funded and implemented by a public-private sector partnership, highlighting the need for sustainable investment mechanisms.

### 4. Future Energy Scenarios for Burundi

If Burundi maintains its current electrification trajectory, the demand for electricity will continue to outpace supply. In a business-as-usual scenario, government efforts will remain focused on grid expansion, but without substantial investment, rural electrification will continue to lag. This scenario is undesirable as it contradicts national development objectives and limits economic growth.

A second scenario envisions an increase in rural electrification through thermal energy solutions, primarily diesel minigrids. While this would expand access, it would also increase dependency on imported fossil fuels and contribute to higher carbon emissions. This approach contradicts Burundi's updated Nationally Determined Contributions (NDC) for emissions reduction and presents long-term economic risks due to fuel price volatility.

The preferred scenario involves a transition to renewable energy for rural electrification. Scaling up solar PV would reduce reliance on fossil fuels while creating opportunities for green job growth. Private and Public-sector investment and government incentives could accelerate deployment, ensuring long-term sustainability.

## 5. Private sector dynamics in the rural electrification

The proposed project adopts the UNDP's DREI framework and theory of change (as is further discussed below). Since the DREI framework addresses the specific perspective of private sector investment, this section presents the dynamics of private sector participation in the energy sector in Burundi. While recognizing that the renewable minigrid market is nascent in Burundi, there is already some private sector involvement in this market. In 2024, the private company Aptech Africa commissioned 11 solar PV minigrids covering 5 provinces in Burundi with 9 minigrids having a capacity of 34.88kWp each and a battery bank storage of 254.4kWh each, and 2 minigrids having a capacity of 17.44kWp each and a battery bank storage of 129.6kWh each under the project "UMUCO WITERAMBERE". The minigrids infrastructure also included building low voltage distribution lines. This project is an example of the existing capacity for the private sector to deploy renewable minigrids with battery storage. However, it is important to note that these minigrids were all grant funded. The outstanding challenge is to operationalize a business model for private investments in minigrids, including private participation in the ownership and operation of minigrids. For this, the project will assess and support the deployment of policy and financing derisking instruments as informed by the DREI framework to support innovative business models for private participation in the sustainable deployment and operation of renewable minigrids. The experience of the UMUCO WITERAMBERE project, demonstrates the potential of public-sector participation in Burundi's nascent minigrid market. Another point to note is the participation of Independent Power Producers (IPPs) in utility-scale electricity generation as detailed in the section on 'Coordination and Cooperation with Ongoing Initiatives and Project'. A more detailed analysis of private sector dynamics in off-grid electrification using renewable minigrids will be carried out at PPG stage. In particular, the preliminary step of UNDP's DREI framework will be applied to quantify the impact of private investors' perceived investment risks in renewable minigrids on financing costs.

### Project Overview and Approach

With the country vision of an emerging nation in 2040 and developed one in 2060, Burundi has set a very ambitious target of ensuring 70% electricity access by 2030 and, 100% by 2040 with a share of 80% renewable in the energy mix. Please see Table 2 in Section C for more details. The hydroelectric atlas of Burundi produced in 2019 included 161 potential sites for hydropower development, and currently, less than 30 sites are operational. Although the country relies on hydropower, the results of climate change simulated from 2000 to 2050 demonstrated that there would be a rise in temperature and high variability in rainfall with very short rainy season that would affect the energy supply of the country.

This suggests that investments in solar photovoltaic (PV) power plants could make up for the deficit resulting from climate change in the medium and long term to meet growing energy needs. In 2019, annual national power consumption generation was 307 GWh. In 2030, electricity consumption would be around 3,268 GWh. The energy demand was projected to have an annual growth rate ranging from 10 to 12% which would further increase energy deficit. The trends of the modification of rainfall patterns and the high demand for electricity call for the consideration of alternatives to respond to growing needs. The solar potential of Burundi is promising. The average annual power received is around 2,000 kWh/m<sup>2</sup> per year, which is equivalent to the best European regions (southern Mediterranean). Five types of applications of solar energy have been identified for Burundi:[\[1\]](#) (i) rural electrification using solar home systems; (ii) solar PV water pumping; (iii) solar PV minigrids; (iv) hybrid-solar PV minigrids; and (v) grid-connected solar systems.

Alternative service delivery mechanisms are needed to provide services to customers in off-grid areas, either as temporary solutions until the arrival of the grid or as a permanent solution. According to

preliminary geospatial mapping analysis and consultations made with the World Bank (Projet SOLEIL-Nyakiriza), estimates of electricity demand shows that at least one third of the power capacity required to meet electricity demand in 2030 must come from minigrids, another third would be grid-connected, and the remaining electricity demand would be met through standalone solar systems.[2] More recently, there has been a mapping and identification of 15 potential hydroelectric and 33 solar minigrids sites for both grid- and off-grid connected systems.[3]

Realizing these rural and urban electrification targets require significant investments. The Government of Burundi has reviewed its legal framework in order to stimulate the private investments in the sector: (i) Law N°. 14 of April 27, 2015 on the general regime of public-private partnership contracts establishes and procurement, guidelines for PPP contracts, (ii) Decree N°. 100/130 of June 23, 2016, relating to the reorganization of transport, distribution and marketing of electricity,(iii) Decree N°. 100/132 of June 23, 2016 on the procedure for developing a production plant for exclusive and commercial use.

Governed by the Electricity Law of 2015, the electricity sector in Burundi is largely vertically integrated with a single, fully publicly owned utility that manages all levels of the electricity supply chain: generation, transmission, and distribution. The following public institutions that play a key role in the country electricity sector are vertically integrated: (i) The ministry of Hydraulics, Energy and Mines, (ii) The regulatory authority of clean water and energy sectors (AREEN), (iii) The Water and Electricity production and distribution (REGIDESO), and (iv) the Burundi Rural Electrification Agency (ABER). ABER owns and manages minigrids and other forms of rural electrification. However, there is currently no implementation plan for off-grid solar sector.

To date, the sector has been hindered by significant barriers that have prevented a successful and profitable deployment of minigrids in rural areas. Key risks that the sector is currently facing include:

- **Energy market risk:** Rural electrification responsibilities are under the purview of ABER. However, there is the lack of an integrated electrification plan, and the existing regulatory framework applying to minigrids also present significant gaps including the inability to apply cost-reflective tariffs;
- **Developer risk:** Limited experience with IPPs and with minigrids developers in the country. Hence, limited technical and financial capacity to effectively design, install and sustainably operate such systems. This is compounded by the fact that installing and operating a minigrids in rural areas, with poor transport infrastructure and widely dispersed habitat, is very costly;
- **End-user credit risk:** Limited information is available on the end-user credit worthiness, and willingness and ability to pay for the energy services. This risk can be high in rural areas due to the lack of economic activity. A related risk is the reliance of rural communities on agriculture that is itself negatively impacted by climate change;
- **Financing risk:** Due to the early stage of the minigrids market, the capacity of the domestic financial sector in assessing minigrid projects, and in developing new financial products adapted to them is very low;
- **Currency risk:** Given that Burundi is a net importer of solar technology, investors in minigrids must contend with currency exchange risks. This is due to the mismatch between importation of technologies in foreign currency and having revenues from the sales of electricity in the local currency. Also, Burundi's foreign exchange market is characterized by strong restrictions that have contributed to external imbalances and led to the burgeoning of a sizable parallel market where the currency currently trades at close to a 60 percent premium;

- **Technology risk:** There is a lack of domestication of standards for solar PV components and systems, implying that it is difficult to ensure the utilisation of quality products.

Considering the foregoing project rationale, the project's support for Futures Scenario 3, and the prevailing barriers to achieving the desired results, the proposed project will lean on the following drivers of changes:

- **Driver 1:** Technological innovations in off-grid electrification using renewable minigrids. To support this technology transfer and diffusion, a number of technology-related activities will be promoted by the project, including (i) quality standards for minigrids components and equipment, (ii) a strategy for the local production / assembly of solar panels, and (iii) a strategy for the environmentally sound disposal of equipment at their end of life;
- **Driver 2:** Government investments alone have proved to be largely insufficient for achieving high rates of electrification, especially in rural areas. The project will promote the derisking approach developed by UNDP for incentivizing private sector participation in rural electrification. The derisking approach will be used to inform innovative business models for attracting private investments in renewable minigrids. Public-private partnerships will be fostered to deliver on the socio-economic development of rural communities, as well as ensuring global environmental benefits of reduced GHG emissions relative to alternative scenarios (Futures Scenario 2);
- **Driver 3:** As part of the innovative business model, the focus of electricity use will be on productive economic activities that will have two interconnected effects, namely: (i) ensuring a minimum demand for electricity and thereby ensuring design feasibility of minigrids, and (ii) increasing revenues and catalyzing the local economy with the overall result that local communities have higher capacity for paying electricity. Under Component, there will also be output related to scaling up financing in renewable minigrids; and
- **Driver 4:** While noting that the rate of rural electrification is very low in Burundi and that the ambition for socioeconomic development very high, the project will be able to test novel approaches to minigrids deployment and operation. Hence, the project will benefit from the lessons learned from the regional AMP project executed by UNDP. Further, the project will develop a replication and investment plan (Component 4) and bankable concept note for leveraging international climate finance (Component 2) for scaling up investments in rural electrification using renewable minigrids in Burundi.

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[1] République du Burundi (2012). Opportunités dans le secteur des énergies renouvelables au Burundi; <https://bi.chm-cbd.net/sites/bi/files/2020-05/opportu-sect-energ-renouv-bi.pdf> - accessed 26 November 2024.

[2] <https://documents1.worldbank.org/curated/ar/247351583204580950/pdf/Burundi-Solar-Energy-in-Local-Communities-Project.pdf> - accessed 9 December 2024.

[3] VIDA (2023) Geospatial mapping of mini-grid potential in Burundi and assessment of 15 hydro minigrids power and 33 solar minigrids sites.

## B. PROJECT DESCRIPTION

### Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

### Project Overview

Four main areas have been prioritized to support the development of the minigrid sector in Burundi:

Firstly, the project will support the review of the legal framework to create an enabling environment required to boost the contribution of renewable energy within the national electrification program, as aligned with Vision Burundi an emerging country in 2040 and developed country in 2060. The project will apply UNDP's Derisking Renewable Energy Investment (DREI) framework to identify key policy and financial instruments that could further de-risk the minigrid sector in Burundi. Law N°. 13 of April 23, 2015, on the reorganization of the electricity sector, is considered a milestone for increased private sector participation, ending REGIDESO's monopoly over electricity production.

