

# Simplified Approval Process Concept Note

Project/Programme Title:	Leveraging the National Green Energy Fund to Achieve Rural Electrification in Vanuatu
Country(ies):	Vanuatu
National Designated Authority(ies) (NDA):	Ministry of Climate Change, Change Adaptation, Meteorology, Geo-Hazards, Environment, Energy and Disaster Management
Accredited Entity(ies) (AE):	Secretariat of the Pacific Community
Date of first submission:	17.06.2021 V.1
Date of current submission:	17.06.2021 V.1
Version:	1



*Eligibility for SAP is determined by the review of the concept note and the ESS screening.*

A. Project / Programme Summary (max. 1 page)					
<b>A.1. Project or programme</b>	<input checked="" type="checkbox"/> Project <input type="checkbox"/> Programme	<b>A.2. Public or private sector</b>	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector	<b>A.3 RFP</b>	Not applicable
<b>A.4. Indicate the result areas for the project/programme</b>	<p>Check the applicable <i>GCF result area(s)</i> that the proposed project/programme targets. Indicate for each checked result area(s) the estimated percentage of GCF budget devoted to it. The summed up percentage should be equal to 100%.</p> <p><b>Mitigation:</b> Reduced emissions from:</p> <input checked="" type="checkbox"/> Energy access and power generation: 100 % <input type="checkbox"/> Low emission transport: 0 % <input type="checkbox"/> Buildings, cities and industries and appliances: 0 % <input type="checkbox"/> Forestry and land use: 0 %  <p><b>Adaptation:</b> Increased resilience of:</p> <input type="checkbox"/> Most vulnerable people and communities: 0 % <input type="checkbox"/> Health and well-being, and food and water security: 0 % <input type="checkbox"/> Infrastructure and built environment: 0 % <input type="checkbox"/> Ecosystem and ecosystem services: 0 %				
<b>A.5. Impact potential</b>	A.5.1. Estimated mitigation impact (tCO2eq over project lifespan)		181,787 tCO2eq		
	A.5.2. Estimated adaptation impact (number of direct beneficiaries)		direct beneficiaries		
	A.5.3. Estimated adaptation impact (number of indirect beneficiaries)		indirect beneficiaries		
	A.5.4. Estimated adaptation impact (% of total population)		% of the country's total population		
<b>A.6. Financing information</b>					
A.6.1. Indicative GCF funding requested (max 10M)	Amount: 10,000,000 Currency: usd Financial Instrument: Grants (If other financial instrument is opted, please specify: _ ) * Please expand the information if needed.				
A.6.2. Indicative co-financing	Amount: 9,700,000 Currency: usd Financial Instrument: Other (If other financial instrument is opted, please specify: Mix of subordinated loans, grants and equity) * Please expand the information if needed.				
A.6.3. Indicative total project cost (GCF + co-finance)	Amount: 19,700,000 Currency: usd				
<b>A.7. Implementation period:</b>	a) disbursement period: 48 b) repayment period, if applicable:	<b>A.7.2. Total project/ programme lifespan</b>	240		
<b>A.8. Is funding from the Project Preparation Facility needed?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>A.9. Is the Environmental and Social Safeguards Category C or I-3?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
<b>A.10. Provide rationale for the ESS categorization (max 100 words)</b>	The proposed project will provide access to electricity including equipment i.e. solar refrigeration systems for rural SMEs, solar equipment to rural households, public institutions and community, where there is no ESS issues; the project will complement on going rural electrification program implemented by the Vanuatu Department of Energy.				

<b>A.11. Has the CN been shared with the NDA?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>A.12. Confidentiality<sup>1</sup></b>	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
<b>A.13. Executing Entity information</b>	SPC - PCREEE		
<b>A.14. Project/Programme rationale, objectives and approach of programme/project (max 200 words)</b>	<p>The proposed project will provide solar photovoltaic (PV)-based electricity to around 4,860 rural households (12% of total rural households) in Vanuatu through solar mini-grid and solar home systems leveraging from the National Green Energy Fund (NGEF) investment program supported by the Government of Vanuatu<sup>[1]</sup> (GoV), Solar for SMEs piloted through the Refrigeration for Vanuatu Rural Tourism Operators Project (SRVRTOP)<sup>[2]</sup>, and solar systems for off-grid primary schools.</p> <p>The purpose of this Leveraging the NGEF to Achieve Rural Electrification in Vanuatu project is to demonstrate the NGEF as a revolving fund to de-risk green energy investments by a cross subsidy approach, proven by the Department of Energy (DoE). This will accelerate progress towards the achievement of 100% rural electricity access and close to 100% electricity generated from renewable energy sources by 2030<sup>[3]</sup>. In 2017 the rate of rural electricity access by households in off-grid areas was 53%.<sup>[4]</sup></p> <p><sup>[1]</sup> NGEF is the country's first national financing vehicle for the Vanuatu energy sector, launched in August 2018.</p> <p><sup>[2]</sup> SRVRTOP was administered by the Global Green Growth Institute (GGGI) and funded by the Federal Ministry for Economic Cooperation and Development (BMZ) under the NDC partnership program, ten (10) solar freezers supplied to ten bungalow sites in Vanuatu to improve livelihoods and electricity access for small rural tourism operators.</p> <p><sup>[3]</sup> Updated Vanuatu National Energy Road Map 2016-2030</p> <p><sup>[4]</sup> Revised Vanuatu National Energy Road Map (2016 - 2030) Implementation Plan and NERM Monitoring, Verification and Evaluation Plan.</p>		
<b>B. Project / Programme information</b>			
<b>B.1. Context and Baseline (700 words)</b>			
<p><i>Describe as relevant the climate vulnerabilities and impacts, GHG emissions profile, and mitigation and adaptation needs that the prospective intervention is envisaged to address.</i></p> <p>The Republic of Vanuatu is an island nation located in the Western Pacific Ocean. The country is an archipelago of over 80 islands stretching 1,300 kilometres from North to South. Vanuatu's terrain is mostly mountainous, with narrow coastal plains larger islands are characterised by rugged volcanic peaks and tropical rainforests. Vanuatu is located in a seismically and volcanically active region and has high exposure to geologic hazards, including volcanic eruptions, earthquakes, tsunamis and landslides. The country's latitude places it in the path of tropical cyclones, and it is subject to cycles of El Nino and La Nina, which, respectively, increase the risks of droughts and</p>			

<sup>1</sup> Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

floods. Future climate change and sea-level rise threaten to exacerbate the risks posed by tropical cyclones, coastal and river flooding, coastal erosion, landslides, hailstorms, heavy rainfall events, and droughts. Climate-related disasters have had huge impacts on the economic growth and national development.

