

Guidelines:

- This Request Submission Form should be completed by the organisation requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question
- The Form must be signed by the NDE. Please see updated contact list of NDEs here: <http://unfccc.int/ttclear/support/national-designated-entity.html>
- The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file
- For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN
- NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

Requesting country or countries:	Solomon Islands
Request title:	Solomon Water - Energy Efficiency and Self-generation Plan
NDE	Ministry of Environment, Climate Change, Disaster Management and Meteorology Mr. Hudson Kauhiona, Director of Climate Change (acting) hkhiona@gmail.com P.O. Box 21 Honiara, Solomon Islands
Request Applicant:	Solomon Islands Water Authority Ian Gooden, General Manager IGooden@solomonwater.com.sb P.O. Box 1407 Honiara, Solomon Islands

Climate objective:

Adaptation to climate change

Mitigation of climate change

Combination of adaptation and mitigation of climate change

Geographical scope:

Community level

Sub-national

National

Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

This section should answer the question "what is the problem?" Please summarise the problem related to climate change and/or the negative impacts of climate change in the country that the request aims to address.

The Solomon Islands is already experiencing the impacts of climate change and is vulnerable to further climatic changes. According to the Pacific Adaptation Strategy Assistance Program 2012, since 1996 sea levels in the Solomon Islands have risen by an annual average of 8 millimetres, temperatures and rainfall have increased and weather conditions have become less predictable. The likely impacts for the Solomon Islands are:

- an increase in sea level by 20 to 70 centimetres by 2100,
- an increase in air temperature of 0.5 to 1.5 degrees Celsius by 2030,
- an increase in sea surface temperatures of 1 degree Celsius by 2050, and
- ocean acidification impacting coral by 2045.

These climatic changes expose our communities to risks of:

- reduced food security,
- health impacts resulting from an increased incidence of insect, food and water-borne disease,
- salt water inundation in many coastal areas,
- degradation of marine resources, and
- impacts on physical infrastructure.

At the same time, as with most Small Islands Developing States (SIDS) the Solomon Islands are highly dependent on imported fossil fuels for basic services. These fuel imports represent a significant and highly volatile proportion of our Gross Domestic Product. The Solomon Islands commits around 7 per cent of our GDP to petroleum imports, with only 16 per cent of households currently able to access electricity.

Solomon Islands Water Authority, trading as Solomon Water (SW), a state-owned enterprise wholly owned by the Government of Solomon Islands, consumes a significant volume of energy to provide water and waste water treatment services to the people. In 2014 and 2015, SW reported spending SBD 32m (USD 4.20m) on utilities, which is significantly more than they spend on salaries. This places a burden on the economy of the Solomon Islands, reducing affordability for the people, diverting scarce resource dollars away from investments into sustainable water supplies, sanitation and energy sources needed to increase resilience to climate change.

Climate change, population growth and movement to provincial centres will increase the need for water treatment, waste water collection and treatment and new sources of raw water. All of these aspects of SW's operation consume power and the increases in the demands for these activities related to climate change, such as increased water treatment to combat water-borne disease, will increase the expenditure on energy.

Past and on-going efforts to address the problem (up to half a page):

This section should answer the question “what has been done or is currently being done to address the problem?” Please describe past and on-going processes, projects or initiatives implemented in the country or region to tackle the climate problem as described above.

With donor support, the Solomon Islands Government is initiating measures to enhance the country’s energy efficiency and decrease reliance on fossil fuels through renewable energy. A number of these measures are being implemented by the Solomon Islands Electricity Authority. However, SW has not yet similarly assessed and prioritised implementation projects in energy efficiency and self-generation. SW does aim to minimise its energy consumption by appropriately training staff in operations and maintenance. This training maintains good practices and ensures equipment is operating as well as possible.

