ICLEI - LOCAL GOVERNMENTS FOR SUSTAINABILITY
AFRICA SECRETARIAT (ICLEI Africa)

Seeks to appoint a supplier to supply and install rainwater harvesting systems and energy-efficient fixtures at Gahanga Health Centre, in Kicukiro District, City of Kigali, and Gitarama Health Centre in Muhanga District

Timelines for submission below:
● 5 October 2020 – Terms of Reference published
● 9 October 2020 – Indicate interest for submitting a bid
● Two compulsory site visits where all queries will be responded to:
  ○ Gahanga Health Centre, in Kicukiro District, City of Kigali: 12 October 2020, 09:00
  ○ Gitarama Health Centre in Muhanga District: Date and time to be confirmed by email when bidders indicate interest
● 23 October 2020: Proposal submission closing date.
● mid to end November 2020: Appointment of a supplier and work commences
● 28 February 2021 Supplier contract completed

Send all completed bids and technical queries to Ben Hetherington, ben.hetherington@iclei.org.
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This Terms of Reference is for a portion of work that forms part of the broader project: *Urban Low Emissions Development Strategies II (Urban-LEDS II)*. A project description is provided below for context.

**Description of the Urban-LEDS II Project**

Human activities in cities contribute a significant and growing proportion of global greenhouse gas emissions, driving the demand for energy and other services in urban areas, especially those experiencing rapid population growth. Meeting the ambitious goals of the Paris Climate Agreement will require a fundamental transformation of how urban infrastructure and services, including transportation, energy, water, waste and urban space, are planned, delivered and maintained. It will also require effective monitoring, reporting and tracking of performance. The Urban-LEDS II project aims to contribute to this vital component of international climate action, with a focus on local needs and the role of all levels of government to enable action.

The objective of the project is to contribute to the reduction of greenhouse gas emissions by the promotion of Urban Low Emission Development Strategies (Urban-LEDS) that build resilience to climate change in cities/towns in emerging economies and least developed countries, including a focus on energy (renewables and efficiencies), waste management, eco-mobility, and water to name a few. The project is funded by the European Union and implemented by ICLEI and UN-Habitat. In Africa, the project is being implemented in South Africa and Rwanda. Within Rwanda, the three model cities are City of Kigali, Muhanga District and Rubavu District respectively, and the Urban-LEDS II team has been engaging regularly with the local government administrations in each to contribute to climate resilient development since 2017. Urban-LEDS II seeks to deliver interventions which continue to have impact following the end of the project and allow the practices introduced to be carried out by local government officials.

For further information on the project, please visit: [https://urban-leds.org/](https://urban-leds.org/)

**Scope of Works**

The work must demonstrate the benefits of climate resilient development to support efficient municipal service delivery through the supply and installation of sustainable water management and energy-efficient systems at **Gahanga Health Centre in Kicukiro District (City of Kigali)** and **Gitarama Health Centre in Muhanga District**.
For this reason, the project seeks to appoint a supplier who has the skills required to supply and install rooftop rainwater collection systems, water efficient systems, energy efficient systems, and solar hot water geysers. The supplier must install water and energy meters to record data that could be used to measure the impact of the interventions. The supplier must also be able to report the readings for a year after installation, and provide local healthcare centre workers with the capacity to read and evaluate the readings thereafter.

The appointed supplier is expected to deliver the following Scope of Works:

**Phase 1**

- Provide a high-level building audit in a table format with the following details:
  - Measure the exact roof area of each building on site, and, based on this, assess the maximum volume of water the roof can collect
  - A list of all existing rainwater harvesting systems and their current condition
  - Evaluate the structural integrity of the roof or surface before placing the solar water heater
  - An assessment of each of the health centre's monthly/daily electricity and water and electricity consumption.
  - Based on this audit, develops a design and updates the Bill of Quantities for the installation of the water and energy interventions accordingly. The final Bill of Quantities will be agreed to in writing by ICLEI Africa before installation begins on site.

**Phase 2**

- The supply and installation of rainwater harvesting equipment and energy efficient systems, as well as measures and monitoring meters.
- The installation will be supervised and project-managed by Innovative Builders and Suppliers Ltd. (IBS), who have been appointed by ICLEI Africa to manage risk and the contractual obligations of this scope of works. IBS must be kept up to date on the installation of the progress on site in the following ways:
  - Short daily updates on progress on site, one photo and a short description, via WhatsApp
  - Weekly progress reports (photographs and written descriptions of progress on site, listing any problems experienced and anticipated project risks)
○ Onsite meeting for the final inspection and sign-off of the installation

● Engage with health centre managers to arrange for any necessary switching off of electrical and water connections for the installation
● All systems installed must have a minimum 1-year warranty provided on the product and the installation.
● Provide a site manager to ensure high-quality installation and to maintain regular communication with the Project Implementing Agent, Innovative Builders and Suppliers, and the district officials
● Engage with IBS to arrange a review of the installation (information below) to develop a snag list where any outstanding or insufficiently installed items will be identified.
● Participate in a final hand-over meeting with IBS, relevant officials from the district, and (if possible) UN-Habitat and ICLEI Africa.

