CITYADAPT
BUILDING CLIMATE RESILIENCE OF URBAN SYSTEMS THROUGH ECOSYSTEM-BASED ADAPTATION (EBA) IN LATIN AMERICA AND THE CARIBBEAN PROJECT

Terms of Reference: IRRIGATION SPECIALIST

Prepared:
August 19, 2022

TERMS OF REFERENCE
FOR
IRRIGATION SPECIALIST

1.0 Introduction

The Latin America and Caribbean (LAC) region is the second most urbanised region in the world, with ~80% of the population living in cities. Within the next two decades, this proportion is projected to reach ~85%, thereby ranking the cities of the LAC region among the fastest-growing in the developing world. The rate of urban expansion is faster in small and medium-sized cities relative to mega cities. In the medium-sized city of Kingston in Jamaica, rapid urbanization is coupled with limited urban planning. This rapid urbanisation and the associated expansion of cities is degrading urban and peri-urban ecosystems – including wetlands, green spaces and forests – that provide a wide range of ecosystem services for urban communities.

The degradation of these ecosystems coupled with the impacts of climate change threaten the lives and well-being of urban communities in the LAC region and increase the risk of urban communities vulnerable to natural disasters. It is on this premise that the Global Environment Facility (GEF) through its Special Climate Change Fund is financing a project called the Building Climate Resilience of Urban Systems through Ecosystem-Based Adaptation (Eba) In Latin America and the Caribbean (CityAdapt), implemented by UNEP in 3 medium-sized cities in LAC, one of them being Kingston. The overarching goal of the CityAdapt project is to build the climate resilience of urban and peri-urban communities in cities in the LAC region through the implementation of Ecosystem-based Adaptation (EbA) approaches. The objective of the project is therefore to increase the capacity of government and local communities living in three medium-sized LAC cities to adapt to the effects of climate change through the integration of EbA into urban planning in the medium- to long-term.

The objective of the project will be achieved through the implementation of activities under three main components:

Component 1 - will include activities to strengthen the technical and institutional capacity of stakeholders involved in urban planning and environmental management to

integrate EbA into development planning within cities. This will support improved decision-making on climate change adaptation in urban areas in the LAC region, thereby promoting climate-resilient urban development.

Component 2 - on-the-ground, urban EbA interventions will be demonstrated in Kingston (Jamaica) to increase the capacity of urban communities living in vulnerable areas within the city to adapt to the effects of climate change.

Component 3 - will promote the generation, dissemination and management of knowledge on urban EbA in each city and across the broader LAC region, thereby supporting upscaling of the urban EbA approach.

To support the accomplishment of project objectives the UNEP has signed agreements with three local partners: The Forestry Department, The Nature Conservancy and the Jamaica 4-H Clubs. Each partner is responsible for the implementation of activities under each component with the Jamaica 4-H having responsibility for activities under Components 2 and 3. Through their agreement the Jamaica 4-H Clubs will employ additional personnel and will provide supervision to same in conjunction with the existing National Coordination Team for the project established by UNEP. The National coordinating team includes a National coordinator and a Technical Advisor.

2.0 OBJECTIVE OF CONSULTANCY

The services of an Irrigation Specialist is required to (1) design, and manage the construction/installation of greenhouse and (2) conduct training to key personnel in five locations across Kingston and St. Andrew.

The responsibilities of the specialist are as follows:

- Design the irrigation system
- Sourcing of labourers
- Provision of all technical works required for implementation
- Specialist is required to procure and supply all inputs required for the full execution of work to include obtaining material quotation and preparation of bill of quantity
- Supervision of the installation/construction
- Testing and commissioning of rainwater harvesting system at the following locations:
    - Abilities Foundation

- Tivoli Gardens High School
- Camperdown High School
- Kingston Technical High School

- Provide a close out report indicating activities completed, variations if any from scope and alternate action. Report must provide before and after photos.
- Provision of capacity building/ training of designated personnel/students in charge of the system at all four (4) locations listed above

3.0 SCOPE OF WORKS

The Irrigation Infrastructure Specialist will perform the specific activities under the overall supervision and direction of the Jamaica 4-H clubs and the CityAdapt Project's National Coordinating team:

PROFILE AND SCOPE OF WORKS FOR EACH LOCATION IRRIGATION

Site 1: Abilities Foundation

1. Provide irrigation and plumbing services to transport underground water to farms
2. Installation of electric water pump to facilitate water transport to farm
3. To design and implement water treatment module for storm water
4. To procure and install pump system (minimum 1HP System)
5. To construct at least five (5) m manholes to collect water
6. Integrate storm water into shade house irrigation system
7. To provide basic training for staff and students to include maintenance of system
8. To provide training in farm irrigation techniques for staff and students
9. At least 20 students/teachers/ 4-H Leader to be trained in the effective utilization of system
10. Procure one load of water for filling and securing tanks
11. Backfilling with sands and covering of tanks
12. Provide a close out report indicating activities completed, variations if any from scope and alternate action. Report must provide before and after photos.

