Terms of Reference Template

Contract	
Project	*Vanuatu – Renewable Energy and Energy Efficiency Guide for Small-scale Tourism Bungalow Operators*
Expertise	
Category	*Advisory Support*
Location	
Duty Station	*Port Vila, Vanuatu*
Contract Length	
Start Date	*25 June, 2018*
End Date	*10 September, 2018*
Part-time/Full-time	*Part time*
Contract Value	
Daily Rate	*N/A*
Days Estimated	*25 days*
Total Fees	*12,500 USD maximum excluding travel*

Specifics of Recruitment

Introduction:

Based in Seoul, the Global Green Growth Institute (GGGI) is an intergovernmental organization founded to support and promote a model of economic growth known as "green growth", which targets key aspects of economic performance such a poverty reduction, job creation, social inclusion, and environmental sustainability. GGGI works with countries around the world, building their capacity and working collaboratively on green growth policies that can impact the lives of millions. The organization partners with countries, multilateral institutions, government bodies, and private sector to help build economies that grow strongly and are more efficient and sustainable in the use of natural resources, less carbon intensive, and more resilient to climate change.

GGGI supports stakeholders through complementary and integrated workstreams – Green Growth Planning & Implementation, Green Investment Services and Knowledge Solutions – that deliver comprehensive products designed to assist in developing, financing, and mainstreaming green growth in national economic development plans.

GGGI work in Vanuatu

GGGI started work in Vanuatu in early 2015, after Vanuatu became a GGGI member in 2014. GGGI's initial support to the Government was in revising the National Energy Road Map (NERM) 2016-2030. One of the green growth policy objectives under the updated NERM is to promote the use of renewable energy in Vanuatu's main economic sectors, including agriculture, fisheries and tourism. The NERM sets a target of 25% of rural tourism bungalows to be using renewable forms of electricity by 2020 and 65% by 2030.

In addition, the National Sustainable Development Plan (NSDP) 2016-2030, sets out the Government's objectives for social, environmental, and economic development which include objectives related to sustainable infrastructure (including access to reliable and affordable energy that increasingly comes from renewable sources), environmentally-responsible economic growth, and sustainable natural resource

management. Given the current dependency on petroleum based energy supplies any migration to renewable energy production will have a positive impact on reducing CO_2 emissions and improve the carbon footprint of the Islands.

The Vanuatu Strategic Tourism Action Plan 2014-2018 emphasizes that electricity continues to be a major cost for operators, especially accommodation providers. One of the key strategies under the plan is to support Green Tourism initiatives and promote rural electrification, renewable energy and telecommunications to support tourism investment.

In line with the above Government objectives and priorities, the Department of Energy (DoE) in collaboration with the Department of Tourism (DoT) and the Global Green Growth Institute, undertook a market research and analysis in 2016 to identify suitable business models for increasing access to renewable energy and energy efficiency for small-scale tourism bungalow operators in Vanuatu. The study has resulted in the implementation of a pilot project in 2017 on solar freezer systems for 10 rural off-grid bungalows funded through the BMZ NDC Partnership program, administered by GGGI in partnership with the Department of Energy, Department of Tourism and the Vanuatu Skills Partnership Program. The preliminary results collected at the end of 2017 had indicated that these freezers have made some positive impacts on these rural businesses and therefore the Government is keen to upscale the project.

The study also identified opportunities to increase the use of renewable energy and energy efficient technologies among accommodation service providers in Vanuatu. Therefore, the Government of Vanuatu has sought further support from GGGI to develop a RE and EE guide for medium and small-scale (bungalow) tourism operators in Vanuatu. This assignment will directly contribute to further strengthening of the rural Vanuatu tourism sector to achieve its eco-tourism objectives and that it responds to Vanuatu's NDC to increase use of renewables in all sectors and reach 100% renewable electricity production by 2030, also mobilizing greener financial commitments towards a strong economic growth through the tourism sector.

Background

Vanuatu's formal economy is dominated by the tourism industry. The total contribution of travel and tourism to GDP was 46.1% of GDP and is expected to grow by 4.0% in 2018, and 44.5% in 2016, and is forecasted to rise by 4.3% in 2017, and further rise to 49.2% of GDP by 2028[1].

