

## **TERMS OF REFERENCE**

**Consultancy Services to the Caribbean Community Climate Change Centre**

**Feasibility Study of the Investment Proposal –  
Arundo donax Renewable Bio-mass Fuel for Belize  
Contract#07/2019/GCF/Belize/CCCCC**

<b>Project:</b>	Arundo Donax Renewable Bio-Mass Fuel for Belize
<b>Funding/Donor:</b>	Green Climate Fund - GCF
<b>Implementing Agency:</b>	Caribbean Community Climate Change Centre (CCCCC)
<b>Name of Procurement Activity:</b>	Feasibility Study of the Investment Proposal - Arundo donax Renewable Bio-mass Fuel for Belize
<b>Contract Number:</b>	Contract#07/2019/GCF/Belize/CCCCC
<b>Consultancy</b>	Firm/Team
<b>Location of the Consultancy:</b>	Belize
<b>Duration:</b>	5 months
<b>Estimated Value of Services</b>	US\$105,000
<b>Deadline for the Submission of Proposals</b>	2:00pm (GMT-6), Friday 1 March 2019
<b>Indicative Start Date</b>	March 2019

## 1.0 BACKGROUND

The Caribbean Community Climate Change Centre (5Cs) is in the process of developing a Funding Proposal [FP] for submission to the Green Climate Fund (GCF) seeking financing for investment in a biomass renewable energy project. This project will be based on the utilization of the indigenous fast growing C3 perennial rhizomatous grass - *Arundo donax* – currently available and to be cultivated widely on marginal agricultural lands in Belize. **The process of proposal submission and consideration of this project by the GCF requires inter alia the conduct of a Feasibility Study.** The conduct of this precursor feasibility study is necessary to ascertain the viability of the undertaking, on the basis of which a full scale Funding Proposal will be developed and submitted to the GCF for consideration.

The conduct of the feasibility study is consistent with The Government of Belize (GoB) objective of expanding the utilization of biomass to meet some of the country’s energy needs and achieve the dual aim of reducing the country’s carbon footprint and adapting to climate change impacts.

The Caribbean Community Climate Change Centre (“5Cs”) - the entity that is charged with coordinating the Caribbean’s response to climate change- is spearheading the effort to mobilize resources for this major transformative project including overseeing the conduct of all precursor studies and analyses.

The Feasibility Study is a critical part of the process of assessment and consideration of the merit and fundability of the proposal by the GCF. The Study will assess the technical, financial and economic viability of this potentially significant source of green energy for Belize, that can displace the costlier and more high polluting alternative imported fossil fuel, thus lessening the strain on an already heavily burdened national economy.

The services of a suitably qualified Consultancy Firm is being sought to undertake the referenced Feasibility Study (the terms of which are defined below) and to aid in the preparation of the Funding Proposal in accordance with the prescribed GCF format.

## 2.0 SPECIFIC OBJECTIVE

The main objective of this consultancy is to conduct a Feasibility Analysis of the investment proposal entitled **Arundo donax Renewable Bio-mass Fuel for Belize** that will provide the decision makers in Belize, CCCCC and the GCF with sufficient information to justify acceptance, modification or rejection of the proposed project for financing and implementation.

## 3.0 SPECIFIC TASKS AND RESPONSIBILITIES

The indicative tasks to be undertaken to realize the expected objectives and output of this assignment shall include but is not limited to:

### A. PRELIMINARY TASKS:

- Submit a detailed work-plan including a time schedule, budget, the names, professional status and biographic data of all professional staff to be deployed on this assignment, along with a description of the duties to be performed by each expert,
- Review all relevant documentation pertinent to the conduct of this assignment, including:
  - Stakeholder Analysis and Management and Engagement Plan
  - Gender Study and Action Plan
  - Environmental and Social Impact Assessment Study

### B. PRINCIPAL TASKS

**An indicative listing of the activities to be undertaken and issues to be studied and reported on, and recommended approaches [Methodology] to the conduct of this assignment shall include but is not limited to the issues listed hereunder.**

Overall the Feasibility Study involves a detailed assessment of the technical, financial and economic<sup>1</sup> (including distributive and sensitivity analyses) feasibility of the investment. This must necessarily encompass analysis of, and the presentation of findings/recommendations in respect of the subject areas listed in turn hereunder. Since the ultimate aim of the assignment is to develop a Funding Proposal (FP) seeking GCF funding for the investment, in formulating the proposal, particular attention has to be paid to demonstrating the extent to which any proposed future investment is aligned with the six investment criteria that are defined in the GCF's investment framework. Moreover, The Consultant is obliged to ensure that the assignment is conducted in a manner that conduces to the preparation of the FP in a seamless manner.