Phase 3

● Provide an operations and maintenance training manual (up to 15 pages) that includes associated costs of ownership and deliver a one day training for district officials and officials in English and Kinyarwanda (manual and training):
  ○ Provide one plan for each health centre in English and Kinyarwanda that clearly stipulates the daily, monthly and annual requirements for maintenance and replacement, with related estimated costs, to ensure that optimal performance of all interventions for a minimum period of the next 10 years. Each plan should be provided as one digital Word Document with two printed versions.
  ○ Provide one-day training at each health centre to ensure all relevant district staff know and understand the maintenance and operational requirements for the installed water and energy interventions. The training should be provided in English, however it would be advantageous to have someone who speaks Kinyarwanda at all trainings in the event that translation is required.
  ○ Training to local technicians must include guidance on continuously taking readings on the electricity and water meters installed to measure the electricity and water savings resulting from the installations.
  ○ Produce as-built schematics for the installations.
Technical Specifications of Interventions

The list of interventions is provided below with the estimated required specifications:

1. Rainwater collection interventions

Water collection measures should be installed to increase the availability of water to the health centre, as well as capture rainwater to limit the damage of stormwater on site. All interventions installed should be provided to comply with national performance standards.

All quantities provided in the table below will be verified at the compulsory site visit.

A quotation is requested for items specified in Annex A: Technical specifications for rainwater harvesting systems and energy efficient lights, under Rainwater Collection Interventions.

**Important notes for the installation of interventions**

- As expressed earlier, measurements need to be reported by the suppliers for a year, and training should be given to healthcare centre workers to continuously take readings thereafter.
- All rainwater harvesting tanks should be installed on concrete or brick plinths with a tap installed to ensure ease of access and use.
- Installation of Type A water tanks will include a base for the water tank, at least 1m high from the ground surface. The base must be constructed with stone masonry, and the finishing for the walls and bed of the base made with cement-sand plaster.
- Type B water tanks must be supported by steel bars elevated at 4 metre height and must be anchored by a concrete block.
- All water tank installations must also include the fitting of a water tap, and an overflow PVC pipe into the drainage system. Construction of the drainage system will have to be explored where there is currently not one in place. All PVC pipes must be installed from the overflow holes to the surface level.
- In terms of the supply and installation of pipes and fittings, the pipes need to connect harvested rainwater to an existing flush toilet. The system must include a main pipe of PVC 40mm which transfers water from the elevated tank to lateral...
pipes (for irrigating crop gardens). Connecting the elevated tank to the main pipe should be a PVC 40mm PN 10 pipe. Furthermore, perforated pipelines of 25 mm should be affixed to the main pipe to employ drip irrigation for existing crop gardens.

- All existing rainwater harvesting tanks on site must be evaluated to determine whether appropriate for ongoing use. If no longer appropriate, then water collection tanks are to be uninstalled and placed in an agreed location, but not removed from site. Where possible the suppliers must make use of the existing infrastructure - either in addition to the infrastructure requested.
- After the installation, the supplier ensures that the wall is drilled and the finishing is sufficient.
- Excavation and reinstatement of excavated area for laying the pipes during underground installation.

2. Energy efficiency interventions

Energy efficiency measures should be installed to decrease the electricity cost burden on the health centre as well as increase the utility of existing services. All interventions installed should be provided to comply with national performance standards.

All quantities provided in the table below will be verified at the compulsory site visit.

A quotation is requested for items specified in Annex A: Technical specifications for rainwater harvesting systems and energy efficient lights, under Energies Efficient Interventions.

All PV solar water heating solutions to be installed in such a way as to provide maximum efficiency, i.e. the correct angle and orientation of the solar water heater must allow for maximum solar heating potential.

Evaluate the structural integrity of the roof or surface before placing solar water heater. The contractor will have to make an assessment of whether to place the solar water geyser on steel brackets to support the geyser especially in the event that the structure is weak or to enhance the orientation of the solar panel.

A high pressure solar water geyser is preferred.
There should be a flooded evacuated tube collector integrated into the tank of the Solar Water Heater.

*Important note for the installation of interventions:*

- The process of installation cannot be disruptive to the normal activities of either health centre.