SW has developed a 30-year strategic plan and a 5-year action plan to increase service access in urban areas and beyond. The strategic plan covers raw water supply, water treatment, wastewater collection and treatment. Current energy consumption is not assessed in the action plan, though the objective is to achieve lower energy costs, improve energy efficiency and energy sustainability by considering energy impacts in purchasing decisions for equipment rated at more than 20 kW.

Specific technology¹ barriers (up to one page):

This section should answer the questions “what are the technology barriers that hinder national efforts described above” and “how will the CTCN technical assistance complement these efforts?” Building upon the problem statement and taking into consideration the existing efforts described above, please describe the specific technology barriers encountered by the requesting applicant to identify, assess or deploy climate technology(ies) in an effort to address the problem statement. The described barriers should be within the scope of the requested CTCN technical assistance (described in the section below).

The main barrier to improving energy efficiency and increasing self-generation for SW is lack of resources. SW does not have a detailed plan for assessing the technical and financial feasibility of the range of available energy efficiency and self-generation options. SW staff do not have the electricity sector expertise to undertake this work. SW does not have the human resources or the financial capacity to outsource it.

The Solomon Islands limited technical expertise in energy efficiency and self-generation. Most of the available resources reside within SIEA. Local availability of energy efficient technologies, such as variable speed drives, and self-generation options such as solar or micro-hydro is also limited. These combine to limit the information and advice on suitable options available to SW.

A related challenge is financial. Donor support for utilities is focused on improving the delivery of the services to customers. Donor supported projects for water utilities focus on increasing access to safe

¹ “any equipment, techniques, practical knowledge and skills needed for reducing greenhouse gas emissions and adapting to climate change” (Special Report on Technology Transfer, IPCC, 2000)

drinking water, sanitation and wastewater treatment. Typical of donor projects across all sectors, the ongoing operational costs are expected to be covered by the recipient organisation.

For energy utilities, donor support can increase generation capacity, displace fossil fuel use or increase efficiencies in delivery of the product sold. This increases the cost-effectiveness of the utility. In the water sector, additional supply and treatment facilities result in additional energy use and therefore ongoing operational costs. Water utilities therefore face increased costs to be recovered through water sales, often without an associated increase in the customer base. To counter increased energy related operating costs, SW will investigate options to increase energy efficiency and self-generation. Reducing its annual operational costs would allow SW to increase reinvestment in improving access to services and resilience to climate change impacts.

CTCN technical assistance will complement the support of other donors to increase service access by helping SW to address its energy related operational costs. The CTCN technical assistance would identify and prioritise the options for energy efficiency and on-site generation and provide sufficient design and technical detail for the implementation of the recommended options.

Sectors:
Please indicate the main sectors related to the request:

<input type="checkbox"/> Coastal zones	<input type="checkbox"/> Early Warning and Environmental Assessment	<input type="checkbox"/> Human Health	<input checked="" type="checkbox"/> Infrastructure and Urban planning
<input type="checkbox"/> Marine and Fisheries	<input checked="" type="checkbox"/> Water	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Carbon fixation
<input checked="" type="checkbox"/> Energy Efficiency	<input type="checkbox"/> Forestry	<input type="checkbox"/> Industry	<input checked="" type="checkbox"/> Renewable energy
<input type="checkbox"/> Transport	<input checked="" type="checkbox"/> Waste management		

Please add other relevant sectors:

Cross-sectoral enablers and approaches:
Please indicate the main cross-sectoral enablers and approaches

<input type="checkbox"/> Communication and awareness	<input checked="" type="checkbox"/> Economics and financial decision-making	<input checked="" type="checkbox"/> Governance and planning	<input type="checkbox"/> Community based
<input type="checkbox"/> Disaster risk reduction	<input type="checkbox"/> Ecosystems and biodiversity	<input type="checkbox"/> Gender	

Technical assistance requested (up to one page):

Founded on the problem statement, past/on-going efforts and technology barriers, please describe the requested technical assistance. The technical assistance should clearly contribute to mitigation or adaptation to climate change as described in the problem statement and contribute to overcome the specific technology barriers.