### Task 1:

Conduct a **Technical Feasibility**.

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<sup>1</sup> These should detail your cost benefit and/or cost effectiveness analyses, detail your discount factor being applied and justify same and the market demand and supply conditions.

- Provide Details of engineering designs, technical specifications and tender documents for any envisaged physical works and supplies where applicable;
- Identify different technologies and techniques that could be used to achieve the objective of this investment and assess from a technical point of view their advantages and disadvantages, including potential impact on the society and the environment.
- Utilize cost-effectiveness or multi-selection criteria to compare the ‘effective-cost-efficiency’ of the chosen technology.
- Assess the feasibility of this investment initiative from a technical standpoint having regard to the preferred/recommended mechanical system of operation of any facility from which energy generated using Arundo donax will be used to supply power to the national grid.
- If a particular /technical/technological solution has been chosen, describe in detail why it would be the most appropriate for this project/investment.
- Provide the Details of the logistics of operationalizing and operating this investment initiative.
- Prepare a Detail plan for the project activities, technologies involved, design specifications, required resources (institutional and human), timing/phasing and estimated costs.

## Task 2

### Conduct a **Cost-Benefit Analysis (Financial and Economic Feasibility)**.

The CBA essentially involves a two-step analysis<sup>2</sup>: The financial analysis, which is strictly concerned with the revenue, operational and maintenance costs, liabilities and assets associated with project; and, the economic analysis, which is more broadly concerned with the economic, social and environmental implications for the society.

The CBA shall include inter alia:

- Analysis of the financial and economic feasibility of the project/investment from the standpoint of GCF’s investment criteria.
- A detailed assessment of the potential sustainability of the investment/project after donor funds are exhausted. This should include the development of integrated financial and economic models that include projections covering the period from financial closing through final maturity of the proposed GCF financing with detailed assumptions and rationale.
- Identify All financial, economic, social and environmental costs and benefits associated with project and as much as possible assign monetary value.
- Details of possible PPP investment options for the long-term sustainability of the investment.
- The **Financial and Economic Models must be in an Excel spreadsheet** and/or other appropriate/suitable media/programme. The model must also:
  - allows for modification of assumptions and performance of sensitivity analysis (e.g. separate sheet on assumption and questions of attribution);
  - explicitly describe how the attribution to the project has been modeled;
  - provide succinct explanation of the underlying assumptions that is easy to understand by non-expert third party
  - contain at least calculations of the internal rate of return, net present value and discounted and nominal cost-benefit relations and other management ratios considered as relevant in this context
  - For presentation purposes, charts, graphs and tables should be included.

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<sup>2</sup> See Bynoe et al., (2014).

- Baseline information, interpretation and critical evaluation of the findings from the model must be presented in **20-page report** (not including appendices) and an executive summary (maximum 2 pages). The report must:
  - Include A brief description of the project including project objectives, activities, beneficiaries, expected outputs and outcomes.
  - Contain Baseline information about the energy, financial and labour markets, the economy and other relevant information.
  - Describe the model, assumptions and methodology(ies), including the choice of discount rate and modeling under uncertainty.
  - Provide reasonable, plausible explanations concerning estimations and findings (that are comprehensible to non-expert third parties)
  - Make recommendations as necessary, to ensure- from a financial and economic standpoint the most – viable model or form of the investment
  - Present Details of options for the long-term sustainability of investment, considering:
    - The policy, regulatory, cooperation and operational environment;
    - The institutional and management environment;
    - The demand, supply, financial and economic environment;
    - The environmental and socio-cultural environment;
  - Recommend the next steps and any further actions necessary to secure project financing and implementation and, possibly, draft tender documents for the selection of consultancy services. These may include detailing any pre-conditions necessary for the start of project activities, any project phasing and organization necessary, along with cost estimates.