In Vanuatu's Second National Communication, a national inventory for GHGs has been calculated for the base year 2000 using the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. In 2000, Vanuatu emitted 69.16 tCO<sub>2</sub>e which is a 26% increase since the first inventory, which was published in 1999 and covered emissions for base year 1994. The energy sector is the main source of CO<sub>2</sub> emissions and mainly due to combustion of fossil fuel. The quantity of CO<sub>2</sub> emissions increased from 585.39 tCO<sub>2</sub>e in 2000 to 720.66 tCO<sub>2</sub>e in 2010. A third National Communication is currently being prepared by the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Environment, Energy and Disaster Management.

*Please indicate how the project fits in with the country's national priorities, action plans and programs and its full ownership of the concept.*

The proposed project is designed strategically to align with the current NGEF pipeline and the NERM Implementation Plan to help Vanuatu meet its target of 100% electrification and close to 100% use of renewable energy sources by 2030. Moreover, it aims to improve energy access for households and businesses in rural and peri-urban areas resulting in improved livelihoods, job creation and greater opportunities for income generation. Its goal is to contribute to the country's NERM target of over 73 tCO<sub>2</sub>e to be saved by 2030<sup>[1]</sup>. The proposed project will build on the ongoing government subsidy and rural electrification program and some components will be implemented after the VREP project finishes in 2022, to become more robust and sustainable in terms of increasing investments in renewable energy in Vanuatu.

This proposal, initiated by the NGEF, has been endorsed by the Vanuatu Climate Finance Working Group under the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB)<sup>[2]</sup>. NAB is well resourced and positioned, being the supreme policy making and advisory body for all disaster risk reduction and climate change programs, projects, initiatives and activities. Thus, this proposed project has been prioritized in the current draft GCF Country Programme.

The NGEF has been established to serve as the national financing vehicle for Vanuatu's energy sector. It plays a crucial role in increasing electricity access and renewable energy investments to achieve the NERM targets in the long-run by consolidating and disbursing financing to green energy projects through transparent and systematic process. These objectives are in line with the INDC Report (2015) of Vanuatu to achieve 100% electrification for everyone, generated by renewable energy sources by 2030. The same target is also highlighted in the National Sustainable Development Plan - People's Plan (2016-2030) that was adopted by GoV in January 2017.

*Describe the main root causes and barriers (social, gender, fiscal, regulatory, technological, financial, ecological, institutional, etc.) that need to be addressed. Where relevant, please describe the key characteristics and dynamics of the sector or market.*

In 2018, the result of the NGEF market demand and technology feasibility study (under GCF Readiness VUT-RS-003) conducted on 5 islands in Vanuatu showed that rural households lack appropriate rural banking services and formal employment opportunities, thus relying on subsistence farming which is one of the main causes of low cash flows and poor well-being. To address the lacking rural banking the delivery of the energy systems through the NGEF mechanism will include partnering with the private sector and non-financial intermediaries such as micro-finance schemes and cooperatives<sup>[3]</sup> that have established networks in rural areas. These intermediaries have the means (personnel, transport and in some locations branch offices) to service rural communities. For instance, the Vanuatu Women's Development Scheme (VANWODS) has over 7,000 rural members and aims to eradicating poverty by empowering women in rural villages with the opportunity to start, grow and maintain sustainable, income generating micro-enterprises<sup>[4]</sup>. It is envisioned that at least more than half of beneficiaries from the project will be women either engaged as members of associations for household use or desiring an energy system to support an existing or planned household business ideas. From the private sector, equipment suppliers and technicians, will be engaged to provide basic knowledge and training on O&M to beneficiaries.

The Leveraging the NGEF to Achieve Rural Electrification in Vanuatu project will complement and scale up ongoing projects: VREP and SRVRTOP:

1. VREP provided 11,000 households with 'plug and play' solar home systems in 2018. Phase two of VREP was launched at the end of the same year with more demand for larger domestic systems. Each system is fully owned by the customer. The systems are installed at the beneficiary's premises by the supplier with a product warranty of 2 years. The supplier also provides a guide on operation and maintenance of the systems to the end user. This guide is explained during installation and is printed in the national language. VREP II also included identification for 5 potential solar mini-grids (as reference for component 2), which aligns to Vanuatu's plans for grid expansion. Vanuatu is making progress in this regard with core urban centres (e.g. Port Vila, Luganville, Lenakel and Lakatoro) benefiting from grid expansion. In 2019, GoV signed a Concession Agreement for its second largest town and included the operation of 4 rural standalone micro grids, three of which were newly commissioned.

2. SRVRTOP has provided 10 solar refrigeration systems and with additional systems targeted towards productive use of energy, the project aims to benefit more small rural SME operators and small businesses operations in off-grid sites in Vanuatu. Lessons learnt from the VREP and SRVRTOP project will be incorporated into the design of the Project. A six-month post SRVRTOP project implementation survey was conducted and analysis showed monthly earnings increased to well over USD 1,000 with at least half of that being profit. It will take at least minimum 5 years to recover costs of the Solar Freezer with local market prices. There are over 300 bungalows in the country and with this project more than half are expected to benefit bringing transformational impact to rural bungalows/small businesses in Vanuatu. The survey also emphasised that business owners should provide at least USD 1,000 upfront to the overall cost of the solar freezer to be eligible, hence the project will have a faster delivery and impact to rural communities. A PPP model of SRVRTOP will ensure participation of stakeholders and sustainability of the systems. Private sector will be engaged as equipment suppliers, also providing basic knowledge and training on O&M to beneficiaries, including the possibility of engaging certain rural technicians to perform basic O&M during warranty period of systems. This has already been demonstrated in the pilot project.

[1] Vanuatu NAMA Report, 2015

[2] NAB is a committee made up of government and non-government members. It is co-chaired by the Director General of the Ministry of Climate Change and members are senior-level representatives from key sectoral government agencies and NGO representatives - Vanuatu Humanitarian Team, Vanuatu Climate Adaptation Network and Vanuatu Non-Government Organisation.

