

Concept Note Cover Page

Country (ies): KIRIBATI

Location within the country(ies):TABUAERAN & ABEMAMA ISLANDS

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: EUR 450,000

Duration of project: 2 YEARS

Contact point:

1. **Ms. Mwaati Oten**
Conventional Energy Planner
Ministry of Public Works & Utilities
P.O.Box 498
Betio, Tarawa
Republic of Kiribati
Email: mwaati7@gmail.com
Ph: 00 686 26192

2. **Ms. Miriam I Tikana**
Energy Economist
Ministry of Public Works & Utilities
P.O.Box 498
Betio, Tarawa
Republic of Kiribati
Email: mitikana@gmail.com
Ph: 00 686 26192

Support for PDD development:

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

No

Decided

Country:Kiribati

Project Type:Type 2

Total requested budget: 450,000 EUR

Duration of project:2 years

Contact point: Iotaake Timeon, Secretary, Ministry of Public Works & Utilities, P.O.Box 498, Betio, Tarawa, Rep of Kiribati; Phone no: (686) 26192; email: iotaaket@mpwu.gov.ki.

Project title:

Renewable Energy Project – PV solar hybrid systems for boarding schools in the rural communities.

Background and rationale:

Kiribati is heavily dependent on fossil fuels for transport, electricity and other sectors. Every year the Government spends 25% of USD 90 million of the national import expenditures on purchasing of fuels for power generation and transportation. The development of the country's economy is deeply reliant on energy, but continuing to import fossil fuels is also the country's economic burden. Enabling the economic growth of the country requires investing in renewable energy strategy to substitute the high consumption of expensive fossil fuels. Kiribati is much blessed with an abundance of clean solar energy freely available throughout the days. The technology has already been introduced in the country.

There are a very limited number of schools on outer islands which provide senior secondary education. Therefore it is necessary for most students from outer islands to attend a boarding school if they wish to complete their high school education. These boarding schools are all co-educational. Boarding schools on the outer islands obtain their power from diesel generators. These schools often experience power outages due to affordability issues (schools often cannot afford the diesel for the generator), and this significantly disturbs students during their daily activities. School facilities such as computer laboratory, internet, and electronics teaching tools and science laboratories electronics devices are often not able to be utilized because power is not available. This problem could be overcome if the schools had access to a hybrid electricity generation system integrating solar PV with the existing diesel generators.

Currently there are 8 ongoing installations of PV solar hybrid systems in the outer islands at boarding schools, which were funded by EDF10. However there are two boarding schools that are without such systems. Further funding is requested to install systems in these remaining schools. The systems which have already been installed have been successful and have benefitted the Schools in fuels savings. electricity is more reliable, students can easily access teaching facilities especially internet during the school hours.

Energy is identified as a priority area for the Government to focus on for this year (2014), therefore the project will complement this strategy. In the Government Policy Statement, the Kiribati Development Plan (2012 - 2015), and the Kiribati National Energy Policy the need for

such reliable, accessible, affordable, clean and efficient energy source is the Government paramount goal.

The system's components specifications will be similar to the existing installed systems at 8 schools to standardize the systems in Kiribati.

Objectives:

The objective of the Project is to *“Install 2 PV solar hybrid systems at Mereang Tabai secondary school (MTSS) and Alfred Sadd Memorial College (ASMC) in the rural areas to reduce the energy cost of diesel fuels, improve schools' facilities to boost students' academics capabilities and to achieve the national renewable energy saving target of 100% by end of 2025”*

Expected project outcomes:

The key expected outcomes:

- Students access to light, water, internet etc throughout both the days and nights;
- School/island technicians' skills upgraded and able to operate and maintain the systems.
- Reduces the uses of imported fuels and generate energy savings ;
- Promotes the uses of environmental friendly clean and safe energy in the outer islands and
- Achieve fossil fuel reduction target in rural public and private communities.

Targeted outputs:

The following outputs are targeted:

- Engage a EPU and KSEC to do the sites survey study and systems design;
- Engage a Contractor to provide materials and equipments and
- Engage KSEC and EPU to install 2 PV solar hybrid systems on sites.
- School/island technicians' skills upgraded capable to operate and maintain the systems;

Stakeholder's consultation:

Consultation meeting was part of the initial development stage of the Concept Note where relevant Ministries were invited to prioritize their respective plan activities related to sustainable energy. Energy project priority list was submitted to Cabinet for endorsement and approval for MPWU to proceed with such activities.