#### **4.0 OBLIGATIONS OF CCCCC**

CCCCC commit to the following:

- Provide the Consultant with the latest draft of the PPF application proposal **Arundo donax Renewable Bio-mass Fuel for Belize**
- Provide the Consultant with a previous report entitled “Study of the Impacts of Climate Change on Vulnerable Groups in PPCR Participating Countries in the Caribbean” (Bynoe, 2014).
- Participate in structured dialogue(s) with the consultant to address any questions or concerns and to provide updates about progress made on the study.
- Review the draft report within a week of its submission, providing feedback to the consultant.

#### **5.0 DELIVERABLES AND REPORTING REQUIREMENTS**

1. **An Inception Report** to be submitted within one (1) week of contract signing that includes a Workplan with timelines for completing the assignment

2. **A draft Technical, Financial and Economic Analysis** for the Proposed Project on Arundo donax Renewable Bio-mass Fuel for Belize

3. **A Final Feasibility Report**, incorporating suggestions and feedback from the project core team during the review of the draft, and including an executive summary that highlights the most important findings (maximum 2 pages). This document is one of the principal output (s) of the Assignment and shall provide

a basis for future decision making in respect of the project. It is required to be comprehensive and based on the scope of works and specific activities outlined and must conform to the following minimum requirements:

- A document that can be used in non-technical discussions with potential partners, the wider society public and private sector officials, service providers and others to prove/provide evidence of the feasibility/viability of and obtain support for the development of the project.
- It must/should contain a time-bound roadmap/blueprint for pursuing recommendations emanating from the assignment
- Data and information in the report must be presented in an analytical manner and address the issues highlighted above
- A draft copy of the Final report must be prepared by the consultants and submitted to the CCCCC for approval and agreement prior to finalization.

## **6.0 QUALIFICATIONS AND KEY EXPERTISE**

The Contractor is expected/required to propose a team of Consultants that should ideally comprise the following mix of competencies:

- Proven expertise and in-depth knowledge of sustainable energy and climate change policies and practices in the Latin America and the Caribbean context;
- Knowledge of the electricity industry in Belize and/or in the Caribbean and Latin American region especially in relation to matters such as: technical requirements, necessary permits and procedures for connection, etc.
- Knowledge of renewable energy, particularly in the field of bio-energy (biomass) and solar energy.
- Must have knowledge of the biomass market and the characteristics of available biomass in the Latin American region.
- Previous experience and qualifications with biomass based conversion technologies (gasification, direct combustion) exceeding 7 years and ideally with innovative technologies such as torrefaction and gasification.
- Track-record of participating in the engineering, execution, operation and/or maintenance aspects of at least 5 similar projects, and experience of biomass based systems of 1MW or greater.
- Must have at least 10 years proven experience in renewable energy projects especially conducting economic and financial analysis and able to work at national, regional and international levels.
- Ideally 5 years of proven experience in environmental and social matters related to renewable energy generation in developing countries and preferably in the Latin America and the Caribbean region.
- Should hold advanced degrees in their respective areas of expertise (economics, engineering, energy, environmental sciences, energy law, environmental policy, sustainable development, or other relevant fields)
- At least 10 years of experience in climate change, technical, financial and economic analyses, environmental analyses or research in the field of sustainability.
- Conversance with the GCF procedures and prior experience in preparing a GCF Funding proposal would be an asset.

The following indicative subject matter specialists are considered as a minimum requirement for the composition of the Consultancy team:

Expert I: Economist/Financial and Economic Analyst/ Specialist in Financial and Economic Analysis [who may serve as Team Leader]

Expert II Technical: Mechanical/Power generation Engineer/Civil Engineer

## **7.0 LOCATION AND DURATION OF ASSIGNMENT**

Location: Belize  
Duration: 5 months

## **8.0 MANAGEMENT OF THE ASSIGNMENT**

The consultancy will be commissioned by CCCCC who is the Contracting Authority for the purpose of the assignment. The Consultants will report directly to CCCCC for contractual and administrative purposes. CCCCC will constitute a project core team to provide additional technical advice and inputs, overall coordination and oversight for this assignment. The Consultants will liaise with everyone from the project core team but will ultimately report to CCCCC. Changes in the TORs can be made subject to and only after written mutual agreement between the Consultants and CCCCC

## **9.0 REFERENCES/APPENDICES**

The Consultant is required to consult and review all the background information that has contributed to the evolution of this investment opportunity in its present form, as important reference data and information to inform the conduct of the assignment.

