



Request for Proposals Engineering Consultant

Design of Pilot Project for Greywater Collection, Treatment and Reuse within the College Street Ghaut

A. GEF IWEco Project Background

The Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States (GEF IWEco Project) is a five-year regional project that seeks to address water, land and biodiversity resource management as well as climate change. It is funded by the Global Environment Facility (GEF) and UN Environment (UNEP) is the lead Implementing Agency for national and regional sub-projects. The Secretariat to the Cartagena Convention, UNEP CAR/RCU and the Caribbean Public Health Agency (CARPHA) are the co-Executing Agencies. Partnership is a central tenet of the project which is being implemented through a network of international, regional and national partners. St. Kitts and Nevis is one of ten participating Caribbean small island developing states (SIDS).

IWEco's objective is to contribute to the preservation of Caribbean ecosystems and the sustainability of livelihoods through the application of existing proven technologies and approaches that are appropriate for small island developing states through improved fresh and coastal water resources management, sustainable land management and sustainable forest management that also seek to enhance resilience of socio-ecological systems to the impacts of climate change.

The GEF-IWEco St. Kitts and Nevis National Sub-Project was launched on Tuesday, February 26th, 2019 in Basseterre, St. Kitts. The project entitled, "Addressing Impacts of Acute Land Degradation in the College Street Ghaut in St. Kitts and Quarries and Sand Mining Hotspots on Nevis" will aid to strengthen the institutional capacity, improve policy framework and facilitate pilot projects within the College Street Ghaut watershed in St. Kitts and key quarry sites and nearby wetlands and coral reefs in Nevis. The co-executing agencies in St. Kitts and Nevis are the Department of Environment, Ministry of Environment and Cooperatives in St. Kitts and the Department of Physical Planning and Environment of the Nevis Island Administration.

Project activities in St. Kitts will aim to reduce soil erosion and nutrient loading and overall land degradation in the College Street ghaut via cleanup of debris, rehabilitation of bridges and retaining walls, as well as planting grasses. Restoration activities in Nevis will focus on reforestation at an abandoned quarry at Potworks Estate, improvement of quarry operations to stem sedimentation, coral reef survey and restoration at Indian Castle, New River, Dogwood and Long Haul. Together with on-the-ground restoration work, the project will seek to update and improve policies, legislation and institutions related to sustainable land and water management in St. Kitts and Nevis.

B. Situational Analysis

Wastewater collection and treatment in Basseterre and environs

It is well recognized that climate change impacts will have serious deleterious environmental, social and economic consequences for small island developing states (SIDS). Many SIDS face severe constraints in both the quality and quantity of freshwater because of their small size and geological, topographical and climatic conditions. Rapid population growth in urban areas, changes in economic strategies and a growing per capita use of freshwater pose significant challenges to the sustainable development of small islands especially with the impending negative impacts of climate change. One major technical issue is the disposal of wastewater. In St. Kitts and Nevis, on-site disposal of wastewater (i.e. use of septic tanks, soakaway pits and pit latrines) is currently practiced. Septic tanks are used to contain blackwater for periodic cleaning whereas greywater (i.e. all household water used excluding the toilet) is usually transported, via open gutters lining the streets, to the nearest water body (usually the ocean). The issue of greywater entering the coastal zone untreated is especially severe in the College Street Ghaut watershed presenting a major threat to public health and to the water quality of the coastal zone.

It is also common practice for greywater to be piped directly to the soakaway pit. The use of septic tanks for on-site wastewater disposal is common and effective for rural areas worldwide. However, with growing urban areas / population densities and ever increasing volumes of wastewater, on-site septic tanks can pose a threat to groundwater aquifers and coastal zones and can cause potential negative health effects and increased morbidity.

Over the years, the issue of wastewater treatment and disposal has become a major concern for the capital city of Basseterre and environs (portions of St. Peters especially in the College Street Ghaut Watershed) in St. Kitts. This includes the improper design, operation and maintenance of septic tanks together with the increasing residential development/density near its main source of drinking water – the Basseterre Valley Aquifer – which provides 40% of potable water for the greater Basseterre area. As a result, there is an urgent need to invest in the collection and disposal of wastewater to ensure the continued sustainable development of the nation and increase the resilience of the island to climate change.

C. Scope of the Assignment

We are inviting qualified consulting firms (or consortium of consultants) to submit technical and financial proposals based on the following tasks:

1. Analysis of solutions available for collection, treatment and reuse / recycling of greywater in College Street Ghaut and environs. Solutions should be decentralized, appropriate and innovative. Nature based solutions should also be included. The solutions presented should be evaluated based on the following criteria (at a minimum):
 - *Environmental*: Nutrient recycling (P, N), organic matter recycling (COD, BOD₅), occupied area, energy use, sludge and by-product production, sludge quality, eutrophication potential, disinfectant consumption
 - *Public Health*: Contact risk, treated water quality, public acceptance, potential for reuse of treated effluent for irrigation or other uses

- *Financial*: Net present value, Cost benefit ratio, expected lifetime, operation and maintenance requirements
 - *Technology*: Ability to adapt to fluctuations in hydraulic and pollution loading, vulnerability to natural disasters and climate change
2. Selection of a short list of sites within the College Street Ghaut where a small scale pilot greywater collection and treatment system can be implemented. Final site selection will be made in conjunction with the Department of Environment and other key stakeholders.
 3. Design of a small-scale pilot project to demonstrate collection, treatment and reuse / recycling of greywater disposed of into the College Street Ghaut which is ready to implement. The design should include detailed drawings, cost estimates and implementation plan. The implementation plan should include a fully detailed workplan, resource and budget allocation, stakeholder analysis, identification of training requirements, risk assessment / contingency plans and monitoring and evaluation.

D. Expected Outputs:

1. Inception report with methodology and approach, including the findings of the desk review, field visits and stakeholder engagement highlighting gaps, recurring themes, challenges, opportunities and analysis of solutions available for greywater collection, treatment and reuse/recycling in College Street Ghaut and environs as described in task 1. The report should also include a preliminary list of possible sites for the proposed pilot study.
2. Pilot project full design – Collection, treatment and reuse / recycling of greywater within the College Street Ghaut pilot project design as described in task 3.
3. Final Report on the consultancy with assessment of tasks performed and final recommendations.

E. Duration

Expected Duration	4 months
Target Start Date	March 1, 2021
Latest Completion Date	June 30, 2021

F. Qualifications

The consulting firm should provide staff with at least five (5) years experience in water and wastewater engineering with demonstrated work in the Caribbean region.

G. Payment Schedule

Payment will be on the basis of outputs as follows:



- 15% at the start of the assignment once a contract has been signed.
- 30% upon delivery of Draft Output No. 1 (Inception report)
- 40% upon delivery of Draft Output No. 2 (Pilot project study and design – Collection and Treatment / Re-use / Recycling of Greywater within the College Street Ghaut)
- 15% upon delivery of Final Reports

H. Evaluation Criteria

Proposals will be evaluated based on price/cost effectiveness, methodology and experience.

I. Submission Requirements

Proposal submissions are to include:

- A technical proposal (including a workplan and timelines for deliverables)
- A financial proposal

Proposals must not exceed 20 pages in length. The currency of the proposal should be in USD. Please include evidence of similar project(s) successfully undertaken. Professional background (CVs) of person(s) to conduct the exercise along with other material deemed to be relevant to the proposal should be attached as annexes.

Proposals should be sent to the Halla Sahely, GEF IWEco SKN Project Coordinator via email (halla@sahely.com) no later than **February 15, 2021 by noon (AST)**.