

**Solomon Islands – Programme of
Activities (PoA) Project Idea Notes
(PINs) and Project Design
Documents (PDDs) developed
Under ACP MEA Project**

PoA for Promotion of Small Hydro Power in Solomon Islands

Background

- In the Solomon islands electricity is supplied to less than 20% of the population.
- Almost all generation is based on imported diesel fuel.
- the country also faces challenges in the development of the energy sector, including maintaining reliability, ensuring commercial viability of the power utility Solomon Island Electricity Authority (SIEA), and increasing access to modern energy supply.

Objective

- The Programme of Activity (PoA) aims to develop RE resources for electricity generation in particular small scale hydropower for the outer islands. At least 5 viable small hydro projects in Solomon Islands have been identified to be a part of this program.

PoA Description

- Numerous studies and investigations on hydropower carried out in Solomon Islands have concluded that the country is well endowed with hydropower resources (300+ MW)
- 5 sites have already been investigated as potential sites for mini hydropower project development to provide access to affordable electricity to rural areas.
- The proposed PoA will be coordinated by SIEA.
- The CPA's under the PoA are envisaged to be implemented by both SIEA & IPP's.

Load Center	Capacity kW	Annual GWh	Investment (\$ millions)	Expected Commissioning
Auki	1,160	9.8	4.2	2014
Taro	260	2.1	1.7	2014
Ringi Variant A	1,210	10.4	4.4	2013
Ringi Variant B	4,320	26.3	11.3	2014
Lata	107	0.8	2.2	2014
Honiara	2,740	12.7	7.2	2014

CDM Aspects

Baseline Scenario

- In the absence of this program the baseline scenario would be continued usage of diesel based electricity generation with very high operational costs due to high costs of diesel.
- **Additionality**
- Can be demonstrated as per “Guidelines for demonstrating additionally of Micro-scale project activities” EB 63 (version 3)”. As per the paragraph 2 of the guidelines:

CDM Aspects Contd...

Additionality

As per the paragraph 3 of the guidelines:

- Project activities up to 5 megawatts that employ renewable energy technology are additional if any one of the below conditions are satisfied:
 - ∅ *The geographic location of the project activity is in LDCs/SIDs or in a special underdeveloped zone of the host country identified by the Government before 28 May 2010;*
- According to the United Nations, Solomon Islands is classified both as a Least Developed Country (LDC) and Small Island Developing State (SIDS). All the CPAs under this program are having installed capacity less than 5 MW and hence considered to be automatically additional as per the above EB guidelines and further demonstration of the additionality with investment analysis or barrier analysis or both is deemed not necessary

First CPA - Auki Hydropower Project, Malaita

Project Description:

Auki Hydropower Project is a run of river 1.16 MW project to be built on Fiu river passing behind Auki town on Malaita Island.

Only approximately 4% of the population of Malaita province currently has access to electricity.

The project will provide low cost electricity for the provincial capital Auki including surrounding areas.



Fiu River

CDM Aspects

- The project will use a single jet Turgo turbine. Electricity generated from the project will be fed to SIEA power station using 9.6 km, 11KV power line.
- The total investment cost for the project is estimated to be US\$ 4.2 million.
- The project is currently in feasibility stage.
- The price of electricity in Solomon Islands remains one of the highest in the Pacific region at around 50 US cents/kWh. Cost of electricity generation from project activity is expected to be less than 10 US cents/kWh

CDM Aspects

- **Baseline Scenario**

- Use of diesel for electricity generation .
- Increased CO₂ emissions

- **Additionality**

- Project additionally will be demonstrated using “Guidelines for demonstrating additionally of Micro-scale project activities” EB 63 (version 3)”.
- As per the paragraph the guidelines, Project activities up to 5 MW that employ renewable energy technology and are located in LDC/SIDS are considered to be additional.
- According to the United Nations, Solomon Islands is both a Least Developed Country (LDC) and a Small Island Developing State (SIDS)

CDM Aspects contd...

- **Methodology**

AMS,- I.F – Renewable electricity generation for captive use and mini-grid (Version 02/EB61)

- **Estimated Emission Reductions**

- 7840 tCO₂-equivalent/year

Socio- Economic Impacts:

- Reduced annual cost of power generation per MW. Electricity in the Solomon Islands is produced using costly to run and highly polluting diesel generators. Hydropower will offset a proportion of the diesel currently used, and so reduce the overall cost of generation.
- Jobs, training and income generation during construction and operation stage.
- Access to electricity.
- Access to piped water.
- Income generation opportunities generated from increased human activity in the area.
- Overall poverty reduction and improvement in living standards.