An indicative list of the previous studies conducted [not exhaustive] and those will precede this include:

1. Belize Bio-mass Project Opportunity – Clinton Foundation [Clinton Climate initiative] Caribbean Community Climate Change Centre
2. Stakeholder Analysis and Management and Engagement Plan
3. Gender Study and Action Plan
4. Environmental and Social Impact Assessment Study
5. Bynoe, M. Cain, D. and Peralta, A. 2014. The Use of Benefit Cost Analysis to assess Adaptation and Mitigation Interventions in the Caribbean: Case Studies. Caribbean Community Climate Change Centre (CCCCC) and Commonwealth Secretariat.

## 10. EVALUATION CRITERIA

#	Description	Points
<b>Main (Technical) criteria (70 marks total)</b>		
A	<p><b>Expert I:</b> Advanced Degree- Economist/Financial and Economic Analyst/Specialist in Financial and Economic Analysis [who may serve as Team Leader]</p> <p><b>Expert II:</b> Advanced Degree -Technical: Mechanical/Power generation Engineer/Civil Engineer</p>	10
	<b>Experience - Experts</b>	
B	Must have at least 10 years proven experience in renewable energy projects especially conducting economic and financial analysis and able to work at national, regional and international levels.	10
C	At least 10 years of experience in climate change, technical, financial and economic analyses, environmental analyses or research in the field of sustainability.	10
D	Previous experience and qualifications with biomass based conversion technologies (gasification, direct combustion) exceeding 7 years and ideally with innovative technologies such as torrefaction and gasification.	5
E	Ideally 5 years of proven experience in environmental and social matters related to renewable energy generation in developing countries and preferably in the Latin America and the Caribbean region.	5
F	Track-record of participating in the engineering, execution, operation and/or maintenance aspects of at least 5 similar projects, and experience of biomass based systems of 1MW or greater.	5
G	Proven expertise and in-depth knowledge of sustainable energy and climate change policies and practices in the Latin America and the Caribbean context;	5
H	Knowledge of the electricity industry in Belize and/or in the Caribbean and Latin American region especially in relation to matters such as: technical requirements, necessary permits and procedures for connection, etc. .	5
I	Knowledge of renewable energy, particularly in the field of bio-energy (biomass) and solar energy.	5
J	Must have knowledge of the biomass market and the characteristics of available biomass in the Latin American region	5
k	Conversance with the GCF procedures and prior experience in preparing a GCF Funding proposal would be an asset	5
<b>Commercial criteria (30 marks total)</b>		
K	Competitive fee rates and expenses in relation to the market and demonstration of Value for Money.	15
L	Clear and effective financial plan to deliver output based deliverables and key performance measures	5

M	Financial approach and methodology for ensuring the requirements will be delivered on time and in line with agreed costs, highlighting any financial risks.	10
	<b>Total</b>	<b>100</b>

## 11. APPLICATION PROCESS AND DEADLINE FOR SUBMISSION

Interested firms are required to submit the documents listed in the Request for Proposal (RFP), Instruction to Consultants, 3.4 and 3.6 (page 22) on or before the deadline for submission.

Each submission should bear the name and address of the firm and shall be clearly identified as: **“Consultancy for Background Study to Inform the Preparation of a Simplified Approval Process (SAP) Funding Proposal - Dominica, Contract #5/2019/USAID-CCAP/CCCCC”**

Technical Proposal and Financial Proposal must be submitted as two (2) separate PDF files, via email to: [procurement@caribbeanclimate.bz](mailto:procurement@caribbeanclimate.bz). The deadline for the submission of proposals is on or **on or before 2:00 p.m. (GMT- 6) Friday, 1 March 2019:**

For queries regarding the Procurement documents and submission process, email:

**Email: [awilliams@caribbeanclimate.bz](mailto:awilliams@caribbeanclimate.bz)**

**Attention: Ms. Allison Williams**

**Procurement Officer**

**Caribbean Community Climate Change Centre**