[3] DoE and the Department of Cooperatives have established a relationship through an MOU in 2017.

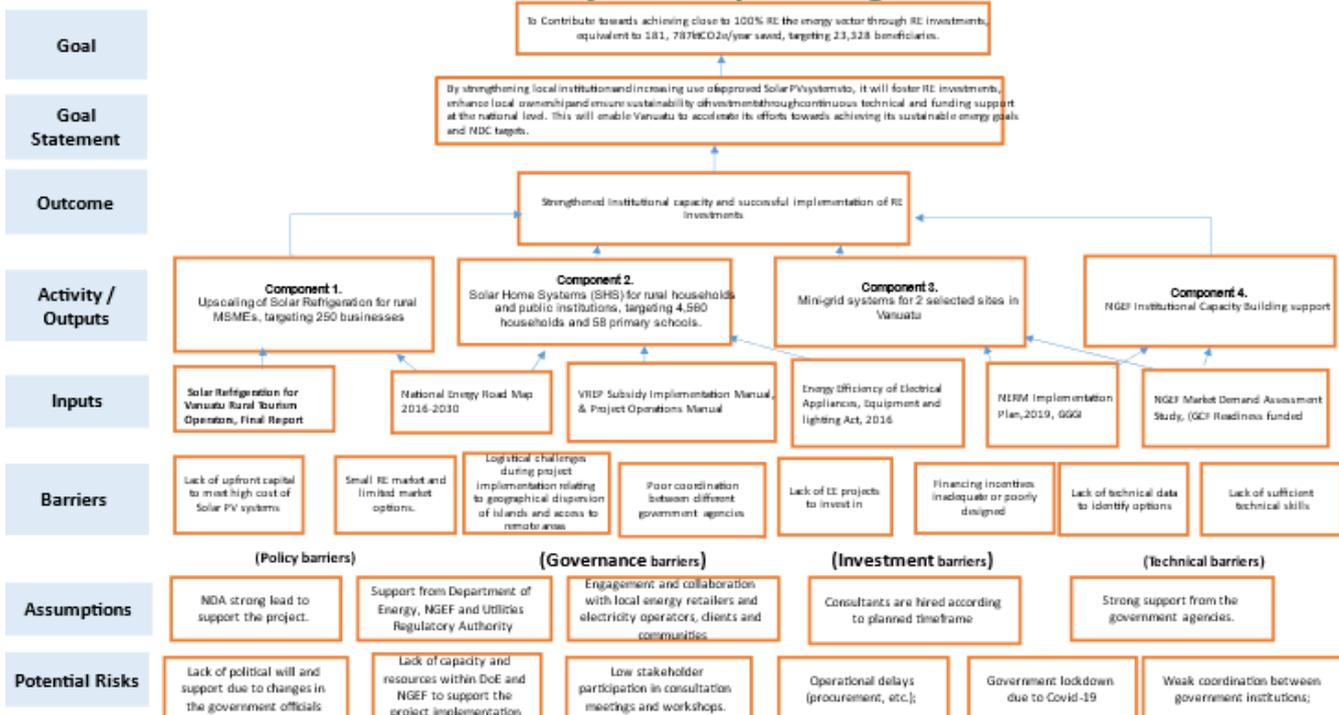
[4] <http://www.vanwods.org.vu/>

**B.2. Project / Programme description (1500 words)**

*Describe the expected set of components and activities to address the above barriers identified that will lead to the expected outcomes.*

Funding under this Project will support the GoV to take a long-term view focused on achieving sustainable results. This means that its activities should go beyond providing one-off support, to catalyse investments with lasting effect, by devoting resources to develop institutions, processes, and arrangements that ensure sustainability and transformational impact.

**Project Theory of Change**



With regards to national contributions to this proposal, the GoV has already committed itself to raise funds through electricity consumption levies collected from two major electricity concessions (on Efate Island and on Santo Island). The total leverage from national sources would be approximately USD 280,000 per annum. In 2018, the GoV through the Council of Ministers (Decision Number 128/2018) approved a levy of approximate USD 0.0015 (0.17 Vatu/kWh) and USD 0.017 (2 Vatu/kWh) on electricity consumption for Port Vila (Efate) and Luganville (Santo) electricity concessions respectively. The Council of Ministers further approved funding support from the Luganville electricity concession to support the NGEF's first green energy project in May 2019 (Decision Number 093/2019). To date, these levies have supported NGEF development and initial operationalization. Furthermore, GoV has approved in principle an amount of VT 500 million ( $\approx$ USD 4.6 million) towards capitalisation of NGEF, of this amount, USD 1,738,000 has been released to the Fund, the remaining balance will be released on equal amount, on yearly basis for the next three years.

Collaborating with the current VREP, which is expected to end soon, and the NGEF initiative will be beneficial. VREP has strengthened local energy retailers to incorporate quality standards on solar products, encourage product warranties, and establish customer grievance and subsidy mechanisms. The delivery mechanisms or partners<sup>[1]</sup> are essential to ensure that all products (both renewable energy and energy efficiency) will be deployed through locally approved VREP vendors.

*Please explain why this project or programme is ready for scaling up and has the potential for transformation. Has it been piloted in the country or region? Are the proposed interventions well documented for their costs and benefits?*

The NGEF prioritises energy access and sustainable energy for off-grid areas of Vanuatu focusing on the 40,000 rural households with no access to electricity. This Leveraging the NGEF to Achieve Rural Electrification in Vanuatu projects targets a significant portion of 4,860 rural households, thus bringing opportune transformation to households by offering a cost-effective energy supply from renewable energy, thus increasing fundamental needs in education and health for vulnerable individuals, building in a sustainable community way of life which is vital for a Least Developed Country such as Vanuatu.

The NGEF has started to leverage existing work from the World Bank administered VREP project, through its pilot investments, thus meeting future growth of households in urban and rural areas. This project will focus on a portion of the 11,000 households who have benefitted from the plug and play solar home systems delivered under VREP I, few years ago, with average life of solar systems ranging from 4 to 6 years. Therefore, once the project is about to commence, most of these systems would have been obsolete, and households would opt for bigger systems that can take on more appliances and improve rural household livelihood. This has been verified through the NGEF Market Demand Report prepared in 2018 through GCF Readiness (VUT-RS-003), which stated that potential project beneficiaries are “climbing the energy ladder”. This means that once customers have access to a lighting solution, they begin to express demand for other solar appliances such as freezers, fans, TV and other household appliances.

