Title: Feasibility Study for Low Emission Land Transport Sector in Solomon Islands

CTCN Request Reference No.: 2021000004
Countries: Solomon Islands
UNIDO Request for Proposal (RFP) No.: 7000004914
Date: 11 June 2020

1 BACKGROUND INFORMATION

The Climate Technology Centre and Network (CTCN) is the operational arm of the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism and co-hosted by the United Nations Environment (UN Environment) in collaboration with the United Nations Industrial Development Organization (UNIDO) and supported by 11 partner institutions with expertise in climate technologies. The mission of the CTCN is to promote accelerated development and transfer of climate technologies at the request of developing countries for energy-efficient, low-carbon and climate-resilient development.

These requests for Technical Assistance (TA) are being submitted to the CTCN by the National Designated Entity (NDE) of the respective country. Eligible requests are processed by a group of selected experts who develop a Response Plan. The scope of services under these Terms of Reference shall be executed based on a restricted solicitation process where only accepted Members of the CTCN Network, are eligible to submit proposals.

In case you are not a CTCN network member yet, you may bid for implementation of the technical assistance, subject to the condition that you submit your completed application for CTCN Network membership before the last date of the bid closure and the same is acknowledged by the CTCN. Furthermore, the contract award – should your bid be selected – is conditional to your network membership application having been successfully approved by the Director of CTCN. The requirement to join the CTCN network is only relevant to the main bidder and no sub-contractors.

The maximum estimated budget for this contract is USD 169,810.

It is mandatory for the implementer(s) to allocate at least 1% of the budget to integrate a gender-approach to the activities. Please refer to the CTCN Gender Mainstreaming Tool for Response Plan Development for guidance at https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development.

2 PROJECT CONTEXT

Solomon Islands has its own challenges and opportunities in terms of its energy situation. Solomon Islands is remaining dependent on imported petroleum products to meet its energy requirements including the demand of fuel for the transport sector. Low national electricity coverage, high energy costs and high
dependence on imported fossil fuel are exacerbated by the geographical spread of the archipelago, and this adversely affects economic and social development.

In 2012, the total cost of petroleum fuels was SBD 843 million, approximately 14% of Solomon Island’s national Gross Domestic Product (GDP). Over 50% of petroleum fuel being imported into the Solomon Islands is being consumed by the Transport sector (land and sea). About 95% of total installed capacity of energy generation in Solomon Islands is based on fossil fuels, and the balance 5% is through renewable energy sources. The energy tariff of Solomon Islands is one of the highest in the Pacific since a major share of energy in the Islands is met through fossil fuels. As the trend on the global price of petroleum product is very uncertain, it poses a serious threat to the energy security for the small and fragile economy like Solomon Islands. The reliance on fossil fuel for transportation also goes against the country’s climate change mitigation ambition as reflected in the Solomon Islands Nationally Determined Contribution. Low carbon transport is both a mitigation and an adaptation challenge for the people of Solomon Islands.

The transport sector needs to reduce its carbon footprint and be resilient to the effects of fluctuating and expensive fossil fuels. Accordingly, as per the Solomon Islands’ Nationally Determined Contributions (NDC 2016), transport (land and sea) accounts for 61% of the total emissions from the energy sector. This is by far the biggest contributor of GHG emissions in the country. The published NDC for Solomon Islands has placed critical importance on transport as a mitigation priority to reduce its carbon footprints and improve the economic conditions of the country. As stated in the NDC, with appropriate international assistance to access financial and technical resources, Solomon Island can realize a 27% reduction in its GHG emissions by 2025 and 45% GHG emission reduction by 2030.

As with many Pacific Island Countries, low carbon transport in Solomon Islands is new and many of the policy makers have very limited knowledge and understanding on the technology like electric vehicles and its benefits. A lot more education and awareness are needed to increase the introduction of hybrid and electric transport system in the country.

CTCN is requested to support the market analysis to introduce and promote low carbon transport complemented with policy, implementation roadmap, feasibility study and capacity building on electric vehicles.