PoA for Supply Side Energy Efficiency Improvement on Solomon Islands Electricity Authority (SIEA) Power stations

Background

- In SOL electricity is generated and supplied by the Solomon Islands Electricity Authority (SIEA), which is a state-owned electricity utility that has the sole mandate to provide power across the country
- SIEA faces challenges in efficient operation and maintenance of power stations, including maintaining reliability, ensuring commercial viability

Objective

- The objective of the Programme of Activity (PoA) is to implement energy efficiency measures in all SIEA power stations which will reduce fuel consumption in the diesel generators used for power generation.

PoA Description

- In 2010, the Government of Japan organized training for Solomon Islands and other Pacific Island countries on how to operate their diesel-generators efficiently
- A follow up Workshop held in December 2011 in Suva, Fiji by Okinawa Enetech Company's Research & Development Department.
- EE method to be applied was taught to participants called the EDC assist system – Economic Load Dispatching Control (EDC).
- method is used to support the control of multiple diesel power generating sets operating in parallel by minimizing fuel consumption all the time for load demand
- The combination of units to be operated together is optimized through calculating their measured fuel efficiencies.
- simple and cost-effective because it utilizes the existing monitoring devices installed in the generation fuel flow system.
- The different load demand combination tables created are used to control each generator load at the different load demand.

CDM Aspects

Baseline Scenario

- In the absence of this program the baseline scenario would be continued usage of diesel based electricity generation with very high operational costs due to high costs of diesel.
- **Additionality**
- Can be demonstrated as per “Guidelines for demonstrating additionally of Micro-scale project activities” EB 63 (version 3)”. As per the paragraph 3 of the guidelines:

CDM Aspects Contd...

Additionality

As per the paragraph 3 of the guidelines:

- Energy Efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year are additional if any one of the conditions below is satisfied:
 - ∅ *The geographic location of the project activity is in LDCs/SIDs or in a special underdeveloped zone of the host country identified by the Government before 28 May 2010;*
- According to the United Nations, Solomon Islands is classified both as a Least Developed Country (LDC) and Small Island Developing State (SIDS). Each CPA under the Programme is expected to have energy savings less than 20 GWH and shall be automatically additional as per the above EB guidelines.

First CPA - Supply Side – Energy Efficiency on Noro Munda power stations.

- **CPA Description**

- The proposed CPA involves installation of Economic Load Dispatching Control (EDC) system at Noro Munda power station.
- It is estimated that the project activity on an average will lead to diesel savings of the tune of 5,369,877 litres per year over a period of 21 years at Noro Munda Power Station.
- The project will follow the PoA-specific requirements related to local stakeholder consultations and environmental impact analysis;

CDM Aspects

Baseline Scenario

In the absence of this CPA the baseline scenario would be continued usage of high diesel quantities for electricity generation.

Additionality

The proposed CPA meets the eligibility criteria of micro-scale additonality as proposed project activity is in Solomon Islands which is classified as both LDC and SID by United Nations. The estimated energy efficient from the project are less than 20 GWH per year.

CDM Aspects Contd...

- **Methodology**

- The CPA meets the applicability requirements of CDM methodology - AMS II.B - [Supply side energy efficiency improvements – generation](#) version 09.

- **Estimated Emission Reductions**

- Average 9042 tCO₂-equivalent/year

Local Benefits & Socio-Economic Impacts

Local and Socio-economic Benefits

- The price of electricity in Solomon Islands remains one of the highest in the Pacific region at around US\$ 0.50/kWh.
- The SIEA faces numerous challenges in providing reliable, sustained electricity at a reasonable cost, including rising oil prices, accumulated arrears, and unevenly maintained generation and network infrastructure
- The diesel-fired generators that supply nearly all of the country's electricity are a major contributor of fossil fuel imports, accounting for around 30 percent of Solomon Islands' total imports--affecting the nation's balance of payments situation.
- The proposed PoA reduces nation's reliance on imported fuel and it is a major concern of the Government of Solomon Islands to reduce imports on petroleum fuel to restrain the pressure on foreign reserves.

PoA Solid Waste Management in Solomon Islands

Background

- Over the several decades, waste management has become a major concern for most of the small island countries in the Pacific region
- Poorly managed waste has the potential to cause negative impacts on national development activities, including Tourism and Trade, Food supplies, public health and the environment.