Site 2: Tivoli Gardens High School

1. To build out irrigation system supported by harvested with capability to facilitate precision measures.

2. Design and Install drip irrigation systems to support outfield production
3. Install a hand sanitization unit
4. Integrate gray water from wash hand sink into farm water
5. Design a fertigation to support shade house, outfield production
8. Build out across points to support precision technology integration
10. Provide support in precision technology

Site 3: Camperdown High School

1. Procurement and installation of a wash hand facility supported by rainwater harvesting. System should include filtration model
2. To excavate 400 running feet to facilitate leads to support main leads from rainwater storage to drip systems used for maintenance for green spaces and containerized gardens.
3. Install drip system to support greenhouse from harvested rainwater.
4. Provide training in maintenance of system as well as the utilization of irrigation system. At least 50 to be trained in the effective utilization od system

Site 4: Kington Technical High School

1. Procure and Install Irrigation system
2. Provide training in operation and maintenance of system
3. At least 50 students and staff should be trained

3.0 OUTPUTS/DELIVERABLES

Inception Report: Report outlining the technical approach including the implementation schedule inclusive of a detailed workplan, bill of quantities. This must be submitted to the Project Lead, City Adapt within 10 working days of contract signing**.**

Implementation Report 1 – A report is to be provided on the status of the project implementation, inclusive of site visit report, labourers (hiring of labourers must utilize a gender inclusive approach), before and after photos, challenges and recommendations, evidence of contracting labourers and payment from labourers/construction workers.

Implementation Report 2- A midterm report is to be provided on the status of the project implementation, inclusive of site visit report, labourers (hiring of labourers must utilize a gender inclusive approach), before and after photos, challenges and

recommendations evidence of contracting labourers and payment from labourers/construction workers.

Final Report - A final report is to be provided on the status of the project implementation, inclusive of site visit report, labourers (hiring of labourers must utilize a gender inclusive approach), before and after photos, challenges and recommendations evidence of contracting labourers and payment from labourers/construction workers This report should also include the training report for each location inclusive of attendance register, clearly stating the gender of the beneficiaries, and modules covered.

Deliverable and Timeframe: This service is for an estimated contract period of maximum 3.5 months.

4.0 LENGTH OF CONTRACT

5 months: September 2022- February 2023

5.0 PAYMENT TERMS

The value of the contract is: $ 4,981,839.92

Deliverable	Description	Due Date	Payment
Deliverable 1	Submission of inception report with site assessment details, BQ, design and implementation timelines within **10 working days** after the contract is signed.	10 Working days after contract signing-	**40%**
Deliverable 2	**Implementation Report 1** – A report is to be provided on the status of the project implementation, inclusive of site visit report, labourers (hiring of labourers must utilize a gender inclusive approach), before and after photos, challenges and recommendations, evidence of contracting labourers and payment from labourers/construction workers.	4 weeks after deliverable 1	**40%**
Deliverable 3	A final report is to be provided on the status of the project implementation, inclusive of site visit report, labourers (hiring of labourers must utilize a gender inclusive approach), before and after photos, challenges evidence of contracting labourers and payment from labourers/construction workers. This report should also include the training report for each location inclusive of attendance register, clearly stating the gender of the beneficiaries, and modules covered.	1 week after the completion of the works	**20%**

6.0. REPORTING ARRANGEMENTS

Prior to the start of this assignment, there will be an initial briefing with the Jamaica 4-H Club Project Office Team, and the UNEP National Coordination Team. The specialist shall report all technical & contractual matters to the CityAdapt, 4-H Project Lead

The specialist is reminded that he/she should request problem-solving meetings with the Jamaica 4-H Club Project Office Team as soon as there is any indication of a variation in the scope of work, changes to the timeline or additional costs being necessary. No variations are to be made to the agreed time or cost without the prior approval of Jamaica 4-H Clubs.

7.0 MINIMUM QUALIFICATIONS AND EXPERIENCE

- Bachelor's Degree in General Agriculture or Agriculture Engineering or any other relevant discipline with at least 3 years' experience in implementing similar projects
- OR Associate Degree in General Agriculture or Agriculture Engineering with at least 5 years' experience in implementing similar projects
- Prior experience working with international organizations implementing rainwater harvesting systems.
- Knowledge of climate change and its potential impact on Jamaica and a good understanding of issues in climate change policy, mitigation and adaptation both regionally and internationally would be an asset;
- Access to a team is an asset

Language of Delivery: English *(British Standard)*

Type of Contract: Independent Specialist – Individual

(Consultant will be responsible for the provision of office and accommodation facilities)