

Concept Note Cover Page

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Country: Papua New Guinea

Location within the country (ies): Central Province- Rigo District: 4 sites Kalo, Mt. Brown-Ward 8, Keapera, Saroa-Keina Villages

Concept focus:

Climate change adaptation

Sustainable energy

Both

Project type:

Type 1 – 200,000 Euro maximum budget

Type 2 – Maximum budget is the country allocation

Total requested budget: 1 million Euros

Duration of project: 36 Months

Contact point:

Name: Varigini Badira

Position: Executive Director

Email: vbadira@gmail.com

Phone Number: +675 70055697

Alternate Contact Person

Name: Luanne Lose

Position: Manager, Projects

Email: lulan2431@gmail.com

Phone Number: +675 70910300

Support for PDD development:

Yes, consultant(s) or organisation(s) to be engaged

No

Undecided

Concept Note – Description (4 pages maximum)

1. Project title: Community-based Solar Farm Project

2. Background and rationale (max ¾ page)

As PNG is a party to the Kyoto Protocol, GoPNG has made a commitment to reduce our GHG emissions by 50% and become carbon neutral by 2050. This commitment was subsequently integrated into the PNG Vision 2050. In 2014, GoPNG developed its Climate Compatible Development and Management Policy. This Policy advocates that PNG must adopt the core elements of the Climate Compatible Development Strategy (CCDS) i.e. to: promote economic development through low-carbon growth; mitigate net GHG emissions through participation in a global REDD-plus scheme; and adapt to climate-related hazards. The convergence of these three objectives form the heart of PNG's climate-compatible development strategy, which will foster environmentally sustainable economic growth while capturing the opportunities of carbon mitigation and protecting against the perils of climate-driven hazards.

PNG has a population, estimated at some 7 million with a land mass covering approximately 460,000 square kilometres. Around 87 percent of the population live in rural areas of PNG's varied and rugged terrain, most of which are inaccessible by road and lack basic services including electricity supply. Greenhouse gas emissions are high relative to the level of development especially due to emissions from land use, land-use change and forestry. In response, reducing emissions in the Energy Sector could save ~2.1 Mt CO₂e per year by 2030 that will include ~1.1 Mt CO₂e per year coming from a combination of constructing and/ or rehabilitating grid-connected hydro and geothermal power stations and rural off-grid electrification using micro-hydro and solar technology.

To that effect, the Office of Climate Change & Development has embarked on a first ever community-based off grid solar farm in the Aroma Coast of Central Province. A recent survey conducted by OCCD in the project area resonated the necessity of the project due to non-existence of electricity for household use. Electricity is heavily substituted by fuel wood and kerosene for lighting and cooking. Respondents of the survey also suggested scaling up of solar energy to enable use of small electrical appliances and benefit from small-scale economic earning opportunities such as small refrigeration and charging of mobile phones for marketing produce. Such activities include use of refrigerator for storage of marine produce that can be sold in local markets. Hence, the proposed project warrants immediate attention as communities demand solar energy as well as deemed a resource for solar energy research, an important step towards the roll-out of larger-scale commercial solar farms.

The Office of Climate Change and Development is partnering with the Department of Petroleum and Energy, PNG Power Limited and the respective provincial government. Department of Petroleum and Energy will use this project to reform policies in the renewable and clean energy sector. PNG Power Limited will ensure compliance to all technical electrical standards, whilst the provincial government will coordinate and drive the implementation on the ground through the Provincial Climate Change Committee. This is in line with the Climate Compatible Development and Management Policy approved by the Government recently. The detailed design will intrinsically capture the functions and roles of all actors.

Objective (s) (two to three sentences)

The overall objective is to support the socio-economic development of four rural communities in the Rigo district (Kalo, Mt. Brown-Ward 8, Keapera, Saroa-Keina Villages) and to reduce their vulnerability against climate change impacts through the provision of reliable, sustainable and clean energy.

At the national level, this objective will contribute towards fulfilling PNG's commitment to the Kyoto Protocol.

3. Expected project outcomes (max ¼ pa)

Having access to reliable and clean energy will change the lives of the local communities in many ways. There will be better light provided to students for reading and studying, food can be preserved and kept in refrigerators for later consumption or selling, women will spend less time gathering firewood for fuel and water from water pumps but can invest their time in other productive work, improved communication infrastructure and technology (radios, TV, telephones) means rural communities are more accessible to information and news from beyond their villages, the utilisation of electrical tools and equipment makes for easier work and

opportunities for infrastructure development, including an efficient water reticulation system and the use of renewable energy ensures that natural resources are not depleted.