**Component 1** of this Project is focused on scaling up the solar refrigeration for rural bungalows project that was piloted through GGGI in 2017 for 10 sites. This is an example of energy for productive use in rural communities and over a short period of time, can result in more cash flow within a rural community. This component expands

the nature of business from the original pilot focus to include other businesses such as locally registered cooperatives, fishermen's associations and privately owned trading businesses due to the high demand of solar freezers. The beneficiaries of the SRVRTOP will be selected through the Department of Tourism accreditation process whereby rural tourism operators are required to meet certain minimum tourism standard before they are issued a permit and confirmed accredited to operate each year. The same process will apply to retail cooperatives and fisherman associations, where only those which are registered with the Vanuatu Registry of Cooperatives, after meeting some minimum specified requirements would be eligible to participate in this project. This proposal fits with the current government policy to enhance electricity access to productive sectors of the economy through use of renewable energy sources. The NGEF will provide top-up funding by means of concessional green loans/financing through intermediary agencies (e.g. Department of Cooperatives, Department of Tourism) so that about 250 rural businesses could benefit from this project. These businesses will be required to make an upfront partial financial contribution of USD 1,000 to the overall cost of the solar freezers (max capacity of 600 Wh/day). As a requirement, each product will come with a 2-year warranty, and a guide on operation and maintenance produced by the vendor. This component will be implemented from the first year of the project implementation.

**Component 2 targets** solar home systems for domestic households and public institutions. Since DoE has been standardizing its solar equipment, including supporting accreditation of local suppliers, it is important that this component builds on from that. For domestic households, the solar products approved under VREP II at a subsidy rate of 40% will make it more affordable for low-income rural households who do not have the upfront capital to meet the high cost of these larger capacity systems compared to small plug and play solar PV systems. Under this arrangement, households will contribute an upfront cost of 30%, and the remaining balance will be financed through a soft loan through NGEF[2] via a financial intermediary such as the National Bank of Vanuatu which has over 20 rural branches throughout Vanuatu. This arrangement will increase sales. A single transaction is made for system between the supplier and customer for the purchase and full ownership. The systems are installed at the beneficiary's premises by the supplier with a product warranty of 2 years. The supplier also provides a guide on operation and maintenance of the systems to the end user. This guide is explained during installation, printed and translated into the national language. Under this component, 4,560 rural households are anticipated to connect to a cleaner energy supply. This will instantly accelerate up to 54% of the total VREP II target of 8,400 rural households, directly 11% increase in the current rural electrification access rate. For public institutions, this project will also support 58 solar systems for off grid primary schools, benefiting 14% of total primary schools in Vanuatu. According to the Statistical Digest Report 2016 -2018[3] for the Ministry of Education and Training, about 79% of all students in Vanuatu are enrolled in rural schools, of which majority are enrolled in 419 rural primary school (36 in urban areas, total of 455). Currently rural primary schools rely on diesel generator for printing of school materials and basic light during rainy days. Accessing reliable energy for school improvement has already been demonstrated in the NGEF's pilot project whereby the NGEF provides soft loans directly to two primary schools and this is guaranteed by the Ministry of Education and Training. An MoU for this project has been signed by the Ministry of Climate Change and the Ministry of Education and Training. This component is expected to commence from year 2 of the project after VREP II finishes in 2022.

**Component 3** complements the revised NERM target to provide clusters of communities with two mini-grid solar powered systems on two identified sites in Vanuatu. Renewable energy mini-grids in Vanuatu have been established in the past through funding support from the European Union (Port Olry, Sola, Mosina, Navonda, Saratamata and Lolowai), and are operated through the Vanuatu Utilities Infrastructure Limited (VUI Ltd)[4]. In 2019, the GoV granted the Luganville Electricity Concession to VUI Ltd and included the O&M for these 6 mini-grids. Another solar mini-grid development project is underway in Wintua Village in South West Bay, Malekula funded by the Austrian Government under a NAMA program which is administered by UNDP. A further 5 solar powered mini-grids are currently under design through VREP II, supported by World Bank and funding from the

Government of New Zealand. Mini-grid development in Vanuatu provides households, public institutions and rural commercial hubs with reliable source of electricity. The 2 mini-grids proposed will electrify a further 300 rural households, and be managed through a Public Private Partnership, or cooperative model similar to the one in Wintua Malekula, to be commercially sustainable. As observed in other established mini-grids in the country, a demand for further energy will be generated through tourism, commercial and agricultural activities in the area. This is in line with GoV's policy to increase support to productive sectors in 2020 and 2021 to revamp the economy from the COVID -19 pandemic. This component commences at year 1 of the project, using similar technologies used in VREP.

**Component 4** provides grant support to the NGEF for institutional capacity building, with an expected contribution from the project's AE in addition to the ongoing commitment from the GoV. The NGEF's operations for the last two years have been focusing on securing seed funding from GoV, and now that funds have been made available through the investment program it is envisioned that this component will secure technical experts to prepare project concept notes, undertake financial analysis, energy-demand analysis, social, economic and environmental aspects for a pipeline of projects. Technical capacity building for the NGEF staff on specific trainings needs on green energy financing must be undertaken to ensure there is in-house capacities to deliver projects in the long run. At least half of the funds for this component will be allocated to resource mobilisation and identification of green energy projects. This technical support will also facilitate policy reforms around taxation and other relevant matters to enhance the resource mobilisation and sustainability strategies of the NGEF. To complement this, there is an ongoing technical support at the moment with funding from the BRANTV Project, an RE and EE related project administered by the UNDP and funding from GEF to develop as Resource Mobilization and Financial Sustainability Plan for the NGEF. One of the scopes of this work is to look at possible funding sources for the Fund, including taxation measures. GGGI is providing support as well to this current activity Upon request of the NDA and DoE, GGGI staff based in Vanuatu will also provide support for this component.