The law authorizes private electricity production under a public-private partnership regime, with authorization from the Ministry. The project will work to increase capabilities to help Burundi build a sustainable and reliable energy sector based on good practices and skilled human resources. The capacities of national institutions—particularly AREEN and ABER—will be strengthened to operationalize an updated regulatory framework and monitor off-grid electrification initiatives.

Secondly, the project will address the fragmented implementation of ongoing energy access initiative by fostering knowledge-sharing and creating a framework for coordination. As a result, lessons learned, and best practices will be systematically documented and shared for the development of scalable business models.

Thirdly, the project will build on existing lessons learned from partners such as the EU, UNDP, the World Bank, and private sector actors to pilot new and innovative approaches to further support the deployment of minigrids. The project will also help local minigrid developers—including young innovators and investors—play a key role in sectoral growth and strengthening. As photovoltaic energy use expands, the need for recycling various components (e.g., solar panels, batteries) will increase. Innovation will be supported to develop a model for waste management by recycling these components in accordance with circular economy principles.

Fourthly, the project will address the lack of expertise among local financing and insurance institutions by supporting the development of risk assessment capabilities and customized financial products tailored to the off-grid solar sector. This will address the limited participation of local financial institutions, mainly due to the perceived risk and lack of proven business models, including insurance schemes and tariff models to ensure sustainable returns on investment.

Although the project will focus on these four priority areas—each of which is likely to induce lasting impact—direct support will also be provided to eight vulnerable village communities living in very remote areas outside the national electricity network. These communities, which in the short term may not attract private sector interest, will benefit from solar minigrid networks as a means of stimulating economic activity and lifting them out of poverty.

In the context of Acumen's hardest -to-reach initiative for scaling off-grid solar distribution into sub-Saharan Africa's underserved markets, at this PIF stage, preliminary consultations have been held with Acumen to collaborate in the design and implementation of this project. It is expected that at the PPG stage, further discussions will be held with Acumen to channel their hardest -to-reach fund as part of their co-financing to support the implementation of Innovative Business Models and Financial Scale Up with the private sector to incentivize investments in the development of low-carbon minigrid in Burundi.

### **Linkages with UNDP's Africa Mini-Grid Programme (AMP)**

The proposed project is aligned with the objective and theory of change of UNDP's Africa Mini-Grid Programme (AMP), which seeks to drive the deployment of low-carbon mini-grids through innovative business models and scalable financing solutions. Burundi is already part of AMP, self-funding its participation in the regional initiative. This engagement allows Burundi to leverage best practices and insights from AMP's regional activities to inform the national project design. By the time of the project's full development (i.e., PPG phase), the regional AMP initiative will be disseminating lessons learned from Phase 1 and Phase 2 AMP child projects, which will be used to refine and finalize the conceptualization of the Burundi project. Furthermore, bilateral collaborations with other AMP child projects will enable the exchange of expertise and strategic alignment to scale up rural electrification initiatives.

## Theory of Change (ToC)

The project's TOC is informed by the TOC of UNDP's derisking renewable energy investment (DREI) framework which underpins the AMP. The DREI framework provides a methodology to link the levelized cost of electricity (LCOE) produced by a renewable minigrid with the financing costs of a minigrid, which, in turn, are dependent on investment risks. In the case of a developing country like Burundi, investment risks are generally considered as high, implying high financing costs (debt and equity). In such an investment environment, the LCOE will be high and demand for clean electricity will be low. In such a high-risk environment, the government is usually required to provide very high levels of subsidies (typically between 80 and 95% of CAPEX) to compensate for investment risks to promote renewable minigrids. While governments have a social responsibility to provide clean, affordable and reliable electricity to its citizens, the approach of direct compensation of investment risks is not sustainable, and it hinders private sector participation in electrification. The DREI framework allows a cost-effective basket of policy and financial derisking instruments (or cost-reduction levers) to be identified in a specific context, which when implemented would reduce financing costs and make investments - including private investments - in renewable minigrids more sustainable.

The ToC (Figure 1) is premised on a baseline context where, while some progress is being made, solar PV minigrids are currently not competitive with fossil-fuel-based alternatives, and their uptake is too slow to fully capture their potential benefits. Cost reduction levers, innovative business models, and financing can improve the financial viability of solar PV minigrids. When renewable energy minigrids become more competitive, private capital will then flow, resulting in multiple sustainable development benefits: investment at scale, greenhouse gas emission reductions, increased electrification, lower tariffs for end-users, and local socioeconomic development through productive energy uses. This will also enhance access to basic services such as healthcare and education by electrifying public facilities like health centers and schools.

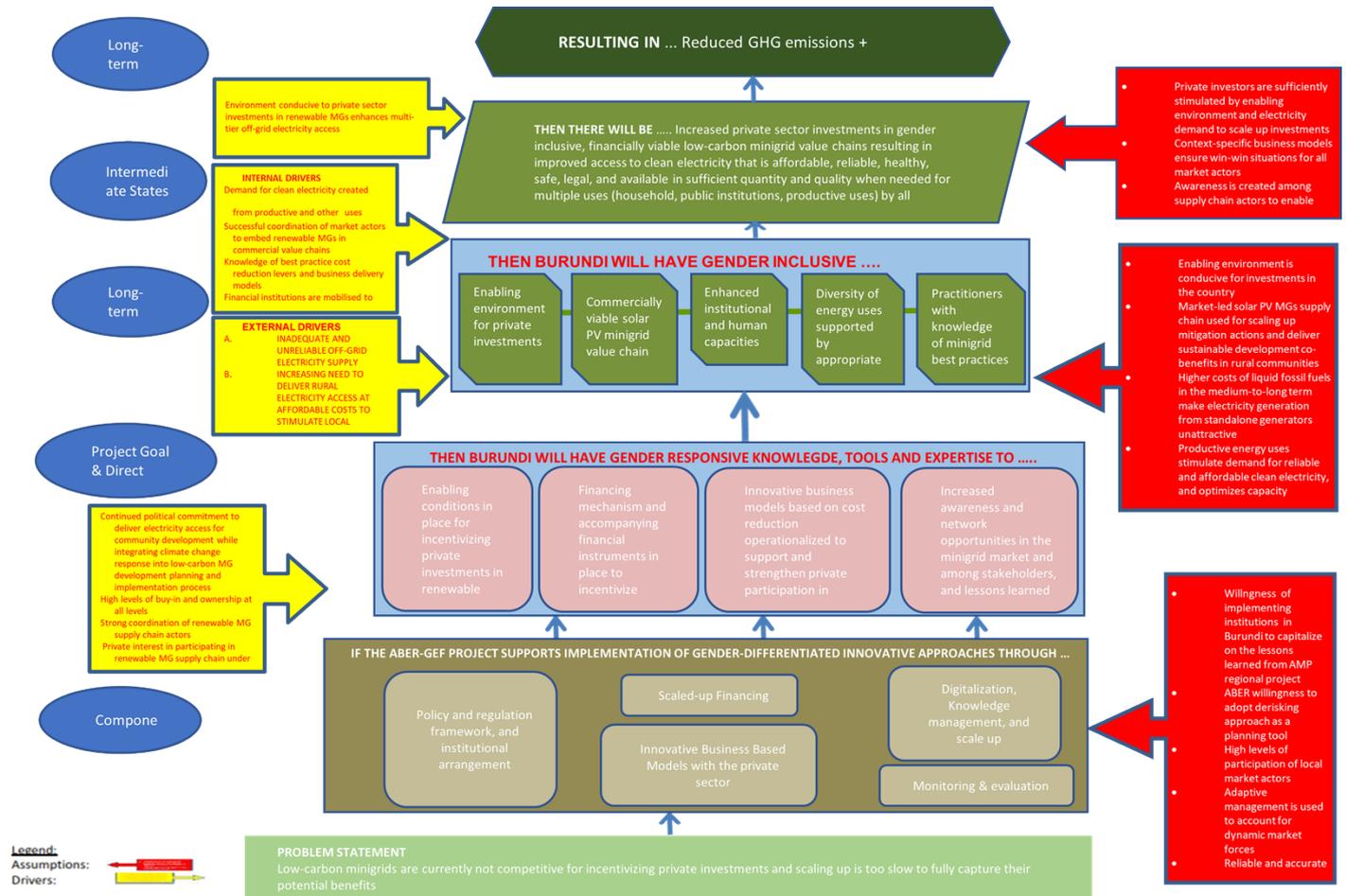
The ToC applied to this project addresses key barriers through the achievement of four core components, further elaborated below:

- **Component 1: Policy and regulatory framework, and institutional arrangement**
- **Component 2: Scaled-up derisking financing**
- **Component 3: Innovative business models with the private sector**
- **Component 4: Digitalization, knowledge management,**
- **Monitoring, and evaluation (M&E)**

The ToC diagram shows that the long-term impact of the project is to provide technical assistance to achieve greenhouse gas emission reductions while delivering strong sustainable development co-benefits through the deployment of solar PV minigrids for multiple uses (household, public institutions, and productive activities). To achieve these long-term impacts, several internal logical steps must occur:

- Renewable energy minigrids currently face multiple barriers, making them less competitive than fossil-fuel-based alternatives, which limit scaling and financing.
- **IF** the UNDP-GEF project provides gender-sensitive technical and financial assistance on country-appropriate delivery models, innovative financing modalities, and harmonized monitoring and evaluation approaches,
- **THEN** Burundi will have an enabling environment for private investments, commercially viable solar PV minigrid value chains, enhanced institutional and human capacities, and increased local expertise.
- **THEN**, these conditions will drive private sector investments, supporting gender-inclusive multi-tier electricity access for multiple uses, **RESULTING** in global environmental benefits and local sustainable development gains.

The ToC incorporates key external levers such as policy pressure for rural electrification, climate mitigation commitments in the updated NDC, and regulatory frameworks supporting private participation. By addressing these key barriers, this project will significantly contribute to Burundi’s energy access goals and socioeconomic development.



**FIGURE 1: THEORY OF CHANGE DIAGRAM**

Key project internal levers are: (1) demand for clean electricity created from productive and other uses; (2) successful coordination of market actors to embed renewable MGs in commercial value chains; (3) knowledge of best practice cost reduction levers and business delivery models (lessons learned from regional AMP project); and (4) financial institutions are mobilised to provide lower cost financing.

**Assumptions:** The ToC contains several assumptions outlined in red boxes in ToC diagram. In terms of project interventions, key assumptions are:

- Willingness of implementing institutions in Burundi to capitalize on the lessons learned from AMP regional project;
- Ministry of Hydraulics, Energy and Mines willingness to adopt derisking approach as a planning tool;
- High levels of participation of local market actors;
- Adaptive management is used to account for dynamic market forces;
- Reliable and accurate national data are collected and shared nationally and regionally; and

- Enforcement of quality standards for solar PV MGs and components.