**Liability and Warranty**

The appointed supplier will be held responsible for the installation of the energy and water-efficient interventions and their proper functioning for a period of at least 3 years after installation.

The installations provided should have a warranty of at least 1 year covering any malfunction of the product.

Furthermore, the bidder must demonstrate that there is sufficient public liability insurance to cover any onsite incidents.

The appointed supplier will be required to indemnify ICLEI Africa against all potential incidences and claims arising from the delivery of this work.

Please motivate in the bid if submitting any deviation from the above.

**Budget**

The budget provided is to demonstrate clearly the individual and total costs for the supply and installation of all products in the scope of works, travel to and from site, and project management onsite including the high-level audit. A total budget, including all amounts and VAT, is then to be provided.

ICLEI Africa will not pay for any unbudgeted items.

**Key Requirements for bidding**

**Prerequisite for bidding**

- **A compulsory pre-bidding site visit will be organized.** Bidders must complete a site visit at both health centres and compile a two-envelope bid, including:
  - A technical package, which includes a schematic design for the installation and the updated Bill of Quantities.
  - A financial package.
The successful supplier must have:

- Service history in Rwanda and current active office in Rwanda
- Evidence of previous experience to execute similar contracts (at least 2 “good completion certificates with their signed contracts”)
- Detailed Technical specifications of the items to be supplied including the manufacturer and country of origin.
- Demonstrated ability to deliver and install goods on time and of a high quality
- The list of staff (personnel) should be made up of:
  - Site foreman: Electrical engineer with a degree with at least 2 years of experience in similar works in electrical maintenance or A1 degree with 5 years of experience; The site foreman should be registered in relevant professional bodies
  - Electrical technicians and plumbers who will undertake the installation
  - At least one staff member with a certificate in Occupational Health and Safety
- Note, a consortium of suppliers can submit a bid, but ICLEI Africa will only enter into a contract with one bidder
- The supplier must be able to supply accurate and comprehensive financial records of project-related expenses (including, but not limited to disbursements, travel and subsistence costs). These expenses must be included in the Financial Report that is submitted with all the final deliverables to ICLEI Africa.
- The supplier will only be reimbursed for services and materials. No upfront payments will be permitted.
- The supplier may not subcontract other parties to assist them once the contract commences unless agreed to in writing by ICLEI Africa.

**Submission requirements**

Proposals for the bid can be submitted by individuals or a consortium of individuals. ICLEI Africa will consider the following aspects when appointing the supplier:

1. Technical Package:
   1.1. Signed letter stating attendance at the site visit
   1.2. Design schematics for installation
   1.3. Specification Sheet and warranties for the proposed solar and LED public light to be installed
   1.4. Written motivation for why this specification was chosen
   1.5. Work plan indicating timeframes and milestones
1.6. A description of how all interventions will be installed
1.7. List of personnel who will work on the project, provided their years of experience and skills, and any relevant certificates of qualification and registration
1.8. Demonstrated previous experience in similar projects as a table including the name of the project, a description of the project, the start and end date of the contract, the value of the project (USD) and a reference with contact details
1.9. Letter of company incorporation to confirm that company has an active office in Rwanda

2. Financial Package:
   2.1. An itemised Bill of Quantities identifying the costs and quantities of goods, works and services
   2.2. Payment schedule in three phases, where payment is made on approval of phase completion

Submission process and timeline
Bidders that have not attended the compulsory site visit will not be considered.

Kindly submit your bid and supporting documents via email to Ben Hetherington, ben.hetherington@iclei.org by 16:00 (SAST) on 23 October 2020. At all times, please use the subject line: Supplier: Urban-LEDS II Rwanda - Rainwater Harvesting Systems and Energy-efficient Fixtures Demonstration Projects.

Appointment of a supplier is subject to the ICLEI Africa's contractual terms and conditions as captured in the Service Level Agreement.

Additional Information
ICLEI - Local Governments for Sustainability is the leading global network of over 1,500 cities, towns, and regions committed to building a sustainable future. Through our collective efforts, we impact more than 25 percent of the global urban population. For more information on ICLEI Africa's work, please see http://africa.iclei.org/ and http://cbc.iclei.org/.