Vanuatu's energy supply is heavily reliant on petroleum products, with 71% of grid-connected electricity generated by imported fossil fuels and many off-grid communities relying on small diesel gensets for a few hours of electricity per day. The transport sector is entirely dependent on petroleum products. With its population distributed over 65 islands, distribution of energy supplies is both logistically challenging and costly. The result is that energy (and electricity) services at the moment are available only to a small share of the population, and at high prices.

While being a key economic driver for the country, the tourism industry is highly dependent on a reliable energy supply and improving affordability and access to energy, including for small rural tourism businesses, is a government priority. At the same time, in order to preserve the natural environment upon which the tourism industry relies and align to government objectives on green energy development, the DoT is pursuing an eco-tourism approach and is working with its partners to promote sustainable, environmentally friendly tourism development, especially in rural areas.

In Vanuatu, small tourism operators located off-grid (i.e. all islands except the concession areas which partially cover the four main islands of Efate, Santo, Tanna and Malekula) either have no access to electricity or only intermittent access with which to supply services for their clients such as lighting, cooling (fans, very limited air-conditioning), communication (mobile phone, rarely internet) and

[1] Travel & Tourism Economic Impact 2017 Vanuatu, World Travel & Tourism Council, March 2018

refrigeration. This off-grid electricity is primarily produced by diesel generators. Cooking is usually carried out using LPG or biomass fuel.

The retail price for diesel (and LPG) in Vanuatu is among the highest in the region (and even more expensive in the outer islands due to transportation costs) resulting in very high electricity generation costs for rural tourism operators[2]. The tourist operators often face difficulties and lose out on customers, either because inability to offer services or because of uncompetitive prices compared with those facilities connected to the grid which can provide better and more reliable services at lower cost. Further, limited access to electricity also limits the ability of these remote tourist operators to increase access to their client base and booking agents, sometimes resulting in operators losing out on phone and online bookings and therefore on potential income. There is also anecdotal evidence that renewable energy electricity supply can increase resilience to natural disasters such as tropical cyclones and earthquakes because the electricity supply is not dependent on shipping of diesel to islands and therefore can be available after a disaster event if shipping has been disrupted or diesel gensets damaged.

While the direct contribution of tourism to GDP across all of Vanuatu in 2017 was VT16,343.6mn (18.2% of GDP), unfortunately only a small portion if this income is distributed to small off-grid tourism operators in rural areas and away from the main island of Efate, due to marginal level of services and products offered that were not able to attract a good number of tourists. Electricity access[3] would enable better communications for bookings and the addition of more products and services to their operations, which then should also attract tourists to their bungalows. Consequently, a number of these bungalow operators have taken the initiative to invest in RE systems to service their bungalows, but most still use a variety of energy sources and 40%[4] of them use petrol gensets. The government has also embarked on a few energy projects, with support from development partners, focusing on electricity access in rural areas and these bungalow operators have been included in these projects.

With the increasing use of RE technologies in rural bungalows and in rural communities in general, unfortunately, the skill level and the know how to operate and maintain these systems out there is limited. Therefore, this activity aims to develop a basic guide that highlights RE and EE technologies and concepts suitable for medium and small-scale rural hotel operators, in particular solar PV applications. This RE and EE Guide will assist these rural bungalow operators on how to operate and maintain these RE systems and apply energy saving practices that would maximize the lifespan of the systems.

Objectives/Purpose of the Assignment:

The objective of this assignment is to develop a Practical Guide for renewable energy (RE) and energy efficiency (EE) use for Medium and Small-scale (Bungalow) Tourism Operators (focus on hotels) in Vanuatu. The focus should be on ready-to use, proven technologies suitable for rural areas and available in Vanuatu.

Scope of Work:

The key activities under the assignment include (but are not limited to):

1. Conduct a kick off meeting with GGGI, DoE, DoT, and Vanuatu Skills Partnership Program (formerly TVET) for this assignment and provide a Draft outline of the Guide (1 day);
2. Work with the GGGI Pacific team, DoE, DoT and TVET to develop a Practical Guide for RE and EE for Medium and Small-scale accommodation providers in Vanuatu including (20 days);
    - Provide a rationale for the use of RE and EE technologies for medium and small rural tourism operators (mainly hotels) in Vanuatu;
    - Provide brief background information of available RE & EE technologies in the Pacific

[2] Diesel price in the outer islands can be triple the Port Vila price so electricity costs can be easily double those of small gensets in Efate.