*Describe in what way the Accredited Entity(ies) is well placed to undertake the planned activities and what the implementation arrangements with the executing entity(ies) and implementing partners will be.*

As the Accredited Entity, the Pacific Community (SPC) will oversee, supervise, manage and monitor the Project as funds for this project will be channelled from GCF to them as nominated by the Vanuatu NDA. A Project Management Unit (PMU) will be based within DoE and manage implementation alongside the established NGEF Unit for shared resources and local capacity development. As the executing entity, SPC will hire and be responsible for the PMU. This ensures accountability and transparency of procedures during project implementation, as well as alignment of activities with existing projects. The NGEF's fiduciary arrangements are described in the Operations Manual (see Annex 2). As an implementing partner, staff from GGGI will be housed within DoE and provide support and capacity building to the NGEF and DoE staff.

*Please provide a brief overview of the key financial and operational risks and any mitigation measures identified.*

**Financial Risk:** Lack of funding raised from donors and lack of affordability by end-users to pay for energy services will constrain scaling up of NGEF and VREP activities.

**Mitigation:** Fundraising must be the highest priority for the NGEF Board and management especially at the beginning of NGEF operations to secure sufficient financial resources prior to disbursement. GoV has approximately USD 4.6 million towards capitalisation of NGEF over 5 years, with fundraising expected to continue after that period.

**Operational Risk:** Fund management with different financial products.

**Mitigation:** GGGI will provide technical support and training to NGEF Fund Manager, as required. Through the grant, capacity building and training for skills development of NGEF staff and technical assistance to enhance NGEF's financial management system and operations will be provided.

*Please explain how the M&E will be conducted as part of the project or programme (routine and concurrent monitoring, interim and final evaluations, and annual reports)*

Through SPC, the Project PMU will recruit M&E personnel who will support the Project Manager to provide interim progress reports to SPC and the NDA. The Reports will be in the format approved by the GCF Secretariat for consistency.

For the NGEF, an NGEF Legislation is in place, along with the Annual Business Plan, and Operations Manual. All these documents will allow the NGEF Fund Manager to prepare and be accountable for the Annual Implementation Plan, Donor Report, Annual Report and Annual Audit Report.

[1] Source: Table 16, NGEF Market Demand Report, 2018

[2] NGEF loans have interest in the range of 0-6%, approved on a case-by-case basis. The 0% rate applies to activities financed by grant funding. The 1-3% rate is for financial intermediaries that on-lend to beneficiaries. Repayment periods range from 1-10 years subject to agreements with beneficiaries with longer periods for investments of more than 10 million Vatu. NGEF requires an upfront contribution from the beneficiary paid directly to the supplier with NGEF funding the remainder after the VREP II subsidy is deducted.

[3] Source: Annual Statistical Digest\_2019: [www.moet.gov.vu](http://www.moet.gov.vu)

[4] VUI Limited- a subsidiary of the Pernix Group Limited, operating in Luganville Santo.

### B.3.Expected performance against the GCF investment criteria (1000 words)<sup>2</sup>

*Please describe and provide an estimate of the expected impacts aligned with the GCF investment criteria: impact potential, paradigm shift, sustainable development, needs of recipients, country ownership, and efficiency and effectiveness.*

**Impact:** It is estimated that 23,328 people, 4,860 households (12% of total rural households in Vanuatu), will gain access to renewable energy, thereby substituting daily petrol expenses and saving approximately 15,925 tCO<sub>2</sub>e

<sup>2</sup> For more information please refer to Annex XIV of document [GCF/B.07/11](#)

annually. In addition, the installation of 58 rural primary school solar systems, 250 solar freezers for rural off-grid SMEs and 2 solar mini-grid systems will result in further emission reduction of 2,254 tCO<sub>2</sub>e per year, resulting to 181,787 tCO<sub>2</sub>e over a lifespan of 20 years.

**Paradigm shift:** The NGEF is designed to meet the national target of 100% electrification generated from renewable energy sources by 2030. This transition will facilitate capital investment opportunities, which aim to improve energy access through renewable energy and energy efficient technology applications for households and businesses in rural and peri-urban areas resulting in improved livelihoods, job creation and greater opportunities for income generation. As an island nation, the majority of these households will gain access to clean and renewable sources of energy to meet their energy needs. Consequently, an average rural household will save cash for other basic needs, which were absent due to monthly energy expenses e.g. gasoline for small portable generators. The proposed project builds on ongoing projects (VREP and SRVRTOP) and demonstrates potential to expand to other off grid areas in Vanuatu i.e. addressing the energy access gap. A commercially viable business model has been demonstrated viable through the NGEF's pilot project on solar system for two rural off-grid cooperatives (SMEs), one in retail business and another with a fishing association. Both have partially contributed to their solar system costs and received NGEF green concessional loans. Since installation and launching in February 2020, the cooperatives have made 2 repayments directly to the NGEF, proving the acceptance of this project model. It is also envisioned that by engaging experts in component 4, each project component (1-3) will articulate sustainability of systems and develop a financial mechanism either within the beneficiary (household), or community in the case of a micro grid. This will ensure that after the 2-year warranty period for the solar systems, the beneficiaries are able to replace parts without seeking financial contributions from other sources. For example, one of the criteria for the SRVRTOP is to ensure that each eligible rural bungalow has a bank account and is committed to reserve a percentage of its daily earnings for maintenance and spares parts. Project staff (M&E Officer) will carry out verifications and collect feedback from beneficiaries every 6 months.

#### **Sustainable development:**

GoV established the NGEF as a revolving fund, to support ongoing initiatives in the energy sector and contribute to sustainable development, directly linking to the Vanuatu INDC, the NERM and the NSDP, The People's Plan 2030. The NGEF investments are guided by DoE, and will continue to promote the use of quality and certified RE and EE technologies. It will also utilize the existing Environmental Code of Practice (ECOP) for used and damaged solar equipment to be collected from beneficiaries in rural areas.

#### **Needs of recipient:**

The Climate Public Expenditure and Institutional Review<sup>[1]</sup> report for Vanuatu states that it has been receiving a lower share of adaptation funding than most other Pacific Island countries (PICs). To adequately adapt to the impacts of climate change, starting now, the annual cost is estimated to be 1.5% of a country's GDP. For Vanuatu, this equates to an investment of USD 9.5 million per year. This is substantially higher than the amount of development funding currently being spent on projects that have Adaptation as their principal objective.