ICLEI AFRICA RESERVES THE RIGHT NOT TO APPOINT A SUPPLIER AS PER THIS TERMS OF REFERENCE
## Annex A: TECHNICAL SPECIFICATIONS FOR RAINWATER HARVESTING SYSTEMS AND ENERGY EFFICIENT LIGHTS

<table>
<thead>
<tr>
<th>S/N</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNIT PRICE</th>
<th>TOTAL</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>RAIN WATER COLLECTION INTERVENTIONS</td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>Supply, install, test and commissioning of rainwater harvesting plastic tank with all necessary accessories and interconnected and approved by the engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>10CM Plastic water tank installed on masonry base (the cost of masonry included)</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>10CM Plastic water tank installed on elevated metallic structure (the cost of metallic structure included)</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>5CM Plastic water tank installed on masonry base (the cost of masonry included)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>5CM Plastic water tank installed on elevated metallic structure (the cost of metallic structure included)</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Supply, install, test and commissioning of rainwater filtration system made with 3P leaf catcher filter and</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
First flush Diverter or Ball Valves to allow the use of rainwater stored in 10CM plastic tank as potable water.

| 6 | Supply, install, test and commissioning of Grundfos Surface PV Solar water pump(hybrid AC/DC) with the following components:  
   a) Solar panel: 4kw  
   b) Solar controller: Solar controller with a smart solution hybrid powered system  
   c) Hybrid water pump: 1.75kW of power, 220V, 50Hz, Head of 50m | 1 | 1 | 2 |

| 7 | Supply, install, test and commissioning of Grundfos or equivalent Surface PV Solar water pump(hybrid AC/DC) with the following components:  
   a) Solar panel: 4kw  
   b) Solar controller with a smart solution hybrid powered system  
   c) Hybrid water pump: P=1.75kW, Head= 50m | 1 | 1 | 2 |

<p>| 8 | Supply and fix Water meter to the the plastic water tank to control the quantity of used water | 2 | 2 | 4 |</p>
<table>
<thead>
<tr>
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<th>Signage on rainwater harvesting tanks to note the type of water available: Drinking Water and non-drinking water</th>
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<tbody>
<tr>
<td>B</td>
<td><strong>ENERGIES EFFICIENT INTERVENTIONS</strong></td>
</tr>
<tr>
<td></td>
<td>Supply, install and commissioning of Energy to be retrofitted internally throughout the centres</td>
</tr>
<tr>
<td>1</td>
<td><strong>Type A</strong>: light bulbs 9W, cool white</td>
</tr>
<tr>
<td>2</td>
<td><strong>Type B</strong>: lights tubes 2' of 18W Frosted, cool white</td>
</tr>
<tr>
<td>3</td>
<td><strong>Type C</strong>: lights tubes 4' of 18W Frosted, Cool white</td>
</tr>
<tr>
<td>4</td>
<td><strong>Type D</strong>: 7W LED bulbs 110-240V, 85LM/W</td>
</tr>
<tr>
<td></td>
<td>Supply, install and commissioning of security motion sensor floodlight fixed to the wall for outdoors spaces lighting</td>
</tr>
<tr>
<td>5</td>
<td><strong>Type A</strong>: LED 120W</td>
</tr>
<tr>
<td>6</td>
<td><strong>Type B</strong>: Sodium Light diffuser 250W</td>
</tr>
<tr>
<td></td>
<td><strong>Type C</strong>: high pressure sodium lamp 250W</td>
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<tr>
<td>7</td>
<td>5</td>
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<tr>
<th></th>
<th><strong>Type D</strong>: LED 18W</th>
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<tbody>
<tr>
<td>8</td>
<td>0</td>
<td>38</td>
<td>38</td>
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<thead>
<tr>
<th></th>
<th>Supply, install and commissioning of a complete solar street lights of 45W with its galvanized electric pole with the followings specifications:</th>
<th></th>
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</tr>
</thead>
</table>
| 9 | **a)** Power: 40W  
**b)** Luminous flux: 4000LM  
**c)** Poly crystalline Solar panel: 6V 18W  
**d)** Lithium battery: 3.2V; 10000mA  
**e)** Charge time: 6-9H  
**f)** Lighting time: 2 days  
**g)** Solar Panel size (MM): 350*290  
**h)** Installation height: 6M  
**i)** efficiency: 100LM/W  
**j)** IP code: IP 65 Waterproofed & dustproof  
**k)** Rated life: ≥50000hours  
**l)** Input Voltage: DC 12/24V  
**m)** Darkness sensor: available |   |   |
|   | 6 | 6 | 12 |
Supply, install, test and commissioning of Solar water geyser 200L capacity to provide hot water for existing shower facilities with the following components

- Solar collector
- A Geyser or Storage tank
- A Thermal controller
- A Circulating pump

The work includes the connection of existing showers with hot water network.

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<tr>
<th>Description</th>
<th>Qty</th>
<th>Qty</th>
<th>Qty</th>
</tr>
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<tbody>
<tr>
<td>Supply, install, test and commissioning Electricity Meters to measure the majority of electricity usage</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Supply and install ABB Junction Box, 100mm x 100mm x 50mm</td>
<td></td>
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<td></td>
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<tr>
<td>Supply and install 63A manual changeover</td>
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</table>