In terms of long-term results, the assumptions are:

- Enabling environment is conducive for investments in the country;
- Market-led solar PV minigrids supply chain used for scaling up mitigation actions and deliver sustainable development co-benefits in rural communities;
- Higher costs of liquid fossil fuels in the medium-to-long term make electricity generation from standalone generators unattractive;
- Productive energy uses stimulate demand for reliable and affordable clean electricity, and optimizes capacity utilization; and
- Project trained resources are retained and operational in the partner institutions.

Assumptions concerning the intermediate milestones are:

- Private investors are sufficiently stimulated by enabling environment and electricity demand to scale up investments;
- Context-specific business models ensure win-win situations for all market actors; and
- Awareness is created among supply chain actors to enable them to fulfil their roles and responsibilities.

There are several drivers that support the theory of change, and they take place at different levels of interventions. At the level of project outcomes, the drivers are:

- Continued political commitment to deliver electricity access for community development while integrating climate change response into renewable minigrid (MG) development planning and implementation process;
- High levels of buy-in and ownership at all levels;
- Strong coordination of low-carbon MG supply chain actors; and
- Private interest in participating in renewable MG supply chain under appropriate conditions.

For the intermediate milestones, the drivers are:

- Inadequate and unreliable off-grid electricity supply;
- Increasing need to deliver rural electricity access at affordable costs to stimulate local development;
- National agenda for climate change (CC) mitigation; and

- Supportive MG regulatory framework for private participation.

Finally, the driver at the level of long-term results is that the ‘Environment conducive to private sector investments in low-carbon MGs enhances multi-tier off-grid electricity access’.

## **Project Components**

**Expected Results:** The proposed project adopts a systemic approach to increasing electricity access in off-grid communities using solar PV minigrids. It will support the scaling up of private investments through the deployment of innovative business models and financing with a focus on achieving cost reductions in solar PV minigrids. The overall objective is to increase the commercial competitiveness of solar PV minigrids through their integration in the agricultural value chain; increase the affordability of renewable electricity for end users, thereby reducing reliance on the baseline technology (i.e. diesel minigrids). The use of electricity generated by solar PV minigrids in household applications and for productive energy uses will be accompanied by the uptake of energy efficient appliances and electrical equipment.

While emphasis is placed on increasing the affordability of clean electricity, the project will support a multi-tier approach to electricity access,<sup>[1]</sup> which will result in overall reductions in greenhouse gas emissions. The interventions/outputs are focused on three core thematic areas: (1) policy and regulation review, (2) innovative business model for private sector engagement, and (3) innovative financing towards low-income segment of the communities.

**Objective of the project:** Support access to clean energy by increasing viability and promoting scaled-up commercial investment in renewable minigrids in Burundi with a focus on cost-reduction levers and innovative business models.

### **Component 1: Policy and regulatory framework, and institutional arrangements**

This component aims to strengthen the regulatory and policy framework essential for supporting renewable energy development, particularly in underserved areas. By improving governance structures, creating clear policies, and ensuring proper institutional arrangements, the project seeks to foster a stable environment for renewable energy projects. The lack of a clear regulatory framework is a major barrier to private sector investment, and this component directly addresses this challenge by ensuring that the government’s policies and regulations support and encourage investments in low-carbon energy solutions. A well-established regulatory framework provides the necessary foundation for sustainable energy development and attracts private sector participation. However, the success of this component depends on critical assumptions, such as the government’s continued commitment to supporting renewable energy policies and the capacity of local institutions to implement and enforce these policies. Risks include slow policy implementation, potential resistance from local authorities, or challenges in disseminating policies effectively at the community level. In the DREI framework, the outputs that are proposed below for achieving Outcome 1 are called policy derisking instruments.

**Outcome 1: Enabling conditions in place for incentivizing private investments in renewable minigrids.**  
**Outcome 1 will be achieved through the following outputs:**

- Output 1.1: A DREI minigrid study carried out using UNDP’s methodology

- Output 1.2: A Rural Electrification Strategy and Investment Plan developed using the results of Output 2.1 and adopted
- Output 1.3: International standards for solar PV panels and minigrid components domesticated
- Output 1.4: A methodology is developed and adopted for calculating cost-reflective solar PV minigrids tariffs
- Output 1.5: Burundi Renewable Energy Association (BUREA) supported and strengthened to promote minigrid development
- Output 1.6: A strategy and guidelines for waste management of decommissioned minigrids developed

## **Component 2: Scaled up derisking financing mechanisms**

While Component 1 focuses on policy derisking instruments, Component 2 will focus on the setting up of financial derisking instruments as well as on transferring residual risks and barriers that cannot be fully mitigated under the first component. In the DREI framework, derisking private sector investment is carried out using a combination of policy derisking (Component 1) and financial derisking (Component 2 and Component 3). Where residual risks are deemed to be high still after applying policy and financial derisking, then the transfer of residual risks is required (Component 2). Therefore, this component involves close collaboration and coordination with existing public and private financial actors, financing initiatives and future partners including the World Bank and the EU. The main focus of this component is to ensure that financial derisking for private investors in the agriculture processing-energy value chains is catalyzed or scaled-up most efficiently and cost-effectively.

The choice of sites was carried out through a country-owned approach of stakeholder engagement between ABER and the Energy Directorate of the Ministry of Hydraulic, Energy and Mines (MINHEM).[\[2\]](#)

**Outcome 2: Financing mechanism and accompanying financial instruments in place to incentivize investments in the development of renewable minigrids. Outcome 2 will be achieved through the following outputs:**

- Output 2.1: Innovative financing solutions for minigrid development are identified and implemented through the Ministry of Hydraulics, Energy and Mines
- Output 2.2: Feasibility study support provided to minigrid developers, creating a pipeline of investible assets
- Output 2.3: Bankable concept note developed for accessing climate financing for scaling-up investments in renewable minigrids to then influence output 4.4 and 4.5
- Output 2.4: General market intelligence study on minigrids prepared and disseminated amongst public officials and finance community
- Output 2.5: Capacity building provided to minigrid developers and investors on measuring and reporting on impact indicators, building credibility in impact investment as an asset class

## **Component 3: Innovative Business Models with the private sector**

This component provides a combination of financial support (through GEF financing) and technical assistance for embedding renewable minigrids and clean energy solutions into productive economic activities in rural areas. The objective is to operationalize cost-reducing business models that unlock private sector participation

in renewable energy and address cross-cutting energy access gaps—including electricity and clean cooking. Under this component, GEF investments will be used to provide grant subsidies to cover up to 40% of capital expenditure (CAPEX) for four solar PV-battery minigrid installations, totaling 540 kWp (as indicated in Annex C). These installations will be located in remote and underserved areas that are not currently viable under a business-as-usual scenario. The remaining 60% of CAPEX will be contributed by the private sector. This arrangement applies GEF incremental cost reasoning by bridging the financing gap between market viability and the cost of delivering clean, resilient energy systems that generate global environmental benefits. A detailed cost analysis will be conducted during the PPG phase using UNDP’s Derisking Renewable Energy Investment (DREI) methodology. Emphasis will be placed on productive energy use, as a key building block for generating reliable demand, enhancing system utilization, and increasing users’ ability to pay. This component also complements the institutional strengthening of the Ministry of Hydraulics, Energy and Mines and private sector operators, enabling the development of a seamless pipeline of rural electrification projects. In response to Burundi’s critical dependence on biomass for cooking—affecting over 99% of households and contributing to deforestation, fuel poverty, and health risks—this component will also support the scaled-up adoption of electric clean cooking technologies and appliances through innovative business models and private sector engagement. These interventions will leverage synergies with renewable minigrids and existing financing mechanisms (e.g., FESEC) to address energy poverty in an integrated way.

**Outcome 3: Innovative business models based on cost reduction operationalized to support and strengthen private participation in renewable minigrids development and clean energy access.**

Outputs:

- Output 3.1: Pilots developed, including on productive use/innovative appliances and modular hardware/system design, leading to cost-reduction in minigrids and sufficient growing demand for minigrid systems.
- Output 3.2: Standardized online Ministry of Hydraulics, Energy and Mines Calls for Proposals for enhanced transparency in developers' bidding process.
- Output 3.3: Scaled-up support for upstream equipment manufacturers and suppliers (in alignment with Burundi’s NDC commitment on local manufacturing/assembly of solar PV components).
- Output 3.4: Capacity of potential tender bidders (private sector developers) strengthened to consider innovative business models and cost-reduction levers.
- Output 3.5: Capacity building provided to public officials (regulator, ministries) to design procurement/tender processes that incorporate cost-reduction levers and innovative business models.
- Output 3.6: Capacity of winning tender bidders (private sector developers) strengthened to develop and implement innovative business models and cost-reduction levers.

**Component 4: Digital, knowledge management, monitoring and evaluation, and scale-up strategy**

This component focuses on integrating digital technologies into the management and monitoring of renewable energy projects. It aims to enhance knowledge sharing, improve transparency, and ensure efficient project implementation through digital tools and platforms. By collecting and analysing data, the project can track progress, optimize performance, and make informed decisions about scaling and replication. Additionally, the digital strategy will help raise awareness among stakeholders, facilitate knowledge exchange, and provide a platform for stakeholders to engage with one another. The digitalization of local mini-grids and energy markets is seen as an essential step for driving sustainable rural electrification. A successful digital

strategy will ensure better management of renewable energy systems, creating opportunities for scaling up and improving the effectiveness of rural electrification efforts. This component assumes that stakeholders, including local governments and private actors, are willing to adopt and use digital technologies. However, risks include insufficient digital infrastructure in rural areas or resistance to new digital solutions, which could slow the implementation of this component.

#### **Outcome 4: Increased awareness and network opportunities in the minigrids market and among stakeholders, and lessons learned for scaling up rural electrification using renewable minigrids.**

Outcome 4 will be achieved through the following outputs:

- Output 4.1: Lessons learned captured and disseminated at the national level
- Output 4.2: Replication plan (including investment plan) for scaling up rural energy access developed
- Output 4.3: Project Digital Strategy developed/implemented, and Quality Assurance Framework augmented and independent verification process in place for measuring, reporting and verification of the sustainable development impacts of MGs, including GHG emission reductions

Additionally, component 4 will serve as a knowledge management bridge between this Project and the Regional Program, and between this Project and other AMP national child projects.