The NGEF is described as a unique project in Vanuatu simply because of its high-level support and its driven focus to meet national energy targets by mobilising and coordinating alongside major rural development projects. It will

support the country to fundraise towards strong and resilient economic growth, taking into account the fact that total aid receipts are approximately 10% of country's GDP.

In addition, the NGEF market demand assessment identifies various barriers for accelerating renewable energy and energy efficiency in Vanuatu, and proposes interventions that can mitigate these barriers[2]. In brief, these barriers include i. regulatory landscape and enabling environment, ii. energy demand for households, iii. energy demand for SMEs, iv. supply from vendors and v. channels and access to financial mechanisms. Accordingly, the proposed mitigation actions include i. support with implementation or enforcement of quality assurance, ii. stimulate and facilitate uptake of larger energy solutions linking to VREP II thus inventory line with supplier is enriched, iii. support suppliers to partner with financial institutions and civil society networks thus supporting end-user financing and raising working capital, iv. stimulate combined imports, and v. implement smart financing between suppliers and financial institutions.

By implementing this Leveraging the NGEF to Achieve Rural Electrification in Vanuatu project through the established NGEF, Vanuatu will pursue 100% energy access for all households in Vanuatu by 2030.

#### **Country ownership:**

This project is well aligned within the framework of the Vanuatu INDC, which outlines an urgent need to displace CO<sub>2</sub> emissions from the energy sector specifically from combustion of fossil fuels to renewable energy. The NGEF and VREP initiative address this and strict enforcements mechanisms are place for its solar equipment providers to supply quality tested products in the country to households and SMEs. The Vanuatu INDC, the NERM and the NSDP People Plan 2030 are the pillar for sustainable energy development and are supported at the highest level of Government. The NERM and INDC implementation are overseen by the Ministry of Climate Change, while the NSDP is with the Office of the Prime Minister.

This proposal was initiated by DoE under the Ministry of Climate Change and is a directive of the NGEF Board to seek external funding support. The Board is comprised of senior officials from the Ministry of Climate Change, the Ministry of Finance and Economic Management, the Department of Strategic Planning, Policy and Aid Coordination, the Department of Provincial Affairs, the Department of Women's Affairs and a civil society organisation representative.

The Vanuatu NAB's Project Screening Committee has reviewed this concept note and took it further for discussion and endorsement at a NAB Meeting held in November 2018.

#### **Efficiency and effectiveness:**

It is estimated that a total of 181,787 tCO<sub>2</sub>e will be avoided over 10 years. Assuming that a rural household demand for electricity usage averages a very modest 3,600 kWh per year - a value that is at the low end of household usage on rural grid extensions in PICs - then generation for a village grid by a small low efficiency diesel generator could

be expected to emit a total of around 0.956 kg of CO<sub>2</sub>e per kWh delivered. Annually that would be a total of about 3,492 kg of CO<sub>2</sub>e emitted per household served. It is planned that around 4,860 rural households (housing around 23,328 persons) will be provided electricity access under this funding so the total avoided GHG emissions for the proposed project would be at least 15,925 metric tons of CO<sub>2</sub>e emitted per year through the use of solar PV generation instead of diesel.

The project's total financing cost is USD 19.7 million, of which USD 10 million grant funding is sought from GCF through this proposal and the remaining USD 7.9 million is made up of customer contribution and soft loan financing from NGEF.

- a) Total project financing USD 19.7M
- b) Requested GCF amount USD 10M
- c) Expected lifetime emission reductions (10 years) 181,787 tCO<sub>2</sub>e
- d) Estimated cost per tCO<sub>2</sub>eq (d = a / c) USD 107.82 / tCO<sub>2</sub>e**
- e) Estimated GCF cost per tCO<sub>2</sub>eq removed (e = b / c) USD 55 / tCO<sub>2</sub>e**
- f) Total finance leveraged USD 9.7M
- g) Public source finance leveraged USD 9.45M
- h) Private source finance leveraged USD 0.25M
- i) Total Leverage ratio (i = f / b) 0.97**
- j) Public source leverage ratio (j = g / b) **0.945**
- k) Private source leverage ratio (k = h / b) **0.025**

[1] Source: <https://www.nab.vu/sites/default/files/documents/Vanuatu%20CPEIR.pdf>

[2] Source: Table 17, NGEF Market Demand Report, 2018

#### B.4 Stakeholders consultation and engagement (300 words)

*Please describe how engagement among the NDA, AE, EE and/or other relevant stakeholders in the country has taken place so far and what further engagement will be undertaken as the concept is developed into a funding proposal.*

In August 2018, Honourable Ham Lini Vanuaroroa, the Minister of Climate Change launched the NGEF and made a formal request to GGGI to seek external funds to support initial activities of the Fund. GGGI further held an Investment Forum for the NGEF which brought together representatives from NAB, development partners present in Vanuatu and the Pacific region, including energy retailers and financial intermediaries. Using knowledge from the NGEF Market Demand Assessment, information from survey collected from 5 islands in Vanuatu, results from the Solar Freezers for pilot project, and feedback from relevant workshops, a first draft concept note was prepared. This concept note was submitted to NAB and reviewed by its project screening committee.

This proposal has been consulted with the Vanuatu NAB Members in November 2018 and listed in the project pipelines of the draft Vanuatu GCF Country Program (project AM1 in the prioritised pipeline). It was submitted to GCF in May 2019.

A National Energy Dialogue conducted jointly by SPC, DoE and the Department of Climate Change in September 2019 highlighted the significant progress on access to electricity in the rural communities of Vanuatu and called for urgent and increased support to the NGEF.