The CTCN support is needed in two folds:

i. To conduct a market analysis to recommend on policy and implementation roadmap on low carbon transport through electric vehicle.

ii. To conduct feasibility study on selected interventions and capacity building on low carbon transport.

The request and response plan with other details about it can be accessed from the following link:
3 AIM OF THE CONTRACT

The contractor is expected to take full responsibility for the satisfactory execution of the technical assistance described herein. All activities will be conducted to deliver the outputs in consultation with National Designated Entity (NDE) in Solomon Islands and Regional Manager in CTCN.

The objectives of the technical assistance project are:

- Assessment of the options available and barriers to the market adoption of electric mobility in Solomon Islands as an approach to low carbon land transport and draft the national policy on EV (Electric Vehicles) for land transport.
- Under the scope of proposed policy, recommend on the implementation roadmap for deployment and upscaling of the EV and supporting sustainable infrastructure with an integrated approach to climate change mitigation and adaptation based on local context.
- Conduct detailed feasibility study on selected action plans to develop business case on procuring and deploying electric vehicles and sustainable supporting infrastructure.
- Facilitate capacity building and awareness of relevant stakeholders from government and EV value chain focusing on the gender gaps.

Scope and activities of the proposed contracted services

The Contractor/ implementer is expected have thorough understanding of the requirements through this ToR, Signed Response Plan and the request to undertake the following activities in the timeline indicated:

Output 1: Planning and communication documents

Activity 1: Inception meeting and development of implementation planning and communication documents.

A 1.1: An inception meeting will be held virtually.

A 1.2: A work plan detailing activities, respective deliverables, outputs, timelines and responsible persons/organizations and detailed budget to implement the Response Plan, meeting the requirements of the Response Plan.

A 1.3: Monitoring and evaluation plan with specific, measurable, achievable, relevant, and time-bound indicators used for timeliness and appropriateness of the implementation. The plan should apply selected
indicators from the Closure and Data Collection report template and enable the lead implementer to complete the CTCN Closure and Data collection report at the end of the assignment.

A 1.4: A two-page CTCN Impact Description formulated in the beginning of the technical assistance and update/revised once the technical assistance is fully delivered based on the template provided by CTCN. The template will be provided by CTCN.

A 1.5: A Closure and Data Collection report is to be completed at the end of the technical assistance. The template will be provided by CTCN in the beginning of the activity.

Deliverables 1

D 1.1: Inception meeting report
D 1.2: Detailed work plan
D 1.3: Monitoring and evaluation plan
D 1.4: CTCN Impact Description
D 1.5: Closure and Data Collection template and report

Output 2: Assessment of the options available and barriers to the market adoption of electric mobility in Solomon Islands as an approach to low carbon land transport and draft the national policy on EV (Electric Vehicles) for land transport.

The output is to achieve a draft policy document which should be concise, but also provide all relevant information to set the way forward to an implementation roadmap (Output 3) for achieving the endorsement of the stakeholders for low carbon land transport through electric vehicles in Solomon Islands.

A 2.1: Conduct the market analysis, collect data on formal and informal modes of land transport.

This will include an infrastructure analysis and assessment of vehicle availability (type of vehicle and infrastructure type best suited to Solomon Islands) scale-up potential, barrier identification such as energy availability, financing gap analysis, reliability of the charging infrastructure. This will further include the collection of primary and secondary data to conduct background analysis of land transport sector in Solomon Islands focusing on public and private vehicles used in urban areas in the Islands. The data will be used to conduct GHG projection, accommodating the developmental plans for the land transport sector. An integrated climate approach to be adopted for data collection, also considering the potential interlinkages from climate change adaptation perspectives. An effort shall be made at the time of data collections to disaggregate the responses from the surveyors by gender, youth and vulnerable group and brief follow up analysis on the same to be conducted, under this output.

A 2.2: Map out potential stakeholders in EV value chain ranging from policy makers, financiers, automobile manufacturers, part suppliers and the consumers.
While collecting data in Activity 2.1, effort should be made towards identifying the potential stakeholders using a value chain approach for land transport sector in Solomon Islands. Based on the data and information, a comprehensive list of stakeholders should be developed with detailed roles and responsibilities spanning over the complete technology life cycle of low carbon land transport such as Electric Vehicles. The list can be expanded by not limiting it within Solomon Islands, as potential players in the Pacific Region can also be included with appropriate justification on their support and engagement in Solomon Islands.