The following outcomes are expected from the Community-based Solar Farm Project;

- An advanced solar farm development model established in 4 sites in the Rigo district (Kalo, Mt. Brown-Ward 8, Keapera, Saroa-Keina Villages).
- Encouraged collaboration that generates cooperation and solidarity among diverse groups/clans in the interest of a more integrated and mutually understanding society. Sustainable socio-economic development and improved livelihoods of local communities through increased economic activity and utilisation of improved technologies and facilities such as refrigeration.
- Local communities including government facilities have better access to lighting and electricity
- Local communities are provided with safe drinking water and a reliable water supply. This would especially reduce their vulnerabilities during events of high rainfall (flooding) and/or prolonged dry seasons.
- There is improved communication and information exchange between the local communities and supporting agencies and organisations within and outside the district. This communication access can support the improvement of their livelihoods (e.g. farming advice and marketing access; more accessible to weather information and early warning systems etc.)
- Improved health care provided by the local health centres

4. Targeted outputs (max ½ page)

The following will be the project outputs;

- Provision of green technology and materials for the selected communities
- Training and capacity building interventions to enhance rural electrification and technology transfer enhancing skills sets of Provincial, District and Local-level Government officers as well as the communities in the application of new technology
- Training of Community Development officers to enhance skills and knowledge on stakeholder engagement processes with the inclusion of gender and other vulnerable groups to integrate into their Ward Developmental plans to complement GoPNG's bottom-up approach
- Integration of traditional knowledge and use of new technology for optimum results and dispute resolution
- Design, supply and installation of lighting infrastructure, water pumps and purification equipment, and refrigerators
- Technical and material support for the development of safety measures
- Research for the establishment of models for generation of large-scale solar energy and promotion of the Healthy Island concept
- Local communities are more aware of the importance of renewable energy and energy efficiency
- Technical support and advice provided to Office of Climate Change & Development to integrate renewable energy and appropriate technology into climate change development plans.

5. Beneficiaries (max ½ page)

The communities of the 4 targeted sites in the Central Province, Rigo District (average site population of 5000 people) will be the direct beneficiaries of the project. Prior vulnerability assessment was conducted in Rigo District, Central Province. The report can be accessed on the following weblink: https://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/PPCR_4_PNG.pdf (Pages 86 to 95 – specifically to electricity on page: 93). At the beginning of the project Community profiling will be done to better understand the characters, needs and resources of the targeted communities that will inform project interventions. Social inequalities and gender relations are important determinants of the ways climate change affect various segments of population. Women's household burden will decrease considerably due to the installation of water pumps that put more pressure on womenfolk to walk distances to fetch water etc.

The provision of lighting and electricity to 4 Health Centers will benefit the community at large including government health workers; electricity to community halls will benefit community leaders, youths, women and school children; electricity for streetlights will benefit the elderly and will increase security for women and children. Installation of pumps for water reticulation and refrigeration will lessen the burden on women and children who carry and fetch water long distance.

Indirect beneficiaries include the various government and provincial agencies who are responsible for the economic development and social welfare of these communities. Technology transfer of installation of solar equipment and management will assist technical officers in the Province to enrich their skills sets in areas including: engineering assessment; cost analysis; environment assessment; economic valuation and community engagement. The country as a whole is also an indirect beneficiary of the project since the project contributes to the low carbon growth strategy defined in the Climate Compatible Development and Management Policy. The Department of Petroleum and Energy will improve its capacity to formulate their respective sector policy and inform decision making in the Energy Sector. This project will explore the synergies for a greater understanding of energy-water linkages in order for OCCD to develop more effective policies and to address their mutual vulnerabilities. OCCD will optimize use of this funding whilst combining both mitigation and adaptation actions thereby saving costs and optimal use of its human resource capacity.

6. Indicative budget (max ½ page)

The indicative budget for four (4) sites and estimates are based on PGK equivalent to Euro. All 4 sites are connected by road and therefore, road transport will be used to transfer goods as well as for site visits. A reasonable number of green and water technology suppliers are available based in Port Moresby to render goods and services efficiently and at local prices. Estimated 65% of the budget will be allocated to the core of the Project – design, procurement and installation of technology. Remainder of the budget is distributed amongst the PMU, research and training and activities that will support the success of the Project. Below table shows the summary of the indicative budget. The estimate costs are based on similar exiting pilot projects in Paramana Coast of the Central Province and three districts in Eastern Highlands Province. A budget revision maybe required during development of the PDD.