### C. Indicative financing information (max. 2 pages)

#### C.1. Financing by components

*Please provide an estimate of the total cost per component and disaggregate by source of financing.*

Component	Output	Indicative cost (USD)	GCF financing		Type	Co-financing		
			Amount (USD)	Financial Instrument		Amount (USD)	Financial Instrument	Name of Institutions
Provision of Solar equipment and applications to empower rural business	Supply of 250 solar equipment and appliances to rural SMEs	1,250,000	1,000,000	grant	public	250,000	subordinated loans	NGEF
Provision of Solar Home Systems (SHS) for domestic and public institutions	4,560 Solar Home Systems for rural households	14,250,000	5,700,000	grant	public	8,550,000	other	NGEF + Customer contribution



Provision of Solar Home Systems (SHS) for domestic and public institutions	Supply solar equipment for 58 off-grid schools	400,000	200,000	grant	public	200,000	other	NGEF + Ministry of Education
Provision of solar equipment for small island communities	Install 2 Solar powered mini-grids for at least 300 households	2,250,000	2,000,000	grant	public	250,000	subordinated loans	NGEF
NGEF Institutional Support	Technical support and skills development for NGEF staff and Board	600,000	400,000	grant	public	200,000	other	NGEF + GGGI
Project Management Cost	Effective management of project	950,000	700,000	grant	public	250,000	in-kind	SPC
<b>Indicative total cost (USD)</b>		19,700,000	10,000,000	9,700,000				

*For private sector proposal, provide an overview (diagram) of the proposed financing structure.*

**C.2. Justification of GCF Funding Request (500 words)**

*Explain why the Project/ Programme requires GCF funding, i.e. explaining why this is not financed by the public and/ or private sector(s) of the country.*

The GoV is fully committed to achieving its INDC targets and has injected initial funding support through NGEF's investment program; however, greater financial support is required for renewable energy programs to be implemented. Without GCF funding, under a business-as-usual scenario, inadequate technical and financial capacity at the national and local level will keep off grid areas in Vanuatu with limited/no access to renewable energy. GCF funding is therefore vital to initiate progress towards narrowing the energy access gap targeting rural areas in the country.

**C.3. Exit Strategy and Sustainability (500 words)**

*Please explain how the project/programme sustainability will be ensured in the long run and how this will be monitored, after the project/programme is implemented with support from the GCF and other sources.*

The sustainability of each project component will be addressed separately through each Project. For the NGEF, legislation has been established, along with its Business Plan and Operations Manual. **The NGEF is a GoV initiative designed as a revolving fund, and is directly responsible to support the NERM implementation.** There are three sources of funding for the NGEF which will allow the Fund to operate and disburse funding for renewable energy and energy efficiency financing. The current Funding sources below will ensure the sustainability of the Fund:

- 1) **Domestic funding** sourced from GoV's budget and/or extra-budgetary sources linked to the electricity concession areas, and any other financial streams allocated to the Fund by GoV, including environmental taxes, levies, and similar instruments introduced for this purpose. An example of this is approved budget support from GoV to capitalise the NGEF and provide investment funds for the next 5 years, much of the funding will used to co-finance this project under concessional terms.
- 2) **International funding** provided by bilateral and multilateral entities, public and private sector donors and investors in the form of grants or concessional loans.
- 3) **NGEF income**, a revolving fund will have generated interest from financial products distributed through intermediaries.

In May 2019, the second tranche of domestic funding totalling USD 259,000 was approved by the Council of Minister and this contributed towards operations of the NGEF and for the NGEF to deliver its first green energy projects. A further contribution is expected from a levy of 0.17 VT (USD 0.0015) per kWh for over 13,000 customers from the Port Vila Electricity Concession per annum and this will commence sometime in 2021 pending official amendments to the concession contract.

To accelerate deliverable of some outputs, DoE has appointed an Owner's Engineer/Technical Advisor under the VREP Project that will be able to provide some guidance to the PMU to prepare the conceptual designs, technical specifications and tender documentation for the two mini-grid systems, and support preparation of the necessary safeguard documents. The PMU and the DoE technical resources will supervise the construction of the mini-grids and implementation of any Environmental and Social Management Plans. The procurement arrangements for the mini-grids will depend on two options identified by the GoV. Under Option 1 the mini-grids will be procured under a competitive tender for detailed design, construction and commissioning by a Contractor; the mini-grids will be operated and maintained by a Service Provider (UNELCO Ltd or VUI Ltd) whose current concession is adjacent to the mini-grid; and the Service Provider will be party to the management contract until such time as the concessions come up for re-tender and the mini-grids are “rolled into” the concession areas. Under Option 2, the mini-grids will be procured under a competitive tender for the detailed design, construction, commissioning and operation and maintenance by a Contractor/Service Provider.

The NGEF Fund Manager will work closely with the Project PMU to carry out Monitoring and Reporting for this project. The Fund Manager will prepare Financial Statements for the NGEF Board. The Fund Manager will also report the SAP component separately on its Financial Statements. The NGEF Board will inform the NDA who will review and submit Interim Progress Report to the GCF and GoV.

In terms of replicability, the Pacific Centre for Renewable Energy and Energy Efficiency is an arm of the AE and will be responsible for sharing the experiences from the NGEF with other PICs and to replicate and upscale the NGEF in other PICs too. The Dialogue has also led to the establishment of the Sustainable Energy Association of Vanuatu to improve the quality and professionalism of the private sector in Vanuatu's sustainable energy development.

#### **D. Annexes**

- ESS screening check list (Annex 1)
- Map indicating the location of the project/programme (as applicable)
- Evaluation Report of previous project (as applicable)

### Annex 1: Environmental and Social Screening Checklist<sup>3</sup>

#### Part A: Risk Factors

Please indicate your answers to the questions below and provide an explanation on the response selected. In cases when the TBD response has been selected please explain briefly why you are not able to determine now and when in the project cycle the question will be addressed.

If the criteria is not applicable to the project you may write N/A in the justification box.

Risk Factors	YES	NO
Will the activities involve associated facilities and require further due diligence of such associated facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No construction of facilities anticipated under this project.		
Will the activities involve trans-boundary impacts including those that would require further due diligence and notification to affected states?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
This is a national project and the installation of the solar home systems including the small mini-grids will be localised.		
Will the activities adversely affect working conditions and health and safety of workers or potentially employ vulnerable categories of workers including women and children?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
80% of NiVanuatu resides in rural areas and 17% of rural households have electricity access. , this project will ensure rural community have access to electricity which will enhance their living conditions. Project will help improve the livelihoods of the affected people and communities through the provision of electricity for income generation. These systems will also be provided to schools and health centres in the rural areas and thus the positive impact on schools and health centres. The project will provide employment opportunities to the vulnerable groups of the societies in particular women.		
Will the activities potentially generate hazardous waste and pollutants including pesticides and contaminate lands that would require further studies on management, minimization and control and compliance to the country and applicable international environmental quality standards?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Potential waste from the project would be the disposal of the battery after it reaches its useful lifetime. Battery disposal mechanisms have been established under VREP, specifically the environmental code of practice for the disposal of solar batteries.		
Will the activities involve the construction, maintenance, and rehabilitation of critical infrastructure (like dams, water impoundments, coastal and river bank infrastructure) that would require further technical assessment and safety studies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
This project focused on solar homes systems and 2 small mini-grids which will have very minimum impact on the environment. No need for technical assessment and safety studies except for electricity demand studies and ability to pay from the communities. For the mini-grid, distribution lines will be either underground or overhead and therefore will not pose any risk to the community.		
Will the proposed activities potentially involve resettlement and dispossession, land acquisition, and economic displacement of persons and communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No resettlement necessary nor land acquisition for this project.		
Will the activities be located in or in the vicinity of protected areas and areas of ecological significance including critical habitats, key	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<sup>3</sup> In answering this checklist, you may refer to Annex 1: Guidance on Part A ESS Screening of the "[Guidelines for the environmental and social screening of activities proposed under the SAP](#)"