Objective

- The objective of the Programme of Activity (PoA) is to implement effective, manageable and deliverable waste management systems to enable to reduce the amount of waste and methane that is currently generated in the country.

PoA Description

- Solomon Islands are currently faced with environmental, social and economic risks directly related to unmanaged waste dumping.
- There is an urgent need to develop better ways to manage waste in a more sustainable approach.
- Honiara and all the urban centres of Solomon Islands do not have proper landfills.
- There is no control in waste disposal and all sorts of rubbish are dumped everywhere.
- Under the proposed Solomon Waste Management Programme sanitary landfills will be developed in Honiara and other urban centres of country.
- The landfills will be managed using a Japanese waste scheme known as the Fukuoka method or semi-aerobic landfill.
- the technology is cost- effective and simple to construct and operate, and allows a high degree of freedom in the selection materials for the pipes and the accessories.

CDM Aspects

Baseline Scenario

- In the absence of this PoA the baseline scenario would be continued usage of unmanaged and unhygienic landfills with emission of methane into atmosphere from the landfill.
- **Additionality**
- Currently there are no regulations or incentive schemes in place covering the proposed PoA in Solomon Islands. Till date there is no sanitary landfill in Solomon Islands.

The additionality of the CPA shall be demonstrated using one of the following :

- First of its kind
- Investment analysis using simple cost analysis as the only revenue source for CPA's under this PoA will be sale of CER's.

CDM Aspects Contd...

Additionality

As per the paragraph 3 of the guidelines:

- Energy Efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year are additional if any one of the conditions below is satisfied:
 - ∅ *The geographic location of the project activity is in LDCs/SIDs or in a special underdeveloped zone of the host country identified by the Government before 28 May 2010;*
- According to the United Nations, Solomon Islands is classified both as a Least Developed Country (LDC) and Small Island Developing State (SIDS). Each CPA under the Programme is expected to have energy savings less than 20 GWH and shall be automatically additional as per the above EB guidelines.

First CPA - Solid Waste Management at Ranadi Dump, Honiara

- **CPA Description**

- Is the largest dump in the country is and is used for domestic, commercial and industrial wastes collected by Honiara City Council as well as individual industries and the general public
- an open dump with an area of stagnant, anaerobic water in the middle, and with no provision for daily cover although a limited amount of covering occurs on an ad hoc basis.
- no segregation of waste ; no leachate treatment or control ; lack of regular soil covering has caused a significant fly problem and emission of unbearable odours.
- The estimated daily waste disposed in Honiara is 61 tonnes/day
- Under the Programme first sanitized landfill will be constructed in Honiara The landfills will be managed using Fukuoka method which will result in reduction in methane generation.

CDM Aspects

Baseline Scenario

- In the absence of this PoA the baseline scenario would be continued usage of unmanaged and unhygienic landfills with emission of methane into atmosphere from the landfill.

Additionality

The project activity will be a First of Its Kind in the country as per 'Guidelines on additionality of First-of-its-kind project activities' version 01.

The additionality of the CPA will be demonstrated using simple cost analysis as the only source of revenue for this project is sale of CER's

CDM Aspects Contd...

- **Methodology**

- The CPA meets the applicability requirements of CDM methodology - AM0093 (Version 01.0.1, EB 66)

- - [Avoidance of landfill gas emissions by passive aeration of landfills](#)

- **Estimated Emission Reductions**

- Average 6381 tCO₂-equivalent/year

Local Benefits & Socio-Economic Impacts

Local Benefits

- contribute to the establishment of a better practice for municipal solid waste management and landfill gas recovery.
- improve air quality in the area and health conditions for the local inhabitants and its neighboring areas
- “Environmental and sanitary impacts associated with the emissions of methane and other organic compounds will also be prevented.

Socio-economic

- Reduction in the greenhouse gas emissions that are currently occurring through uncontrolled release of landfill gas to the atmosphere;
- Introduction of new landfill gas management technology in the country and region;
- Training of local staff to become experts in the monitoring and control of landfill gas emission;

PIN Selected for PDD Development

PoA for Promotion of Small Hydro Power in Solomon Islands

Taking into consideration: Project Proponents and stakeholder feedback; the current status of project; feasibility studies; viability; CDM benefits including fulfilling CDM modalities and requirements; credibility of project proponent

Thank You!