A 2.3: Draft the policy objectives, quantitative targets on the number of EVs with projected GHG emission avoidance, charging infrastructure and designated roles and responsibilities of the relevant authorities and relevant institutions.

This will serve as a guiding policy document with clear, realistic, and measurable objectives and targets for low carbon transport through electric vehicles. This document will be prepared in consultation with relevant authorities and institutions.

A 2.4: Identify barriers from the policy implementation perspective and recommend on viable instruments to promote EV.

Conduct the barrier analysis that are identified to impede the implementation of the policy objectives. Recommendations based on international experience to overcome the barriers to be made, if capacity gaps and barriers are found to be fed to Activity 5.2. It is imperative to assess the barriers using a value chain approach for the implementation of electric vehicles. The value chain approach will address the complex issues for island nations such as the energy requirements from the electric vehicles shall not add to the fossil fuels for electricity generation and there shall be environmentally sound management and disposal of electronic wastes like the batteries. Hence, following is to be carried out under the barrier analysis, as well.

Activity 2.4.1: Analyze the total additional load on the grid due to introduction of EVs and barriers to its augmentation through the use of RE based systems.

Activity 2.4.2: Estimate the life of the battery systems and projected generation of discarded batteries at the end of each year for a time span of 10 years. Assess the barriers to the environmental sound management and disposal of such wastes generated from EV value chain.

Deliverables 2
D 2.1: A policy document, also including the baseline assessment and barrier analysis to implement the policy, including the charging infrastructure required and battery management.

Output 3: Under the scope of proposed policy, recommend on the implementation roadmap for deployment and upscaling of the EV and supporting sustainable infrastructure with an integrated approach to climate change mitigation and adaptation based on local context.
A detailed implementation roadmap based on the international cases will be drafted to achieve the policy objectives proposed under output 2. Proposed action plans under the implementation roadmap will be supplemented with assessments on implementation time, required size of investment, potential financing source, link and refer back to activity 2.4 on the potential barriers and solutions and activity 2.2 on the required institutional arrangements; and impacts in terms of no. of EVs to be deployed, charging infrastructure to be built, Technical Assistance Response Plan – Terms of Reference energy savings and GHG emission avoidance targeted at activities level. Recommendations will be made on the combination of potential business models, regulatory intervention and financial and fiscal incentives that will support the implementation roadmap.

A 3.1: Consolidate and review transport plans and policies in the Pacific countries and other countries having similar transport landscape as Solomon Islands to recommend/develop the action plans for EV implementation.

The EV implementation roadmap will be categorized under short-, mid- and long-term action plans.

A 3.2: Recommend suitable business models/ regulatory support and investment plans to implement the actions based on blended approach of integrating international experiences and local context gathered based on transport sector assessment focusing on EV.

The recommended business models will also reflect on the requirement of strong cooperation between the key stakeholders in the power and transport sectors. Combined with digital innovations (e.g. internet of things) and the shift of vehicle ownership to shared modalities, e-mobility concepts open up opportunities for new business models, such as vehicle-to-grid (V2G) and grid-to-vehicle (G2V), in the long-term.

A 3.3: Review the institutional arrangements and capacity gaps for the for the identified players under 2.3, to implement the roadmap.

A 3.4: Engage relevant stakeholders to consult with an aim to validate and revised the draft implementation roadmap for the EV through physical or virtual mode.

Relevant research and academia community, identified in Solomon Islands or in Pacific Islands region to be engaged in consultation to gain RD&D perspectives on promoting the electric vehicles in Pacific Islands, as well.

Deliverables 3:
D 3.1: Draft and final report on implementation roadmap
D 3.2: Stakeholder consultation workshop and synthesized report on the same

Output 4: Conduct detailed feasibility study on selected action plans to develop business case on procuring and deploying electric vehicles and sustainable supporting infrastructure.
The action plan(s) from implementation roadmap will be selected for detailed feasibility study based on their assessed investment size and horizon that can be accommodated in the preparatory fund support.