#### **Monitoring and Evaluation**

In alignment with GEF-8 and UNDP POPP guidelines, Monitoring and Evaluation (M&E) activities under this grant will ensure continuous learning, adaptive management, and accountability throughout the project lifecycle. The M&E framework will include three key activities: (i) an inception workshop (Output 5.1), which will validate project strategies, finalize the results framework, and align stakeholder roles and responsibilities; (ii) systematic project monitoring (Output 5.2), leveraging UNDP's tools and methodologies to track progress against indicators, capture lessons learned, and inform adaptive management through regular reporting and oversight mechanisms; and (iii) mandatory mid-term and terminal project evaluations (Output 5.3), which will assess performance, outcomes, and sustainability, ensuring compliance with both GEF and UNDP standards. Further, the MTR and TE will include gender-specific results and track progress in the implementation of the gender Action Plan (GAP). These activities will be underpinned by a participatory approach, ensuring that all relevant stakeholders, including government agencies, civil society, and private sector partners, contribute to and benefit from knowledge generated through the project's implementation.

- Output 5.1: Inception workshop
- Output 5.2: Project monitoring
- Output 5.3: Project evaluations

#### **Global Environment Benefits**

It is expected that the project will generate 11,527 tCO<sub>2e</sub> direct lifetime emission reduction, and 69,160 tCO<sub>2e</sub> indirect emission reductions (top down). This calculation assumes that minigrids will be developed or

otherwise called up by this intervention, through new projects or the overlay of productive uses. More detailed calculations will be carried out at the PPG stage. The bottom-up indirect emission reductions will be calculated during the PPG stage.

### **Transformative approach to gender mainstreaming**

Another strategy at the heart of this project is its transformative orientation to gender. This approach goes beyond targeted actions based on gender and gives a central place to in the feminine gender in decision-making. A detailed gender analysis and gender action plan will be developed at the PPG stage. Nevertheless, the guidelines that will be used to ensure that gender is integrated across the project design are:

- To promote women's participation and decision-making by women, the project will integrate considerations of gender in the implementation of procedures that promote the empowerment of women through capacity building, participation in the low-carbon minigrids value chains;
- The project will adopt the following principles in the day- to- day management: (i) gender stereotypes will not be perpetuated; (ii) women and other vulnerable groups will be actively and demonstrably included in project activities and management whenever possible, and (iii) derogatory language or behavior will not be tolerated;
- The Project Manager will be the designated focal point for gender issues to support development, implementation, monitoring and strategy on gender mainstreaming internally and externally. UNDP will provide technical oversight on the gender action plan.
- For regular monitoring and evaluation of the project progress and reporting, the project will make use of gender-disaggregated indicators and will facilitate the involvement of women in the M&E and the implementation of Grievance Redress Mechanisms.

### **Stakeholder Engagement**

Further baseline and stakeholders' analysis will be performed during the PPG stage. This analysis will include the development of a stakeholder engagement plan (SEP). A gender analysis will be carried out at PPG stage and a country-specific gender action plan (GAP) will be formulated to ensure that gender-related energy access and gender participation in the project design and implementation are ensured.

<b>Stakeholder</b>	<b>Contributions</b>
Agence Burundaise de l'Électrification Rurale (ABER) Burundi Rural Electrification Agency	ANME is the agency responsible for the distribution of electricity. ABER was founded in 2011 by the Presidential decree N100/318 and operates under the responsibility of MINHEM. It owns and manages mini-grids and other forms of rural electrification.
Ministry of Hydraulics, Energy and Mines (MINHEM)	MINHEM is responsible for developing and implementing the energy sector policies, administering sector planning, and supervising state electricity and mining state enterprises. It is proposed to host the Project Management Unit (PMU), and to chair the Project Steering Committee (PSC). Also, ABER operates under its oversight. It will also play a key role in the implementation of Component 1 related to policy and regulatory framework and institutional arrangements for an appropriate governance framework for promoting renewables minigrids in Burundi.
L'Autorité de Régulation des secteurs de l'Eau Potable et de l'Energie (Burundian National Authority for Regulating the Electricity and Water Sector, AREEN)	AREEN is the regulatory agency for the electricity and water sector in Burundi (established in 2014 and reorganized in 2018). AREEN's principal mission is to ensure the transparent and profitable development of Burundi's water and electricity sector; control, regulate and monitor related activities to enforce the execution of contractual provisions, regulations, and specifications by sector operators; and implement, monitor and enforce rates in accordance with the set pricing principles.

Stakeholder	Contributions
Industry Association	The Burundi Renewable Energy Association (BUREA) is an NGO with more than 160 members and a network of over 100 technicians from all 18 provinces of the country, who are responsible for the installation and maintenance of renewable energy equipment. The association provides a platform for technicians to share their experiences and help each other. How-ever, its capacity to support the off-grid solar sector needs to be enhanced and strengthened.
Development partners (WB, DFID, EU)	Bilateral development partners are supporting different initiatives in Burundi. These partners will be involved in the project through coordination with those baseline initiatives, few of which are listed below. The incremental logic of the GEF will be applied to ensure that barriers are removed all the while in a complementary and synergistic manner to parallel initiatives.
Civil Society Organisations / Local Associations	Associations, including women’s groups and leaders, play a central role in local community development initiatives. There are associations focused on several areas of relevance to the project including environmental, energy, cultural and women. They will want to play an active role in tracking and providing input into the implementation of the project outcomes. The Local Associations / Civil Society Organisations will play a key role in communicating with local citizens on relevant aspects of the project. This cohort of stakeholders will be engaged in dialogues during the PPG stage for inclusiveness in project design, implementation monitoring and evaluation.
Training institutions / programmes	During PPG stage, technical and vocational training institutions will be engaged to define human training and skill development requirements for promoting solar PV minigrids. The training programmed will build on the experience of ENABEL as well as the ongoing Burundi Youth Skills and Employability Project and will be done incrementally against the realization of the project SOLEIL-Nyakiriza of the World Bank.
Private sector	<p>The proposed project seeks to develop public-private partnerships (PPPs) for the installation of renewable energy minigrids for energy/electricity generation. At the conceptual stage, it is expected that at least 60% of CAPEX will be private investments (with up to 40% investments made using GEF financing). The Electricity Law of 2015 supports public-private partnerships in the electricity sector. The example of Aptech Africa Ltd was given in Section A.</p> <p>The involvement of the private sector in the AD value chain will adhere to UNDP's policies, procedures, and instruments. Also, Private Sector Due Diligence will be carried out during the PPG stage.</p>

## **Knowledge management and Learning strategy**

Outcome 4 seeks to capture and disseminate lessons learned and best practices within Burundi. Lessons learned and good practices on gender-transformative approaches and gender-specific results will also be captured and widely disseminated. This Outcome will also develop a replication strategy and action plan for scaling up the private sector led business model in other regions of Burundi. The project will also capitalise on and promote South-South cooperation through participation exchanges with the regional AMP project, and bilaterally with AMP child projects. During PPG stage, the regional AMP project will be engaged to see whether Burundi may participate in its Community of Practice and its technical cohorts (at its own expenses). The project will support the adoption and operationalization of an augmented Quality Assurance Framework (QAF) that will integrate a MRV mechanism for GHG emission reductions and a SDG Impact Framework for measuring the impacts of investments in solar PV minigrids on the SDGs. Further, it is planned to apply the UNDP’s approach of derisking investments in renewable energies (DREI) under Component 1; and the results of which will be used to inform the design of a Rural electrification strategy

and investment plan. The derisking approach is also a central part of the ToC underlying the proposed project. This has been done so that the design of the project is aligned with the objectives of the regional AMP project.

The project will develop several knowledge products under Component 4. The target audience for each knowledge product will be as follows:

- **Lessons learned report:** This report that will capture lessons learned across all project outcomes will be applicable to a broad range of audiences, namely public, private organisations and off-grid communities that are interested in using a private sector led model for enabling commercially viable use of solar PV minigrids for rural electrification. This knowledge product will be useful for replication and scaling up investments in solar PV minigrids in Burundi and elsewhere in the world;
- **Replication Plan:** The replication plan will make use of the lessons learned to develop a road map for scaling up private investments in solar PV minigrids using innovative approaches in business delivery models and financing. Hence, it will be useful for guiding public electrification policy and strategy; providing guidance to private investors in terms of market potential; and rural communities in terms of future off-grid electrification perspectives. The replication plan will be used to develop a bankable GCF concept note (Component 2) for scaling-up international climate finance for the rural electrification of Burundi;
- **Linkage with the regional AMP project:** Although the proposed project is not part of the regional AMP project, it will nevertheless have a bidirectional relationship with it from the perspective of knowledge management.

**Policy coherence:** Section C details the coherence of the project with national and sub-national policies, strategies and action plans.

## **Innovation/Transformation**

The project's primary innovation is its extensive focus on cost-reduction and business model innovation to reduce minigrid cost, with the overall aim to increase the affordability of renewable electricity to off-grid markets. Since off-grid market development cannot be met solely through public investments and development aid, a more sustainable approach is to involve private sector participation in off-grid electrification using solar PV minigrids. Reductions in financing costs is underlined by the Theory of Change (Figure 1) that proposes to reduce, eliminate or transfer the investor's risks using appropriate derisking instruments, thereby reducing the investor's cost of capital (equity and debt). Further, increased capacity utilization resulting from more predictable loads from productive uses (e.g. agriculture and commercial activities) will reduce the levelized cost of electricity. This cost reduction can be translated into reductions in hardware costs per unit of renewable electricity generated.

The project will invest in pilots to test the ToC to then propose commercially viable business models for solar PV minigrids that will then be subject to scaling up discussed below. Another feature of innovation is to increase the capacity to pay of end-users by providing economic opportunities in the form of income-generating activities for local communities. The combined effects of decreasing electricity costs and improved economic conditions will be the increased affordability and capacity to pay for renewable electricity by end users. In a derisked investment environment, the increasing demand driven by low cost

of electricity will catalyze further investments in renewable minigrids thereby creating a virtuous circle for scaling up investments and contributing to higher levels of rural electrification.

[1] Sustainable Energy for All, Beyond Connections: Energy Access Redefined (Introducing Multi-Tier Approach to Measuring Energy Access); <https://www.seforall.org/sites/default/files/Beyond-Connections-Introducing-Multi-Tier-Framework-for-Tracking-Energy-Access.pdf> - accessed 17 June 2020.

[2] Notes of Meeting of the stakeholder meeting held on 31 December 2024 to identify project sites (provided by the UNDP CO).

## **Coordination and Cooperation with Ongoing Initiatives and Project.**

Does the GEF Agency expect to play an execution role on this project?