[3] Less than 90% of rural population have access to reliable sources of electricity.

[4] "Vanuatu: Tourism and Renewables Market Assessment and Business Model Development", GGGI, 2016,

- Present the most appropriate RE & EE technologies for medium/small hotels in Vanuatu. It is anticipated this section would focus on:
  - Pico-solar PV, SHS and larger systems;
  - Solar PV for various applications (solar lighting, refrigeration, water pumping, etc.) which relate to provision of tourism services
  - Solar water heating
  - Efficient cook stoves
  - Energy efficient lights and electrical appliances
- Highlight importance of protecting equipment from the weather (e.g. installing in shaded, rain proof shelter where appropriate), guidance on remove and reinstall the system before and after a cyclone;
- Highlight importance of safe wiring /wiring standards for the solar PV systems;
- Highlight basic instructions on how to operate and maintain a typical solar PV system; a well as basic operation and maintenance requirements for different sizes and types of solar systems (plug and play lighting; solar freezers; solar water pumps);
- Highlight basic trouble shooting measures for a solar PV system;
- Provide brief background information of EE technologies and energy conservation practices for hotels and rural bungalows in the pacific
- Identifying recommended EE options for medium and small hotels in Vanuatu, including:
  - Efficient lighting
  - Efficient ventilation
  - EE appliances, etc.
- Highlight basic EE procedures to maximize lifespan of the RE systems;
- Provide a basic step by step guide/template on:
  - How to calculate your electricity usage based on appliances, Watts and Hours of usage and how much it costs when using petrol gensets
  - How to calculate the basic size and cost of a PV system to match estimated electricity use

    The purpose of these exercises would be to give users a ballpark figure on a) how much electricity they are currently using/might use in future if they buy new appliances and b) how much a PV system to cover their electricity needs might cost. The guide would need to be clear that they would need to ask a supplier for an actual system design and cost estimate.
- Mention one or two examples or RE and EE in small hotels in Vanuatu (or the Pacific); the DoE/DoT/GGGI solar freezers project should be mentioned as one example. GGGI will supply information on this;
- Mention any government information, contact of relevant agencies (e.g. DoE, DoT contact details) or funding available for RE and EE technologies in Vanuatu (VREP1, VREP 2, National Green Energy Fund, etc.);
- Provide a directory of names and contact details of relevant RE & EE suppliers in Vanuatu. GGGI will be able to provide some information from our own database.

3. Conduct a training workshop for DoE and DoT officials and selected rural hotels operators on the basic RE and EE Guide, which would comprise as a minimum: (1 day)
   - Presentation of the draft guide
   - Exercise on calculating electricity use / solar PV system size
   - Q&A / Feedback session

     Venue, participants costs would be covered by GGGI.

4. Incorporating feedback from workshop and from GGGI, DoE and DoT and development of the final RE & EE Guide (3 days)

The consultant shall closely coordinate the implementation of the assignment with the DoE, the DoT and the Global Green Growth Institute (GGGI) and will report to GGGI.

Output/Reporting Requirements/Deliverables:

1. Inception report within 1 week of signing contract, detailing methodology and work plan to accomplish the outputs– 10% of fees
2. First draft report 4 weeks after contract signing. – 25% of fees
3. Conduct a training workshop for DoE and DoT officials and selected rural bungalow operators on the basic RE and EE Guide, present draft guide, receive and incorporate feedback – 30% of fees
4. Final report responding to all comments received within 8 weeks of contract signing – 35% of fees

The consultants will liaise and report on an ongoing basis to the GGGI Senior Officer in Vanuatu and the Pacific Regional Representative in Fiji and will copy all communications and deliverables to the Department of Energy and the Department of Tourism.

Qualifications/Experience/Expertise

- Minimum qualification of a Bachelor's degree in Science, Engineering, Economics or Finance, a specialisation in the area of renewable energy and/or energy efficiency is preferred
- At least 5 years of relevant experience in technical or advisory services or business experience on development/implementation of projects in renewable energy/energy efficiency/energy conservation/climate change mitigation projects for governments and institutional clients.
- Excellent command of oral and written English.
- Experience undertaking energy user guides development in the Pacific region.
- Experience in looking at energy needs for the tourism sector in Vanuatu or other Pacific island countries would be an advantage.