**A 4.1:** Conduct detailed technical and economic feasibility analysis of selected action plan(s) with scalable business model.

The feasibility will be carried out for the EV as well as the supporting sustainable infrastructure (charging stations, climate proof bus stops etc.). Besides technical feasibility, the economic feasibility will be conducted using a social approach focusing on the development needs of communities in the Solomon Islands. The feasibility study will also serve as regional demonstration in Pacific Island for the countries with similar setup.

**A 4.2:** Develop input to the GCF concept note with technical specifications to support the tendering and procurement of the electric vehicles and charging infrastructure.

**Deliverables 4:**

D 4.1: Draft and final report on the feasibility study conducted.
D 4.2: Draft GCF concept note.

**Output 5:** Facilitate capacity building and awareness of relevant stakeholders from government and EV value chain focusing on the gender gaps.

**A 5.1:** Relevant materials to be designed to facilitate capacity building and training of the relevant Government staff on the various aspects of EVs including basics of EV technologies, supporting policies and approach to piloting/financing EV projects like procurement. Capacity building and training to be conducted on virtual mode.

**A 5.2:** Conduct an assessment on the level of awareness and readiness among the relevant stakeholders to adopt EVs. Beyond the policy makers and other relevant players in the proposed EV value chain, an effort should made to assess the awareness and perception of the public consumers about EVs. One of the perspectives to be included is the gender gaps as the consumer of EVs.

**A 5.3:** Meeting the needs arise from 5.1, develop brief factsheets on the basics of EV including three/four wheelers, buses, trucks and charging infrastructures—as applicable for Solomon Islands and its impact will be developed for public awareness.

**A 5.4:** The experiences from business case under output 4 will be archived in form of reference manual for the relevant stakeholders.

**Deliverables 5:**
D 5.1: Report on capacity gaps based on the assessment of the awareness of the stakeholders. A section to be included on gender gap analysis.
D 5.2: Virtual sessions on capacity building and training with relevant materials
D 5.3: Awareness raising factsheets, brief manuals and brochures.

4 GENERAL TIME SCHEDULE

The activities under this contract should follow the timeline presented for each deliverable and are expected to be completed within a period of twelve 8 to 12 months from the award of contract. However, the bidder has the option of proposing a customized duration of the activities under this contract with supporting justifications.

5 QUALIFICATION REQUIREMENTS AND EVALUATION CRITERIA

The bidder shall as a minimum present the following qualifications of the team. Additional qualifications and experts may be added to the proposal.

<table>
<thead>
<tr>
<th>Qualification requirements (technical aspects required)</th>
<th>Evaluation criteria</th>
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</thead>
<tbody>
<tr>
<td><strong>Team Leader/ Project manager</strong></td>
<td>• Demonstrated experience of leading and managing a team of experts from different cultural backgrounds and fields of expertise</td>
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<tr>
<td>Master’s Degree in relevant field of specialization</td>
<td>• Prior experience of working in the land transport and / or energy sector of Pacific Island Countries and understanding of greenhouse mitigation through energy efficiency will be an added advantage</td>
</tr>
<tr>
<td>• Have at least 15 years of experience in managing and conducting research and surveys, stakeholder engagements and developing technical programmes and financial proposals</td>
<td>• Experience of working collaboratively with governments, regional and international organizations</td>
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<tr>
<td>• Have proficiency in reading, writing and speaking English and must be able to communicate with stakeholders effectively and to deliver on outputs in a timely manner.</td>
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<tr>
<td><strong>Land Transport and Energy Expert</strong></td>
<td>• An expert in the land transport sector of SIDS, both in the infrastructure / technical and engineering aspects as well as policy aspects too</td>
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<tr>
<td>• Master’s Degree in relevant field of specialization</td>
<td>• Knowledge of both civil and mechanical engineering would be an advantage</td>
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<tr>
<td>• At least 10 years of experience working for the land transport sector of a SIDS</td>
<td>• Familiarity with e-mobility and renewable energy–based transport systems and technologies</td>
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<td></td>
<td>• Years of experience in stakeholder consultations and developing funding proposals</td>
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<td></td>
<td>• Developing national programmes in the land transport sector</td>
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</table>
### Qualification requirements (technical aspects required)