If so, please describe that role here. Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing

### Implementation framework

This project will be implemented under UNDP National Implementation Modality 'NIM'. A Project Management Unit (PMU) will be recruited and hosted by the Ministry of Hydraulic, Energy and Mines (MINHEM) that will be the Implementing Partner. UNDP will be responsible for overseeing project execution undertaken by the Implementing Partner to ensure that the project is being carried out in accordance with UNDP and GEF policies and procedures and the standards and provisions outlined in the Delegation of Authority (DOA) letter for this project. UNDP will also provide quality assurance of this project and ensures its timely implementation in compliance with the GEF-specific requirements and UNDP's Programme and Operations Policies and Procedures (POPP), its Financial Regulations and Rules and Internal Control Framework. A representative of the UNDP Country Office will assume the assurance role and will present assurance findings to the Project Steering Committee (PSC). UNDP will also be responsible for the Project Assurance role of the Project Steering Committee (PSC). The project will be implemented under the oversight of a PSC that will be chaired by MINHEM.

The project stakeholders and target groups will be the cohort of stakeholders identified above. The full list of project stakeholders and target groups will be identified at PPG during the elaboration of the Stakeholder Engagement Plan (SEP). The involvement of the key stakeholders in project management will be organized through technical working groups (TWGs) for Components 1, 2 and 3, with the selection of stakeholders based on their roles and mandates. The composition of the three TWGs will be determined at PPG. All project stakeholders will be involved in the implementation of Component 4, as well as in project monitoring & evaluation. The direct participation of stakeholders in project implementation will increase national ownership of the project.

### Coordination with parallel initiatives

The number of functioning mini grids still limited in Burundi. Initiatives to support the minigrids investments for communities living in remote areas far from the national grid are still limited and below are some initiatives that have been recently developed.

- Gigawatt Global in collaboration with among others GET. Invest Finance Catalyst, Renewable Energy Performance Platform (REPP) has officially inaugurated the country's first utility-scale

solar field, as part of push to leverage renewable energy for improved access to electricity for homes and businesses. The grid-connected 7.5MW solar power plant, located near the political capital in Gitega/Mubuga, became operational in 2021. It has since then provided more than 10% of Burundi's electricity.

- This first IPP will provide electricity to about 87.000 peoples and enterprises during a 25 years' agreement of selling the electricity via the Regideso; SESMA Burundi concluded an agreement with the Government for the management of four solar off grid electricity installed at Ndava/Ryansoro (25Kw), Gatereni/Gitanga (50 kW), Buheka (25 kW) and Kazirabageni/Nyanza-Lac (50 kW);
- Songa Energy Burundi develops, builds, owns, and operates two grid-connected hydropower plants in south-central Burundi on the Upper Ruvyironza River (1.65 MW) and the Upper Mulembwe River (9.0 MW). Construction began on the hydropower plants in 2023, with the first power to be delivered onto the Burundi national grid by the end of 2024. They are a subsidiary of Azana Electric Group;
- Anzana Electric Group, formerly known as Virunga Power, has embarked on an ambitious rural electrification initiative in Burundi, aiming to significantly enhance electricity access across the nation. In partnership with the Government of Burundi, Anzana plans to mobilize approximately \$1.4 billion to increase the national electricity access rate from the current 12% to over 70% by 2030;
- The project "UMUCO WITERAMBERE", the component dedicated to renewable energies of the vast Program in Support of the Resilience of Burundi Populations, was funded by the EU and UNDP. This component helped to set up 11 Mini- grids covering 5 provinces in Burundi with 9 Mini- grids having a capacity of 34.88kWp each and a battery bank storage of 254.4kWh each, 2 mini- grids have a capacity of 17.44kWp each and a battery bank storage of 129.6kWh each. The mini- grids also included a Low Voltage distribution line;
- World Bank funded project Soleil Nyakiriza along with the Accelerating Sustainable & Clean Energy Access Transformation Program Using the Multiphase Programmatic Approach; and
- World Bank's Accelerating Sustainable and Clean Energy Access Transformation (ASCENT) regional initiative, which supports the delivery of electricity access to 100 million people in Eastern and Southern Africa by 2030. ASCENT is expected to benefit an estimated 2.4 million people, 1,200 public institutions, and 6,000 small- and medium-sized enterprises and industries with new or improved access to electricity. The ASCENT Burundi Project will support the Government of Burundi's (GoB) Universal Access Program, launched in 2023 and will reinforce the medium voltage network across the country while rehabilitating, modernizing, and expanding Bujumbura's distribution network for grid electrification in peri-urban and rural areas. The project will adopt the Public-Private partnership modality with the private actor being Weza Power;
- The Article 6 Group is an initiative leveraging carbon finance under the Paris Agreement to raise \$150 million for climate mitigation projects, including renewable energy development in Burundi. This funding supports Burundi's goal of reducing greenhouse gas emissions by 23% by 2030 through investments in solar and hydropower projects, decreasing reliance on biomass. By generating tradable carbon credits, the initiative attracts international investment, fostering sustainable energy access and economic growth in Burundi.

These initiatives would help to set the stage for the promotion of private investments in the sector. There are multiple ways in which the proposed GEF project will coordinate with the above initiatives while noting

that further analysis will be carried out at PPG stage to ensure synergies and complementarity. The preliminary ways in which coordination with parallel initiatives will be carried out are:

- 1) The UNDP DREI framework quantifies the impact of private sector investor risks on the LCOE of renewable minigrids. For applying the DREI methodology under Component 1, there is need for participation of private investors (actual and potential) in DREI interviews. Hence, the private actors participating in the parallel initiatives will be invited to contribute to the DREI minigrid study in Burundi;
- 2) Although the parallel initiatives aim to deploy derisking instruments, they do not provide a quantification of private sector investment risks and its impacts on project financial viability. Hence, the proposed project will be complementary to the parallel initiatives;
- 3) Importantly, the project stands to gain much at PPG stage by drawing lessons learned from the parallel initiatives, especially those relevant to off-grid electrification like the Solar Energy in Local Communities Project and project “UMUCO WITERAMBERE”, among others. This will be done to capitalize on existing knowledge and to avoid duplication; and
- 4) As far as practicable, and upon discussions with the Implementing Partner, to adopt (or piggybacking) on existing institutional arrangements like that proposed for the Solar Energy in Local Communities Project to consolidate institutional and human resources, and to avoid stakeholder fatigue. It is pointed out that the Solar Energy in Local Communities Project is also implemented by MINHEM with strong involvement of ABER – i.e. like the proposed GEF project.

## Core Indicators

### Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>	11527	0	0	0
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>	69160	0	0	0

### Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>				
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>				
<b>Anticipated start year of accounting</b>				
<b>Duration of accounting</b>				

### Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>	11,527			
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>	69,160			
<b>Anticipated start year of accounting</b>	2027			
<b>Duration of accounting</b>	20			

### Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
<b>Target Energy Saved (MJ)</b>				

**Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)**

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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**Indicator 11 People benefiting from GEF-financed investments**

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Female</b>	19,487			
<b>Male</b>	19,253			
<b>Total</b>	<b>38,740</b>	<b>0</b>	<b>0</b>	<b>0</b>

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

**GHG Emissions Mitigated**

Direct: The following steps were applied:

1. Annual production (kWh): The annual production for solar PV were calculated using the production coefficients given in the feasibility study carried out by GET. Invest for a 100-kW hybrid solar PV-hydro minigrid in Burundi. The factors are 1,351 kWh/kWp/yr for solar PV. For 540 kWp solar PV, we get an annual production of 3,685,800 kWh/yr;
2. Technology lifetime: The lifetime of electro-mechanical equipment is taken to be 20 years<sup>25</sup>. Hence, the lifetime production is 73,716 MWh;
3. Baseline alternative technology: It is assumed that in the absence of the GEF project, an equivalent amount of electricity will be produced annually. The emission factor for thermal generation is taken to be 0.79 tCO<sub>2</sub>/MWh.

Indirect: The top-down indirect emissions mitigated were estimated by applying a multiplier of 6 to the direct lifetime emissions reductions. At this PIF stage it is recognized that further analysis in respect of the indirect emissions to be mitigated by the project will have to be undertaken during the PPG stage. At the PPG stage the project will consider Indirect emissions reductions that could result from a broader adoption of the outcomes of a GEF project plus longer-term emission reductions from behavioral change in the post-project period. Broader adoption of a GEF project proceeds through several processes including sustaining, mainstreaming, replication, scaling-up and market change. For the purpose of estimating greenhouse gas (GHG) emissions reductions (ER), detailed assumptions will be made at the PPG stage in terms of what level of concessionality would be applied to the use of GEF INV funds to support minigrid pilots (defined in terms of a percentage of capital expenditure costs (CAPEX) to be covered by GEF INV. In view of this the indirect impacts will be detailed during PPG stage using the bottom-up approach developed by the AMP.

Beneficiaries: It is estimated that 6,500 households will be connected to the renewable minigrids. To avoid double counting, it is assumed that the beneficiaries of schools, health centers and economic activities that will be electrified by renewable minigrids will come from beneficiary householders. The following parameters were then applied: (i) average number of persons per household = 5.96 ; and (ii) the male to female ratio = 0.988:1.

**Key Risks**

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Moderate	The impact of climate change on project installations is considered moderate, due to increased exposure to extreme weather events such as intense rainfall, flooding, landslides, and prolonged dry spells — all of which could affect the stability, performance, and maintenance requirements of solar minigrid infrastructure. While solar minigrids are generally more climate-resilient than hydroelectric systems, their vulnerability to climate-induced physical damage and access issues, particularly in remote and poorly connected rural areas, cannot be overlooked. To address these risks, the project will implement climate-resilient design measures, including robust site selection, elevated mounting structures, improved drainage systems, and reinforcement of installations. Maintenance protocols and early warning systems will also be developed to support system resilience and rapid response in the event of climate-related disruptions. These proactive measures aim to minimize service interruptions and protect long-term system sustainability in the face of an increasingly variable climate.
Environmental and Social	Substantial	Environmental and social risks are rated as substantial based on the pre-SESP Key risks including potential impacts on biodiversity, community health and safety from hazardous materials (e.g., batteries, e-waste), and moderate risks of displacement (physical and economic). Gender-based violence (GBV) and exclusion of vulnerable groups are additional concerns. In alignment with the World Bank Group’s FY25 classification of Burundi as a country experiencing institutional and social fragility, the project will prioritize identifying and mapping the most vulnerable populations in project areas, including women, youth, persons with disabilities, and indigenous groups such as the Batwa. These considerations will be explicitly addressed during the PPG phase through: 1. A comprehensive Gender Analysis 2. A Stakeholder Engagement Plan (SEP) 3. A targeted Vulnerability Assessment to ensure that risks related to exclusion, GBV, and social fragility are adequately captured and mitigated. The results will inform the Environmental and Social Management Framework (ESMF) and related safeguard instruments (e.g., GAP, RAP if required).
Political and Governance	Substantial	The level of democratic processes in the country is not high. This is reflected by the high levels of social dissatisfaction with local politics. In the past few years, there has also been a trend for more centralization of decision-making, implying the decreasing autonomy of regional and local governments. The situation is dynamic and will require close monitoring. Changes in the governance arrangements can be subsumed in the overall sovereign risk and which can be taken into account in the DREI analysis that will be carried out under Output 1.1. UNDP’s DREI methodology considers the impact of sovereign risk on financing costs, and it also proposes financial derisking through the use of Political Risk Insurance (PRI). Based on the results of DREI analysis, such financial derisking instrument can be assessed under Related to the political and governance risk is the ongoing war in the eastern DRC, considering that Burundi is sharing boundaries with DRC, the ongoing war will continue to have impacts on Burundi. A detailed consideration or assessment of the impact of the ongoing war will be assessed during the PPG