Budget summary for 4 site locations
Rigo District: Kalo, Mt. Brown-Ward 8, Keapera, Saroa-Keina Villages

Item	Indicative budget
Output 1 – Site inspection & assessment (feasibility & cost analysis)	100,000.00
Output 2 – Design, supply and installation of Solar Energy	650,000.00
Output 3 – Research & training	100,000.00
Output 4 – Operation & Maintenance (O&M) & Monitor and report on energy production/GHG reduction	100,000.00
Project Management Unit	50,000.00
TOTAL	1,000,000

7. Project management (max ½ page)

Office of Climate Change and Development will be the lead national agency with the overall responsibility for the project. Members of the REDD/Mitigation Technical Working Group that includes PNG Power Limited and Department of Petroleum and Energy, selected Private Sector representatives and community representatives will be part of the project. Besides, private contractors will assist in the supply and installation of Solar equipment, water pumps and refrigerators. A project management committee will be set up at the National level headed by the Executive Director, Office of Climate Change and Development and comprising of representatives from national implementing agencies and implementing partners. The committee will meet once in every three months to monitor and review the project activities and make action plans. The Director of Mitigation/Low Carbon Growth, within the lead national agency (OCCD) will be the Project Director (PD) in order to conform to the Government's norms to institutionalize externally funded initiative within the OCCD and within the government. A Program Manager (PM) will be appointed to work under the direct supervision of the National Project Director and manage the programme on a day-to-day basis and will be accountable through the PD for planning, management, quality control, timeliness and effectiveness of the project. A Programme Administrative & Finance Assistant will be appointed to provide administrative, logistical and accounting support to the project. A Technical Specialist will be appointed who will render technical support to the PM as well as project counter parts. The project staff will also meet regularly (twice a month) to review implementation of various project activities. Community awareness and education is a function of OCCD hence

that responsibility can be incorporated in the recurrent activities. PMU Budget is complemented by having OCCD share administrative cost and responsibilities, indicative budget will be for consumables.

8. Complementarity and replicability (max ¼ page)

There is a strong commitment of the Government of PNG to sustainably address climate change and its social, economic, environmental and financial impacts which is evident through community-based solar farm that is currently being implemented under the leadership of OCCD as well as proposals for similar initiatives forthcoming from the Eastern Highlands Provincial Government. The project is complementary to many other programs and project in PNG that focuses on reducing GHS emissions from different sectors. The project will catalyse action on low carbon growth by building upon PNG’s Climate Compatible Development Strategy which has been developed in consultation with governmental and non-governmental stakeholders and approved by the Cabinet. The project is in full alignment with the country's 2011-2015 Medium Term Development Plan, its 2010-2030 Development Strategic Plan, and its Vision 2050’s pillar on Climate Change and Environmental Sustainability including sectoral policies. The project is not only aligned with government of PNG’s strategic and policy frameworks on climate change and adaptation but also directly supports the OCCD’s programmatic priorities, in particular the capacity development of officials, and other actors to undertake low carbon growth initiatives and implement adaptation measures. The lessons learnt from this action will inform OCCD's Climate Change Adaptation approach to its priority areas of water and sanitation and food security for potential replication and/or scaling up of the project at various levels. The learnings from training and participatory process as well as the establishment of local processes that aims at creating local capacity in regards to installation can easily be replicated.

9. Sustainability and risks (max ¼ page)

The proposed project approach of promoting strategic partnerships with governments, the private sector and communities; integrated interventions connecting the national to local level; building capacities of communities to manage climate change, will contribute to sustainability of the programme. The project integrates a specific component on training and knowledge management as key part of the sustainability and replicability strategy of the initiative. The project draws on the GoPNG’s strong commitment to low-carbon economic growth hence, limits the likelihood of institutional-level risk to have a negative impact on the project and the desired outcomes. However, one of the risks that is envisaged at this stage is land disputes within the project sites that may affect implementation of the project. The mitigation measures for the above risk will be community consultations to assess the risk of land disputes as part of the pilot site selection process. The Central Province Government, Rigo District Administration and OCCD will agree on a cost sharing exercise after the life of the project to ensure sustainability.

Activities	0-6	6-12	12-18	18-24	24-30	30-36
Site Identification - Identify a site for the Solar Plant/water pump/refrigerator	x					
Preliminary Feasibility/Cost Analysis – on-site photovoltaic project assessment, engineering assessment, cost analysis, environment assessment, economic valuation and community engagement.		x	x	x		
Engineering Design/ Technology - Determine PV system size, conceptual design elements, and specifications for solar lighting, solar powered pumps and refrigerators			x	x	x	
Contractor selection, and procurement, supply and installation of technology			x	x	x	x
Testing and Connection to Grid				x	x	x
Monitoring and reporting	x	x	x	x	x	x

10. Stakeholder engagement in concept note development (maximum three sentences)

The concept note has been shared with the REDD+/Mitigation Technical Working Group that comprises of representatives of government agencies. The Department of Petroleum & Energy which is the mandated agency to regulate the energy sector has been consulted and is keen to support the Project. PNG Power Limited will provide technical inputs to the Project. Detailed consultations with the relevant stakeholders will be held to receive inputs for the finalization of the project document upon acceptance of the concept note. Terms of Reference will be developed to define the roles of responsibilities of all stakeholders.