<table>
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<th>Local Expert</th>
<th>Evaluation criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Bachelor’s Degree, or equivalent, in Social Science, Sustainable Development, Statistics or other related fields is required.</td>
<td>• Relevant professional experience of data collection, conducting surveys and stakeholder engagement.</td>
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<td>• Experience in policy research, database management, socio-economic analysis will be an advantage.</td>
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<td>• Understanding of the local context, culture and diversity in Melanesia</td>
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<td>• Experience in energy and transport is desirable.</td>
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<td>• Excellent oral and written communication skills in English is essential</td>
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<tr>
<th>Gender Expert-GE</th>
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<tbody>
<tr>
<td>• Master’s degree in Social or Natural Sciences or another relevant discipline, preferably with a specialization in gender</td>
<td>• Understanding and demonstrated ability to incorporate gender considerations in the removal of barriers to sustainable development in SIDS,</td>
</tr>
<tr>
<td>• At least 10 years of field experience working with women, youths and rural communities on energy and mobility issues</td>
<td>• Understanding of the culture and diversity in Melanesia</td>
</tr>
<tr>
<td>• At least 10 years of field experience working with women, youths and rural communities on energy and mobility issues</td>
<td>• Have proficiency in reading, writing and speaking English and must be able to effectively communicate with stakeholders.</td>
</tr>
</tbody>
</table>

### 6 LANGUAGE REQUIREMENTS

The working language for the purposes of this project is English, thus an excellent command of English is required of the proposed personnel. The final deliverables must be submitted in English. The technical and financial proposal under this tender must also be submitted in English.

All delivered documents must be of such a quality that no further editing will be required.

### 7 DELIVERABLES SCHEDULE

The table below details the indicative schedule for this assistance.

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>Delivery timeline</th>
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</thead>
<tbody>
<tr>
<td>D 1.1: Inception meeting report</td>
<td>As soon as after signing the contract inception meeting will be conducted</td>
</tr>
<tr>
<td>D 1.2: Detailed work plan</td>
<td>Within 1 month from inception meeting</td>
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<tr>
<td>D 1.3: Monitoring and evaluation plan</td>
<td>Within 1 month from inception meeting</td>
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<td>Deliverables</td>
<td>Delivery timeline</td>
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<tr>
<td><strong>D 1.4:</strong> CTCN Impact Description</td>
<td>Within 1 month from inception meeting</td>
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<tr>
<td><strong>D 1.5:</strong> Closure and Data Collection template and report</td>
<td>12 months from inception meeting</td>
</tr>
<tr>
<td><strong>D 2.1:</strong> A policy document, also including the baseline assessment and barrier analysis to implement the policy, including the charging infrastructure required and battery management.</td>
<td>3-4 months from inception meeting</td>
</tr>
<tr>
<td><strong>D 3.1:</strong> Draft and final report on implementation roadmap</td>
<td>4-5 months from inception meeting</td>
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<tr>
<td><strong>D 3.2:</strong> Stakeholder Consultation report</td>
<td>6 months from inception meeting</td>
</tr>
<tr>
<td><strong>D 4.1:</strong> Draft and final report on the feasibility study conducted.</td>
<td>7-8 months from inception meeting</td>
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<td><strong>D 4.2:</strong> Draft GCF concept note.</td>
<td>8-10 months from inception meeting</td>
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<tr>
<td><strong>D 5.1:</strong> Report on capacity gaps based on the assessment of the awareness of the stakeholders. A section to be included on gender gap analysis.</td>
<td>10-11 months from inception meeting</td>
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<tr>
<td><strong>D 5.2:</strong> Virtual sessions on capacity building and training with relevant materials</td>
<td>11-12 months from inception meeting</td>
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<td><strong>D 5.3:</strong> Awareness raising factsheets, brief manuals and brochures.</td>
<td>11-12 months from inception meeting</td>
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