		stage and an appropriate risk mitigation and adaptative mechanism put in place to address any further impacts on the project.
INNOVATION		
Institutional and Policy	Moderate	With UNDP support from the closing project, Government reviewed its legal framework in order to stimulate the private investments in the sector: (i) Law N°. 14 of April 27, 2015 on the general regime of public-private partnership contracts establishes and procurement, guidelines for PPP contracts, (ii) Decree N°. 100/130 of June 23, 2016, relating to the reorganization of transport, distribution and marketing of electricity,(iii) Decree N°. 100/132 of June 23, 2016 on the procedure for developing a production plant for exclusive and commercial use.
Technological	Low	Solar PV minigrids are already operational in Burundi, and there is private sector capacity for designing and installing these minigrids. The project will strengthen the technology landscape by domestication of international standards for technology and equipment quality assurance.
Financial and Business Model	Substantial	A fully private sector model for minigrids will be under a build, own, operate (BOO) financial and business model. Whereas there is private sector capacity for building minigrids, there is little experience with owning and operating minigrids in rural areas profitably. To mitigate this, GEF investments will be used to provide up to 40% subsidy on CAPEX. Further, policy and financial derisking instruments will be tested for lowering the LCOE of electricity using UNDP's DREI methodology.
EXECUTION		
Capacity	Low	The World Bank project SOLEIL-Nyakiriza rates the risk associated with the technical capacity for implementation of public institutions in the electricity sector as Substantial. However, given that the public institutions have received institutional capacity strengthening from several parallel initiatives, the risk has been rated low. On the other hand, UNDP conducted the Partner Capacity Assessment Tool (PCAT) which results on low risk.
Fiduciary	Low	UNDP conducted the Partner Capacity Assessment Tool (PCAT) which results on low risk.
Stakeholder	Moderate	Based on the Theory of Change, the key to project success is the participation of private sector in the renewable minigrids value chain. The participation of private operators is favorable given the conducive legal framework. However, there is limited experience with the business model for owning and operating minigrids. This shortcoming will be mitigated through the application of policy and financial derisking instruments under Components 1 and 2 of the proposed project. Financial sustainability that is crucial with the build, own, operate business model will be ensured through GEF grant contribution in the capital structure of investments.

Other	Substantial	The macroeconomic conditions prevailing in the country cannot be influenced by the proposed project. Yet, macroeconomic conditions, including monetary policy that will influence inflation and foreign exchange rates will certainly impact the LCOE of the electricity produced by minigrids, and, hence, the affordability. The project will adopt the UNDP DREI methodology and propose policy and financial derisking instruments for promoting private investments in minigrids.
Overall Risk Rating	Substantial	Overall Risk Rating is substantial. During PPG stage, mitigation measures will be proposed.

### C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Describe how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how. (max. 500 words, approximately 1 page)

#### Alignment with GEF-8 Programming Strategies and Burundi's Regional Priorities

The proposed interventions are strongly aligned with the GEF-8 programming strategies, which emphasize integrated approaches to sustainable development, innovation in renewable energy, and addressing global environmental challenges through local actions. These strategies prioritize climate change mitigation, promoting clean energy access, and fostering private sector investment in sustainable technologies—objectives that directly resonate with the goals of the project.

In particular, the project fits under ‘Pillar I: Promote innovation, technology development and transfer, and enabling policies for mitigation options with systemic impacts’ of the GEF-8 Climate Change focal area strategy and supports its ‘Objective 1.2: Enable the transition to decarbonized power systems’.

Specifically, the interventions under the Innovative Business-Based Models and Financial Scale-Up with Private Sector component support GEF-8’s focus on enhancing innovation in energy systems and promoting private sector-driven climate solutions. By facilitating the development of innovative financing mechanisms, reducing the costs of renewable energy technologies (minigrids), and strengthening local financial and technical capacities, the project aligns with GEF-8’s strategy to scale-up renewable energy access and reduce financial barriers to clean energy projects. Accompanying these measures, the project will also support streamlined regulatory processes, integrating productive uses to drive demand, and strategize the integration of renewable energy minigrids in the agricultural values chains.

Similarly, the Electrification of Social Infrastructure and Equipment component contributes to GEF-8’s emphasis on building climate resilience in underserved areas by improving access to clean energy for critical sectors like education, health, and local economic development by giving due attention to women’s roles in these areas. Electrifying hospitals, schools, and markets with renewable energy solutions directly contributes to climate adaptation, socioeconomic development, and climate resilience—key priorities under GEF’s strategy for Integrated Landscape Management and Energy Access.

#### Alignment with Burundi's National and Regional Priorities

The proposed project is aligned with and support implementation of the following national policies and strategies:

**Burundi Vision 2040-2060**<sup>[1]</sup> sets the general orientation of Burundi. It states:<sup>[2]</sup> ‘Burundi Vision emerging country in 2040 and developed country in 2060’. The overall objective will be to enhance living condition (wellbeing) and reducing inequalities. The HDI is projected to be 0.5 in 2040 and 0.7 in 2060; per capita GDP increasing from USD 353.7 per inhabitant (2021) to USD 2,000 per inhabitant (2040) to USD 4,500 per inhabitant (2060).

The motor of change will be a combination of public action and development of the private sector, while capitalizing on the countries assets and resources. One key objective (Objective 4) of the Vision is ‘to increase production and enhance access to energy’. From a wealth and a job creation perspective, Objective 3 seeks ‘to develop agriculture as a vector of wealth and assuring food security’. Productive energy uses in agriculture is needed for wealth creation, generation of jobs and for poverty alleviation. Objective 4 will also have positive effects on access to education and literacy, health services, potable water and increased mobility (persons and goods); all of which comprise development objectives of Vision 2040-2060. Using renewables energies will ensure that Vision 2040-2060 is achieved while respecting the environment. The key energy performance indicators of the Vision are given in Table 2. Vision 2040-2060 also seeks to avoid GHG emissions in the order of 15,381 ktCO<sub>2e</sub> in 2040.

Table 2. energy performance indicators:2040-2060

Indicator	Baseline	2040	2060
Electricity access rate (% of population)	22.6 (2020)	100	100
Renewable energy utilisation rate	19.79 (2022)	68.98	63.16
Grid electricity access (% of population)	9.1 (2020)	80	95
Rural households connected to the grid (number)	288,592	2,817,657	4,230,430
Renewable energies in the electricity mix (%)	67 (2022)	77	92

Source: Burundi Vision 2040-2060

The proposed project is squarely aligned with Strategic Orientation 1 (Catalyzing sectors with growth potential) of the **National Development Plan reviewed 2023-2027**. In particular, it supports implementation of Axis 2 – development of energy infrastructures, including the following Strategic Objectives: (i) SO 1: Rationally exploiting hydroelectric and solar potential, peat, municipal waste and geothermal resources; (ii) SO 3: Promoting renewable and alternative energies; and (iii) SO 4: Improving the management capacities of the energy sector. [\[3\]](#)<sup>1</sup>

Burundi’s **Nationally Determined Contribution (NDC)** under the Paris Agreement highlights a strong commitment to reducing emissions, particularly through the development of renewable energy sources. This aligns with the project’s goals of reducing greenhouse gas emissions by scaling up renewable energy solutions. In the updated NDC, total emissions (including FOLU) would increase to 9,082 ktCO<sub>2e</sub> in 2030 under the baseline-as-usual (BAU) scenario, compared to 5,193 ktCO<sub>2e</sub> in 2020. Leaving out FOLU, the BAU values are 6,070 ktCO<sub>2e</sub> and 6,855 ktCO<sub>2e</sub> in 2020 and 2030, respectively. The unconditional emissions reductions for the energy industries and land transport in 2030 are expected to be 72.22 ktCO<sub>2e</sub> and 136.4 ktCO<sub>2e</sub>, respectively. The bulk of emissions reductions in the power sector are from on-grid and off-grid renewable energies, with the latter mainly from solar PV. While the unconditional emissions reductions will be 3.04% relative to the BAU in 2030, the conditional contributions will result in 13% reductions relative to the BAU in 2030. The second [\[4\]](#) largest contributor is the energy sector with 343.72 ktCO<sub>2e</sub> avoided emissions. In effect, it is the conditional part of the updated NDC that the proposed project will assist. The specific conditional actions relevant to the proposed project are:

- Promote renewable energies in rural areas through the solar projects Nyakiriza et Umuco w’iterambere
  - installation of solar PV minigrids in 48 rural areas (15.07 MW)
    - installation of 17 multiservice solar platforms
- Construction and equipment for assembly and production of solar panels for an output of 12MWp/year
- 27 villages of peace electrified with solar PV

The **Policy Framing Document for the Environment, Agriculture and Livestock** (Document d'orientation de la politique environnementale, agricole et d'élevage)<sup>[5]</sup>, provides a vision for the protection of the environment, and particularly the fight against climate change through the deployment of renewable energy sources, among others, and building resilience against climate risks.

Additionally, Burundi is a member of the East African Community (EAC) and the Nile Basin Initiative, both of which emphasize regional cooperation for energy access and climate resilience. By promoting cross-border knowledge-sharing and regional partnerships in renewable energy, the project aligns with regional goals for energy infrastructure development and climate change mitigation.

#### Relation to Multilateral Environmental Agreements (MEAs)

The proposed interventions are also aligned with several multilateral environmental agreements (MEAs), including:

- The Paris Agreement on Climate Change: The project contributes to climate mitigation goals by scaling up renewable energy solutions, reducing reliance on biomass, and decreasing carbon emissions in line with Burundi's updated NDC targets as described above;
- The Convention on Biological Diversity (CBD): The project supports sustainable development by promoting low-carbon technologies that reduce environmental degradation and biodiversity loss, especially in rural areas where deforestation is prevalent;
- The United Nations Convention to Combat Desertification (UNCCD): Through improving energy access in rural areas, the project also addresses land degradation by reducing the dependence on biomass for cooking, thus reducing pressure on local forests and contributing to sustainable land management.