Targeted group:

The following are the beneficial target group:

- *Schools communities:* Access to electricity for the need of lights, water, internet, computers etc is available throughout the days and nights. Students will no longer find it difficult to meet their assignment due dates and thus improve their academic performances.
- *Energy saving:* It is estimated that integrating a solar PV hybrid systems with the existing diesel generators to generate electricity will produce 80% energy saving from the cost of a monthly purchased diesel fuels.
- *Environmental saving:* Deploying renewable energy for the generation of electricity is a clean and safe strategy. The system is environmental friendly free from noise pollution, chemical pollution and do not emit green house gases.
- *school/island technicians:* Capacity building training for technicians who will be responsible for the ongoing operation and maintenance of the systems is to be included in the implementation activities. The knowledge and capacity of these officials will build on training (onsite training during installation) in a similar EU solar project for the secondary schools on the outer islands implemented by EPU. The technicians will then focus on capacity building on the island technicians responsible to maintain, operate and safeguard the installed solar PV hybrid systems.

Indicative budget:

The following is a brief overview of the budget associated with the planned measures and activities including any co-financing or own resource contributions anticipated.

ITEM	INDICATIVE BUDGET (EUR)
1. Project support cost:	5,000.00
2. Site survey and system design cost:	14,500.00
3. Materials cost:	373,500.00
4. Training cost:	8,000.00
5. Logistics cost:	21,000.00
6. Installation cost:	32,000.00
7. Total cost:	450,000.00

Project management:

The implementing lead agency is the Energy Planning Unit (EPU) under the Ministry of Public Works and Utilities (MPWU). Solar Energy Steering Committee chaired by the Secretary is responsible to ensure the project outputs are executed according to the proposed plan and effectiveness and efficiency of the Project is achieved. The Ministry of Finance and Economics Development (MFED) is responsible for the initial preparation of financial management responsible to receive and warrant the money to the lead implement agent office MPWU. It has been agreed upon by the sectors involved in this project, that a Project Coordinator will be recruited and stationed at OB to provide financial and reporting support to the whole ACSE EU-

GIZ project (for Type 1 and Type 2). The responsibility of the project coordinator will be to provide financial and progress reports to MFED and also directly to GIZ. He/she will also be responsible to work closely with the Ministry Project contact person to do the accounting needs. The Ministry of Education (MoE) and the Kiribati Protestant Church will be the responsible Organization for the future ongoing operation and maintenance of the systems, including all related costs with support (advice) from the Ministry of Public Works and Utilities. Since the installation sites are located in the outer islands, the Ministry of Internal Affairs (MIA) will be the responsible Organization to provide supports and assistances before and during the implementation works executed. This support from the MIA will be provided via the Island Council's Offices in the outer islands.

Implementing partner(s) NGO, CROP agency:

EPU is partners with IUCN, SPC, UNDP, USP and IRENA through the current implementing of renewable energy strategies. For this Project, SPC will be the key implementing partner and will assist EPU in developing the PDD and also to strengthen EPU in the preparation of the financial and technical reports.

Complementarily and replication:

The solar PV hybrid system is similar to the current solar systems installed in most (8) of the senior boarding schools in the outer islands. The remaining two schools are included in this programme and thus complementary to the previous EDF10 Project and Italian Project on ground implemented activities.

Furthermore, after having been involved in the above projects, capacity now exists within EPU and KSEC to implement this project under the ACSE programme.

PV array sizes of 25kW of 4340Ah and 29kW of 4700Ah will be installed at ASMC and MTSS respectively.

Sustainability and risks:

It has been found from similar projects which have been undertaken in Kiribati that the primary reasons for failure of such systems are because there are no available skilled technicians on sites to immediately repair the faults; inadequate monitoring of and reporting on the operation of the system, which is necessary to assist in diagnosing problems; unavailability of required spare parts and components in the local market; and vandalism.

We intend to address these problems as follows:

Day-to-day operation of the system will be the responsibility of maintenance personnel employed at the schools. They will be given training in the system by the Contractor during construction, and ongoing training will be provided by KSEC technicians. More complex

maintenance will be undertaken by the KSEC island technicians. O & M costs will be met by the organization that owns the school – these being the Ministry of Education and the Kiribati Uniting Church (formerly known as the Kiribati Protestant Church).

It will be the responsibility of the KSEC island technicians to provide monthly reports to the KSEC Office on the performance status of the systems.

Spare parts will be obtained through KSEC. It is expected that KSEC will have a supply of spare parts available in-country. To streamline the maintenance procedures and ordering of spare parts, it is planned that these two systems will be similar to the 8 existing systems. This will also assist in the sharing and exchanging of information, data and technology among the Schools.

The schools will be tasked with engaging with the community to reduce vandalism.

Timeline for planned measures:

Activities	Year 1				Year 2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Recruitment of project coordinator (in collaboration with OB MELAD and MFMRD)								
2. EPU & KSEC carry out site survey and systems design								
3. Call for tender to supply equipments & materials								
4. Procurement of equipment & materials								
5. On site installation of systems								
6. Capacity building/training to school and island technicians								
7. PV hybrid system commissioning								

Support for PDD development (see also section 5.2.1):

SPC will be requested in the development of the project details document.