

3.1.4. Increasing energy efficiency in Solomon Islands

Participating country: Solomon Islands

Partners: CTCN, PricewaterhouseCoopers India

Start of technology uptake process: 2017

Climate technology: Energy-efficient water pump technologies

Contribution to NDC implementation: Improving energy and water security, and reducing the GHG emissions of the energy sector

Further information:

CTCN technical assistance: <https://www.ctc-n.org/technical-assistance/projects/solomon-water-energy-efficiency-and-self-generation-plan>.

Climate technology: Energy-efficient water pumping technology solutions, including retrofitting existing technology, making operational improvements and implementing new energy-efficient motors and pumps all reduced GHG emissions from the energy sector while helping to better meet current and future water demands at lower energy costs.

Uptake of the climate technology: In Solomon Islands, energy consumption for water management accounts for about 10 per cent of the country's energy demand, which depends almost entirely on diesel-based electricity generators. Water demand already exceeds water delivery capacity and is expected to increase further because of population growth and expansion of the water supply network.

The Government sought assistance from the CTCN to identify energy-efficient solutions for its water and wastewater pumping facilities in order to address the country's increasing water demand. The Government, with support from CTCN Network member PricewaterhouseCoopers India, conducted a detailed energy audit to identify the most suitable energy efficiency and renewable energy options. Insights from the audit formed



the basis for a variety of energy efficiency measures, including retrofitting existing pumps, making operational improvements, and identifying, procuring and implementing energy-efficient motors and pumps. The energy efficiency of some of the country's water pump stations increased significantly simply by reducing artificially high pressure on the pumping system or by reducing oversized pumps.

Gender-responsiveness: Improving energy efficiency in the water sector will enable Solomon Islands to expand its water supply network, which will predominantly benefit women. Currently, in some parts of the country, water for household consumption is still carried by women over long distances as tap water is not yet universally available. A report on gender co-benefits was prepared as part of the CTCN technical assistance.¹⁸

Financing: Energy efficiency was significantly increased cost-free simply by developing and implementing operational improvements and carrying out retrofits of existing technology. These energy efficiency gains resulted in energy cost savings, which were then used for piloting new technology solutions. In addition, Solomon Islands worked with PricewaterhouseCoopers India in the context of the CTCN technical assistance to develop documents to help in leveraging financing for the procurement of further energy-efficient water pumps.

Contribution to NDC implementation: The uptake of energy-efficient water pumping technology solutions is supporting the implementation of Solomon Island's NDC (submitted in 2016) by improving energy security and reducing GHG emissions from the energy sector. The estimated GHG emission reduction over the lifetime of the energy efficiency improvements is 3,260 t CO₂ eq. Uptake of the technology has also helped to improve water security and thus contribute to one of the priority adaptation interventions outlined in the NDC.

Other benefits of the uptake of the energy-efficient technology solutions are significant energy cost savings, which can be used for expanding the water supply system to areas currently without a service. In addition, energy efficiency measures have improved occupational health and safety as a result of improved housekeeping of pump stations.

Challenges and lessons learned: Key challenges that Solomon Islands faced regarding making its water pumping system more energy-efficient were a lack of technical knowledge and skills and access to funding. The technical assistance provided by the CTCN through its Network member PricewaterhouseCoopers India addressed these challenges in part by identifying low-cost solutions through retrofitting and operational changes combined with conducting on-the-ground training and producing a technical manual on the implementation of the identified solutions. An important lesson learned is that considerable energy efficiency improvements can be achieved with little or no investment. However, major technological changes require large investments.

Long-term sustainability, replicability and potential for scaling up: The uptake of the technology is sustainable in the long term as knowledge on energy efficiency achieved through operational improvements has been transferred through training modules with train-the-trainer components and captured in operational manuals for future reference. The investment in identified new energy-efficient technologies is sustainable, replicable and can be scaled up owing to its strong profitability through reduced energy costs and applicability for all water pumping stations throughout the country.

18 Available at https://www.ctc-n.org/system/files/dossier/3b/CTCN%20TA_Gender%20Co-Benefits_Solomon%20Water_20200508.pdf.