#### Addressing Potential Policy Conflicts

Regarding potential policy conflicts in Burundi, no direct contradictions with the intended outcomes of the project have been identified. However, policy implementation gaps related to renewable energy and private sector engagement could pose challenges. Bureaucratic delays, lack of capacity at the local level, and regulatory uncertainty may hinder the project's progress.

To address these risks, the project will work closely with national and local governments to align with existing policies, assist in capacity-building for policy implementation, and advocate for a transparent regulatory framework. Additionally, the project will support stakeholder dialogues to ensure the alignment of policies at the local, national, and regional levels, thus mitigating potential risks related to policy misalignment.

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[1] [https://vision-burundi.gov.bi/uploads/documents\\_download/Vision\\_BPE2040&PD2060\\_Francais.pdf](https://vision-burundi.gov.bi/uploads/documents_download/Vision_BPE2040&PD2060_Francais.pdf) - accessed 29 November 2024.

[2] The original Vision is: *la Vision Burundi pays émergent en 2040 et pays développé en 2060*.

[3] République du Burundi (2021) Contribution déterminée au niveau national 2020 – Annexe 1.

[4] **The largest contributor is agriculture with 520 ktCO<sub>2e</sub> avoided emissions.**

[5] République du Burundi (2020) Document d'orientation de la politique environnementale, agricole et d'élevage ; <https://bi.chm-cbd.net/sites/bi/files/2021-08/doc-orientat-politiq-environnem-agricol-elevag-burundi.pdf> - accessed 9 December 2024.

## D. POLICY REQUIREMENTS

### Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

## Stakeholder Engagement

We confirm that key stakeholders were consulted during PIF development as required per GEF policy, their relevant roles to project outcomes and plan to develop a Stakeholder Engagement Plan before CEO endorsement has been clearly articulated in the Project Description (Section B).

Yes

### Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities: Yes

Civil Society Organizations: Yes

Private Sector: Yes

### Provide a brief summary and list of names and dates of consultations

#### IPLC Consultation Summary

Indigenous Peoples and Local Communities (IPLCs) expressed strong support for the project, recognizing its potential to improve their livelihoods. They appreciated the inclusive consultation process and confirmed their willingness to participate in implementation.

#### Key recommendations:

- Ensure meaningful participation of IPLCs at all stages, in line with Free, Prior and Informed Consent (FPIC).
- Include IPLC representatives in project governance structures.
- Develop income-generating activities that address the specific needs of IPLCs.

#### Private Sector and civil society organization Consultation Summary

During the consultation, participants expressed interest in being involved in project implementation. The Ministry of Energy representative highlighted potential synergies between the project and ongoing private sector initiatives. The UNDP representative encouraged Burundian private companies to respond to upcoming tenders for mini-grid installation and equipment procurement, and to take part in project-supported capacity-building activities.

#### Key points and recommendations:

- The workshop identified opportunities for **synergies**, including:
  - The **Nyakiriza Solar Project** (IDA-World Bank), with \$44 million allocated to electrify health centers and provide solar kits.
  - The **Rural Electrification of 2000 Hills Project** led by **WEZA POWER**, a \$1.4 billion PPP with a \$60 million pilot phase underway.

- KAze Green Economy is investing in clean energy cooking with \$13,650,000

- The project could provide **technical assistance to the Ministry of Energy** to help revitalize the energy sector working group, fostering better coordination among stakeholders.

(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

### Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

### Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

### Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
High or Substantial			

## E. OTHER REQUIREMENTS

### Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described in the Project Description (Section B)

Yes

## ANNEX A: FINANCING TABLES

### GEF Financing Table

#### Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant(\$)	Agency Fee(\$)	Total GEF Financing (\$)
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UNDP	GET	Burundi	Climate Change	CC STAR Allocation: CCM-1-2	Grant	4,863,699.00	462,051.00	5,325,750.00
<b>Total GEF Resources (\$)</b>						<b>4,863,699.00</b>	<b>462,051.00</b>	<b>5,325,750.00</b>

### Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount (\$)

150000

PPG Agency Fee (\$)

14250

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non- Grant	PPG(\$)	Agency Fee(\$)	Total PPG Funding(\$)
UNDP	GET	Burundi	Climate Change	CC STAR Allocation: CCM-1-2	Grant	150,000.00	14,250.00	164,250.00
<b>Total PPG Amount (\$)</b>						<b>150,000.00</b>	<b>14,250.00</b>	<b>164,250.00</b>

Please provide justification

### Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total(\$)
UNDP	GET	Burundi	Climate Change	CC STAR Allocation	2,000,000.00
UNDP	GET	Burundi	Land Degradation	LD STAR Allocation	3,490,000.00
<b>Total GEF Resources</b>					<b>5,490,000.00</b>

### Indicative Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing(\$)	Co-financing(\$)
CCM-1-2	GET	4,863,699.00	23300000

<b>Total Project Cost</b>		<b>4,863,699.00</b>	<b>23,300,000.00</b>
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### Indicative Co-financing

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	UNDP	Grant	Investment mobilized	500000
GEF Agency	UNDP	In-kind	Recurrent expenditures	800000
Recipient Country Government	Burundi Rural Electrification Agency	Grant	Investment mobilized	1500000
Recipient Country Government	Burundi Rural Electrification Agency	In-kind	Recurrent expenditures	2500000
Recipient Country Government	Ministry of Hydraulics, Energy and Mines	Grant	Investment mobilized	1500000
Recipient Country Government	Ministry of Hydraulics, Energy and Mines	In-kind	Recurrent expenditures	2000000
Private Sector	KAze Green Economy and its partners	Loans	Investment mobilized	13650000
Civil Society Organization	Burundi Renewable Energy Association	In-kind	Recurrent expenditures	350000
Recipient Country Government	Burundian National Authority for Regulating the Electricity and Water Sector, AREEN	In-kind	Recurrent expenditures	500000
<b>Total Co-financing</b>				<b>23,300,000.00</b>

Describe how any "Investment Mobilized" was identified

The co-financing characterized as investment mobilized under this project refers to direct financial contributions from partners that are newly committed and mobilized as a result of the GEF project's design and its associated enabling environment, rather than pre-existing or baseline funding. Specifically, this includes:

UNDP will contribute \$500,000 in grant funding mobilized to support technical assistance, policy dialogue, and capacity-building activities, particularly to leverage innovative business models and de-risking strategies that complement the GEF investment.

Ministry of Hydraulic, Energy and Mines and Burundi Rural Electrification Agency will contribute to the project's implementation by resources mobilization through other ongoing projects and by providing materials and staff support. They will provide \$1,500,000 in grant funding aimed at supporting infrastructure development, co-financing the implementation of pilot minigrids,

and contributing to enabling public-private partnerships. This has already been discussed with them as part of this project. On the other hand, they mobilize \$1,500,000 in grant resources to strengthen the institutional and regulatory framework for rural electrification and support project oversight and policy development. This has already been discussed with them as part of this project.

Burundian National Authority for Regulating the Electricity and Water Sector will contribute in assistance support by providing staff for capacity building and law dissemination and application control.

Private sector like KAze Green Economy and its partners and NGO such as Burundi Renewable Energy Association co-finance through other ongoing projects.

## ANNEX B: ENDORSEMENTS

### GEF Agency(ies) Certification

GEF Agency Type	Name	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	UNDP	4/14/2025	Nancy Bennet, Executive Coordinator		nancy.bennet@undp.org
Project Coordinator	UNDP	4/14/2025	Stephen Kansuk, Regional Technical Advisor		stephen.kansuk@undp.org

### Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name	Position	Ministry	Date (MM/DD/YYYY)
Eng. Emmanuel Ndorimana	Permanent secretary of Environment and GEF OFP	Ministry of Environment, Agriculture and Livestock	4/10/2025

## ANNEX C: PROJECT LOCATION

Please provide geo-referenced information and map where the project interventions will take place

**Geographical location:** The geographic location was confirmed during a multistakeholder meeting on 13 December with the government and civil society. Participants were presented with two studies done by an external consultant that considered geospatial least cost generation planning. These studies analyzed multiple sites that were then narrowed down to 3 solar mini grid sites and 1 hydroelectric site by considering the social and economic benefits for the nation.

The siting of potential off-grid minigrids in Burundi are shown in Figure 2.

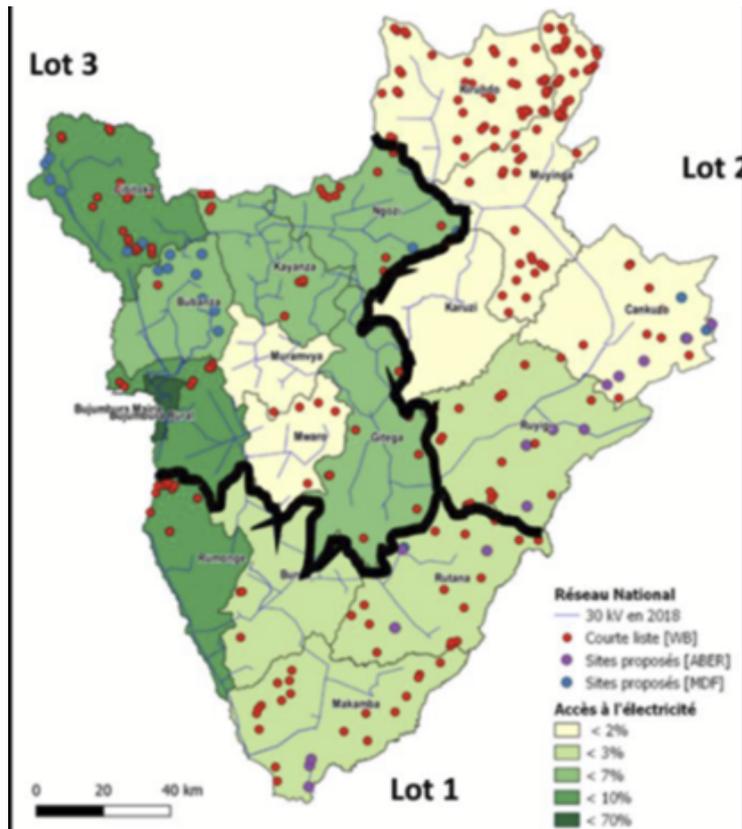


Figure 2. Geolocation of potential minigrid sites in burundi (Source: World Bank)

The 4 sites planned for solar PV minigrids in the proposed project are:

Table 3. Location of Solar PV minigrid Sites

Site Name	Province	Commune	Hill	Installed capacity	Geo-coordinates
Gatamba	Karuzi	Gihogazi	Mugogo	80 kW	-3.0709 ; 29.96656
Mugeni Sud	Burunga	Kayogoro	Mugeni	80 kW	-2.75549 ; 29.93391
Muhuzu	Rumonge	Rumonge	Muhuzu	80 kW	-3.38988 ; 29.60398
Muhwazi	Buhumuza	Ruyigi	Nyabitsinda	300 kW	-3.63249 ; 30.25161