biodiversity areas and internationally recognized conservation sites?		
The activities will be installed at the houses and within the community buildings.		
Will the activities affect indigenous peoples that would require further due diligence, free, prior and informed consent (FPIC) and documentation of development plans?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project is designed based on the need of the local communities in the rural and remote communities of Vanuatu. No further due diligence studies required. Just awareness and education activities in the communities prior, during and after the project is completed. The community (men, women and youth) will actively participate in the propose awareness and education so that they are aware of the project activities, responsibilities of the project and their own individual responsibility to the project.		
Will the activities be located in areas that are considered to have archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values or contains features considered as critical cultural heritage?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Solar home systems including the 2 small mini-grids will be installed near the houses within the community. Exact location of the systems will be done in consultation with the households and the community.		

**Part B: Specific environmental and social risks and impacts**

<b>Assessment and Management of Environmental and Social Risks and Impacts</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>
Has the E&S risk category of the project been provided in the concept note?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Has the rationale for the categorization of the project been provided in the relevant sections of the concept note?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are there any additional environmental, health and safety requirements under the national laws and regulations and relevant international treaties and agreements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are the identification of risks and impacts based on recent or up-to-date information?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Labour and Working Conditions</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>
Will the activities potentially have impacts on the working conditions, particularly the terms of employment, worker's organization, non-discrimination, equal opportunity, child labour, and forced labour of direct, contracted and third-party workers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Based on current understanding, no additional environmental health and safety risks are anticipated under national or international laws.			
Will the activities pose occupational health and safety risks to workers including supply chain workers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The development of the CN is based on recent studies and information collected from the on-going VREP project.			



Resource Efficiency and Pollution Prevention	YES	NO	TBD
Will the activities generate (1) emissions to air; (2) discharges to water; (3) activity-related greenhouse gas (GHG) emissions, (4) noise and vibration; and (5) wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
All works under the project will be contracted and will be implemented according to the local working laws and regulations.			
Will the activities utilize significant amount of natural resources including water and energy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
No anticipated risks to health and safety of workers. These will be simple installations as technologies have improved for simpler installations. The mini-grid systems will be tendered and installed by professionals according to the highest international standards			
Will there be a need to develop detailed measures to reduce pollution and promote sustainable use of resources?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There will be minimal/negligible emissions to air including noise and vibration and wastes during project installations. No discharges to water projected during the project. All the photo voltaic energy generation system material will be disposed using proper processes.			
Community Health, Safety, and Security	YES	NO	TBD
Will the activities potentially generate risks and impacts to the health and safety of the affected communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
No significant use of natural resources anticipated in the project. Project will procure and install solar home systems for communities including 2 small mini-grids. These solar home systems will convert sunlight to useful energy stored in the battery and delivered to users when needed.			
Will there be a need for an emergency preparedness and response plan that also outlines how the affected communities will be assisted in times of emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Basic pollution controls will still be required and developed as part of the project. An environmental code of practice for the disposal of waste batteries will also be established similar to what is operational under VREP.			
Will there be risks posed by the security arrangements and potential conflicts at the project site to the workers and affected community?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
No anticipated health and safety risks for the community during the implementation of the project. Training on the adequate use and maintenance of the PV energy generating system will be provided to all stakeholders during the installation process.			
Land Acquisition and Involuntary Resettlement	YES	NO	TBD
Will the activities likely involve land acquisition and/or physical or economic displacement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Not applicable for the project. The communities would already have emergency response plans established by the National Disaster Management Office.			
Biodiversity Conservation and Sustainable Management of Living Natural Resources	YES	NO	TBD
Will the activities potentially introduce invasive alien species of flora and fauna affecting the biodiversity of the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Not applicable for the project. For the solar home systems, individuals who are paying for the project will be responsible for their own systems although it will be installed by the contractor. No security arrangements necessary. For the 2 mini-grids, the project will be implemented in close			

collaboration with the communities. There are no anticipated risks of conflicts posed by the community.			
Will the activities have potential impacts on or be dependent on ecosystem services including production of living natural resources (eg. agriculture, livestock, fisheries, forestry)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
No acquisition of land required and/or physical or economic displacement anticipated in the project.			
<b>Indigenous Peoples</b>	<b>YES</b>	<b>NO</b>	<b>TBD</b>
Will the activities potentially have any indirect impacts on indigenous peoples, ethnic minorities, or vulnerable and marginalized groups?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Not Applicable			
<b>Cultural Heritage</b>	<b>Yes</b>	<b>NO</b>	<b>TBD</b>
Will the activities restrict access to the cultural heritage sites and properties?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Not applicable			
<i>Will there be a need to prepare a chance-find procedure in case of the discovery of cultural heritage assets?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Project will improve the livelihoods of the local communities by providing electricity and opportunities for income generation, improved healthcare and education services for children.			
<b>Stakeholder engagement and grievance</b>	<b>Yes</b>	<b>NO</b>	<b>TBD</b>
Will the activities include a continuing stakeholder engagement process and a grievance redress mechanism and integrated into the management/implementation plans?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A stakeholder engagement process and grievance redress mechanism will be established as part of the management and implementation plans. These processes will be detailed in the full project proposal.			

**Part C: Sign Off**

**Sign-off:** Magali Benjamin, Environmental Sustainability Coordinator