Within a clearly defined scope, the description of technical assistance should be structured into the following:

- *Overall objective*
- *Anticipated groups of activities to be performed by the technical assistance*
- *Anticipated products to be delivered by the technical assistance.*

Please note that the CTCN facilitates technical assistance and is not a project financing mechanism.

The CTCN technical assistance's (TA) overall objective is to identify viable and sustainable options to reduce SW's use of and expenditure on energy.

The TA will review SW's operations from an energy perspective to identify and quantify the energy consumption at each site. The most energy intensive sites will be screened on the type of site, age and condition to form a list of the sites most suitable for energy upgrades.

The TA will undertake energy audits and analyse energy efficiency and self-generation options at the SW's most energy intensive sites in order to identify:

- a) the energy efficiency actions, and
- b) the self-generation options for each site.

The identified actions will have the potential range of their costs estimated to assess the payback period. The energy efficiency and self-generation actions with the lowest payback periods are the most prospective and will be agreed with SW for further investigation.

Activities to be performed after the most prospective actions are:

- detailed analysis of technical and financial feasibility;
- presentation of the business case for SW approval; and,
- preliminary design and development of a technical specification to facilitate implementation.

Some actions may be suitable for all sites, while other actions may be suitable for multiple sites or just one site. The options for self-generation will be modelled to examine performance and financial viability. In addition, the extent to which demand management at each of the sites can contribute to balancing the demand and supply of the electricity network (noting that activities such as the water pumping are sometimes readily interruptible) will also be assessed. The detailed study would also analyse the funding and financing options to ensure that cost-effective projects are implemented.

Anticipated outputs of the technical assistance are a detailed feasibility study and tender documents with the technical specifications for the most prospective actions to facilitate procurement.

Expected timeframe:

Please indicate the expected duration period for the requested technical assistance. Please note CTCN technical assistance is limited to a maximum duration of 12 months.

This technical assistance has an expected duration of four months to visit the sites, undertake the analysis and draft the Energy Efficiency and Self-generation Plan.

Anticipated gender and other co-benefits from the technical assistance:

Please describe the activities with gender linkages as well as the anticipated gender and other co-benefits (e.g. biodiversity, economic, social, cultural, etc.) that are likely to be generated as a result of the technical assistance.

For more information you can find guidelines on the CTCN's website here:

<https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development>

Further reading on gender can be found on the CTCN website here:

<https://www.ctc-n.org/technology-sectors/gender>

The project is expected to reduce SW's ongoing operational costs. This will reduce upwards pressure on the price charged to consumers for the provision of clean water and waste water treatment services and facilitate expansion of SW's service provision. In turn, this has the potential to reduce the burden of collecting water and improve health outcomes for communities.

As noted in the ADB's 2015 Gender Assessment for the Solomon Islands, burdens of caregiving and infrastructure services are linked. Women are the primary care givers in households in Solomon Islands. They are also responsible for most of the household chores, while contributing as active participants in agriculture and community work. In rural areas, household work includes not only cooking, cleaning, and looking after children but also collecting drinking water from communal standpipes or streams, walking to a water source to do laundry and collecting fuel wood. In many rural areas, there is inadequate water, sanitation, and energy infrastructure to support women in their household and caregiving work.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	Ministry of Environment, Climate Change, Disaster Management and Meteorology
Request Applicant	Solomon Islands Water Authority