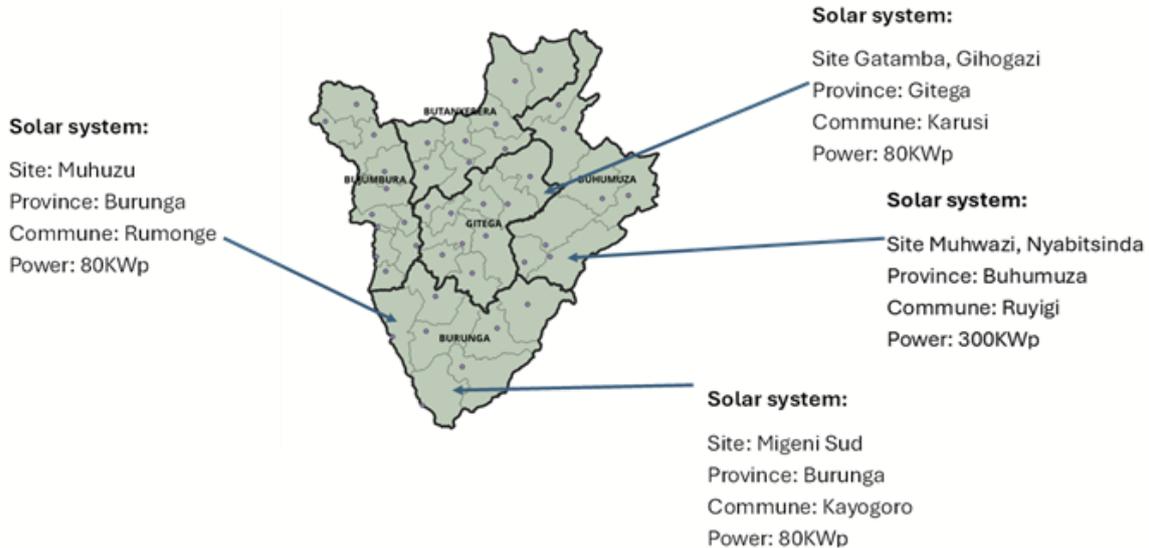


Figure 3. geolocation OF MINIGRID sites (Source: UNDP)

#### ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title

PIMS9747\_UNDP Pre-SESP\_Final Version\_22Apr2025

#### ANNEX E: RIO MARKERS

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Principal Objective 2	No Contribution 0	No Contribution 0	No Contribution 0

#### ANNEX F: TAXONOMY WORKSHEET

Level 1	Level 2	Level 3	Level 4
x Influencing models			
	x Transform policy and regulatory environments		
	x Strengthen institutional capacity and decision-making		
	x Convene multi-stakeholder alliances		
	x Demonstrate innovative approaches		

	<b>x Deploy innovative financial instruments</b>		
<b>x Stakeholders</b>			
	<b>Indigenous Peoples</b>		
	<b>x Private Sector</b>		
		x Capital providers	
		x Financial intermediaries and market facilitators	
		x Large corporations	
		x SMEs	
		x Individuals/Entrepreneurs	
		Non-Grant Pilot	
		Project Reflow	
	<b>x Beneficiaries</b>		
	<b>x Local Communities</b>		
	<b>x Civil Society</b>		
		x Community Based Organization	
		x Non-Governmental Organization	
		Academia	
		Trade Unions and Workers Unions	
	<b>x Type of Engagement</b>		
		x Information Dissemination	
		x Partnership	
		x Consultation	
		x Participation	
	<b>x Communications</b>		
		x Awareness Raising	
		x Education	
		x Public Campaigns	
		x Behavior Change	
		x Strategic Communications	
<b>x Capacity, Knowledge and Research</b>			
	<b>x Enabling Activities</b>		
	<b>x Capacity Development</b>		
	<b>x Knowledge Exchange</b>	x Field Visit	
		x Peer-to-Peer	
		x South-South	
		Exhibit	
		x Conference	
		Twinning	
		North-South	
	<b>x Targeted Research</b>		
	<b>x Learning</b>		
		x Theory of Change	
		x Adaptive Management	
		x Indicators to Measure Change	
	<b>x Innovation</b>		
	<b>x Knowledge Generation</b>		
		x Training	
		Course	
		x Workshop	
		x Seminar	
		x Professional Development	
		Master Classes	
<b>x Gender Equality</b>			
	<b>x Gender Mainstreaming</b>		

		x Beneficiaries	
		x Women groups	
		x Sex-disaggregated indicators	
		x Gender-sensitive indicators	
	<b>x Gender results areas</b>		
		Access and control over natural resources	
		x Participation and leadership	
		x Access to benefits and services	
		x Capacity development	
		Awareness raising	
		Knowledge generation and Exchange	
<b>x Focal Areas/Theme</b>			
	<b>x Integrated Programs</b>		
		x Commodity Supply Chains (Good Growth Partnership)	
			Sustainable Commodities Production
			Deforestation-free Sourcing
			Financial Screening Tools
			High Conservation Value Forests
			High Carbon Stocks Forests
			Soybean Supply Chain
			Oil Palm Supply Chain
			Beef Supply Chain
			x Smallholder Farmers
			x Adaptive Management
		x Food Security in Sub-Sahara Africa	
			x Resilience (climate and shocks)
			x Sustainable Production Systems
			Agroecosystems
			Land and Soil Health
			x Diversified Farming
			Integrated Land and Water Management
			x Smallholder Farming
			x Small and Medium Enterprises
			Crop Genetic Diversity
			Food Value Chains
			x Gender Dimensions
			x Multi-stakeholder Platforms
		Food Systems, Land Use and Restoration	
			Sustainable Food Systems
			Landscape Restoration
			Sustainable Commodity Production
			Comprehensive Land Use Planning
			Integrated Landscapes
			Food Value Chains
			Deforestation-free Sourcing
			Smallholder Farmers
		x Sustainable Cities	
			x Integrated urban planning
			x Urban sustainability framework
			Transport and Mobility
			x Buildings
			x Municipal waste management
			x Green space
			x Urban Biodiversity
			Urban Food Systems

			x Energy efficiency
			Municipal Financing
			x Global Platform for Sustainable Cities
			x Urban Resilience
	<b>Biodiversity</b>		
		Protected Areas and Landscapes	
			Terrestrial Protected Areas
			Coastal and Marine Protected Areas
			Productive Landscapes
			Productive Seascapes
			Community Based Natural Resource Management
		Mainstreaming	
			Extractive Industries (oil, gas, mining)
			Forestry (Including HCVF and REDD+)
			Tourism
			Agriculture & agrobiodiversity
			Fisheries
			Infrastructure
			Certification (National Standards)
			Certification (International Standards)
		Species	
			Illegal Wildlife Trade
			Threatened Species
			Wildlife for Sustainable Development
			Crop Wild Relatives
			Plant Genetic Resources
			Animal Genetic Resources
			Livestock Wild Relatives
			Invasive Alien Species (IAS)
		Biomes	
			Mangroves
			Coral Reefs
			Sea Grasses
			Wetlands
			Rivers
			Lakes
			Tropical Rain Forests
			Tropical Dry Forests
			Temperate Forests
			Grasslands
			Paramo
			Desert
		Financial and Accounting	
			Payment for Ecosystem Services
			Natural Capital Assessment and Accounting
			Conservation Trust Funds
			Conservation Finance
		Supplementary Protocol to the CBD	
			Biosafety
			Access to Genetic Resources Benefit Sharing
	<b>Forests</b>	Forest and Landscape Restoration	
			REDD/REDD+

		Forest	
			Amazon
			Congo
			Drylands
	<b>Land Degradation</b>	Sustainable Land Management	
			Sustainable Pasture Management
			Ecosystem Approach
			Improved Soil and Water Management Techniques
			Sustainable Fire Management
			Drought Mitigation/Early Warning
			Restoration and Rehabilitation of Degraded Lands
			Integrated and Cross-sectoral approach
			Community-Based NRM
			Sustainable Livelihoods
			Sustainable Agriculture
			Sustainable Forest/Woodland Management
			Income Generating Activities
		Land Degradation Neutrality	
			Land Productivity
			Land Cover and Land cover change
			Carbon stocks above or below ground
		Food Security	
	<b>International Waters</b>		
		Ship	
		Coastal	
		Freshwater	
			Aquifer
			River Basin
			Lake Basin
		Learning	
		Biomes	
			Mangrove
			Coral Reefs
			Seagrasses
			Polar Ecosystems
			Constructed Wetlands
		Fisheries	
		SIDS : Small Island Dev States	
		Pollution	
			Persistent toxic substances
			Plastics
			Nutrient pollution from all sectors except wastewater
			Nutrient pollution from Wastewater
		Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		Strategic Action Plan Implementation	
		Areas Beyond National Jurisdiction	
		Large Marine Ecosystems	
		Private Sector	
		Aquaculture	
		Marine Protected Area	
	<b>x Chemicals and Waste</b>		
		Mercury	

			Artisanal and Scale Gold Mining
			Cement
			Coal Fired Industrial Boilers
			Non-Ferrous Metals Production
			Coal Fired Power Plants
		Ozone	
		Persistent Organic Pollutants	
			Unintentional Persistent Organic Pollutants
			New Persistent Organic Pollutants
			Polychlorinated Biphenyls
		Sound Management of chemicals and Waste	
		x Waste Management	
			Hazardous Waste Management
			Industrial Waste
			x e-Waste
		Emissions	
		Disposal	
		Plastics	
		Eco-Efficiency	
		Pesticides	
			DDT - Vector Management
			DDT - Other
		Industrial Emissions	
		Open Burning	
		Best Available Technology / Best Environmental Practices	
		Green Chemistry	
	x Climate Change		
		x Climate Change Adaptation	
			x Climate Finance
			x Least Developed Countries
			Small Island Developing States
			Disaster Risk Management
			Sea-level rise
			x Climate Resilience
			Climate information
			Ecosystem-based Adaptation
			x Adaptation Tech Transfer
			National Adaptation Programme of Action
			National Adaptation Plan
			Mainstreaming Adaptation
			x Private Sector
			x Innovation
			x Complementarity
			x Community-based Adaptation
			x Livelihoods
		x Climate Change Mitigation	
			Agriculture, Forestry, and other Land Use
			Energy Efficiency
			Sustainable Urban Systems and Transport
			x Technology Transfer
			x Renewable Energy
			x Financing

		x United Nations Framework on Climate Change	
			x Nationally Determined Contribution
			x Paris Agreement
			x Enabling Activities
			x Capacity Building Initiative for Transparency