Please add as many stakeholders and lines as required.	Solomon Islands Electricity Authority Ministry of Mines, Energy, and Rural Electrification
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<p>Alignment with national priorities (up to 2000 characters including spaces):</p> <p>Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc.</p>	
<p>Reference document (please include date of document)</p>	<p>Extract (please include chapter, page number, etc.). <i>Direct alignment and contribution to NDC implementation is required for all CTCN technical assistances. Please include a direct reference to the INDC/NDC document (chapter, page number, etc.).</i></p>
<p>Nationally Determined Contribution (NDC) – September 2015</p>	<p>Solomon Islands <i>Intended Nationally Determined Contribution</i> is available from: http://www4.unfccc.int/ndcregistry/PublishedDocuments/Solomon%20Islands%20First/SOLOMON%20ISLANDS%20INDC.pdf</p> <p>Page 7 states:</p> <p>‘Solomon Islands is a LDC SIDS, that will nonetheless commit to reduce emissions by: 12% below 2015 level by 2025 and 30% below 2015 level by 2030 compared to a business-as-usual projection.</p> <p>On the understanding that a global agreement addresses international assistance to access financial and technical resources, Solomon Islands can with international assistance, contribute a further:</p> <p>27% reduction in GHG emissions by 2025; and 45% reduction in GHG emissions by 2030, compared to a business-as-usual projection.’</p> <p>By reducing Solomon Water’s reliance on imported fossil fuels, this project will contribute to meeting the emission reduction goals above.</p>
<p>Technology Needs Assessment</p>	<p>Solomon Islands has not completed a Technology Needs Assessment.</p>
<p>National Adaptation Plans - November 2008</p>	<p>Solomon Islands National Adaptation Program of Action is available from: http://www.adaptation-undp.org/projects/solomon-islands-national-adaptation-programme-action-napa</p> <p>Page 26 refers to an interest by the Ministry for Environment, Conservation and Meteorology in the “...removal of barriers for the adoption of renewable energy technologies.”</p>

<p>Nationally Appropriate Mitigation Actions - June 2012</p>	<p>Page 23 of the Solomon Islands National Climate Change Policy 2012-2017 indicates a policy intent by the government to develop Nationally Appropriate Mitigation Actions (NAMAs) to include renewable energy and energy efficiency: http://www.gcca.eu/sites/default/files/catherine.paul/si_climate_change_policy.pdf</p>
<p>National Development Strategy 2016-2035 – April 2016</p>	<p>The Solomon Islands Government National Development Strategy 2016-2035 is available at: https://www.adb.org/sites/default/files/linked-documents/cobp-sol-2017-2019-ld-01.pdf Page 24 refers to energy efficiency as important and the need for implementation of innovative, low-oversight solutions in renewable energy technologies.</p>

Development of the request (up to 2000 characters including spaces):

Please describe how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles?) and describe any consultations or other meetings that took place to develop and select this request, etc.

SW has initiated this request as we are aware of the impact of energy costs on the sustainability of our business and the ability to expand services and adapt to climate change. SW is determined to reduce our impact on the environment and contribution to climate change by reducing our reliance on grid supplied electricity, generated largely from imported fossil fuels.

Following from the development of our 30 year Strategic Plan and the initiation of our 5 year Action Plan, SW are now ready to address energy use and its contribution to operational costs.

SW consulted with the Solomon Islands Electricity Authority and the NDE in the development of this proposal.

Background documents and other information relevant for the request:

- *Please list all relevant documents that will help the CTCN analyse the context of the request and national priorities. Please note that all documents listed/provided should be mentioned in this request in the relevant section(s), and that their linkages with the request should be clearly indicated. For each document, please provide web-links (if available) or attach to the submission form. Please add any other relevant information as required.*
- *Please indicate if this request has been developed with the support of the CTCN Request Incubator.*

The Solomon Islands Water Authority Annual Reports are available from:

<http://solomonwater.com.sb/index.php/annual-reports>

The Solomon Islands Water Authority 30 Year Strategic Plan and 5 Year Action Plan is available from:

<http://www.solomonwater.com.sb/index.php/joomla/30-years-plan>

This request has been developed without the support of the CTCN Request Incubator.

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms².

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name: N/A

Date: N/A

Signature: N/A

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures.

Signature:

NDE name: Douglas Yee, Director of Climate Change

Date: 13/12/2017

Signature:



² Please see: https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.