

## Section II: Schedule of Requirements

**eSourcing reference:** RFP/2018/5874

### Terms of Reference

**For a Provision of Feasibility Study on Waste-to-Energy Options in Monrovia, Paynesville, and surrounding townships in Liberia.**

### Background

In Liberia, waste collection and waste management services fall within the mandate of cities. Municipal solid waste collected in Monrovia, Paynesville and neighboring townships is currently transferred to the Whein Town landfill, located in Paynesville. This is Liberia's only sanitary landfill and was constructed in 2011 under the World Bank's Emergency Monrovia Urban Sanitation (EMUS) project. The EMUS project was financed by the Liberia Reconstruction Trust Fund (LRTF), the Ebola Recovery and Reconstruction Trust Fund (ERRTF), the International Development Agency (IDA) and the Government of Liberia with majority funding from the European Union (EU) and made significant progress in establishing an effective waste collection and disposal system for Monrovia and surrounding townships. The EMUS project ended on 30<sup>th</sup> December 2016. The cities of Monrovia, Paynesville and the surrounding townships area are at different stages in what regards their waste collection and waste management systems.

In parallel, the Cities Alliance (UNOPS) is implementing an EU-financed project under the GCCA+ window, whose aim is to boost the efficiency of its response to the needs of vulnerable countries and groups. The project directly supports the attainment of Liberia's NDC mitigation targets by: (1) piloting ways to reduce GHG and landfill emissions through Small Scale Waste to Energy, (2) using methane emissions from the landfill for power generation; (3) providing livelihood opportunities for vulnerable communities to be employed in primary collection (less so because at this stage available options will be piloted); (4) contributing to environmental protection and building local resilience; (5) promoting an integrated approach to Municipal Solid Waste Management; and; (6) building the capacity of communities, local and national governments to understand, design and manage the Integrated Solid Waste Management System of Greater Monrovia. The overall objective of the project is to contribute to Liberia's carbon neutrality agenda by researching and testing access to sustainable energy and to leverage other local actions that combat climate change and its impacts.

This project leverages a series of other EU-funded initiatives (EU-funded Cheesemanburg Landfill and Urban Sanitation (CLUS) project; EU-funded Primary Waste Collection project; and the Cities Alliance Liberia Country Programme). These projects look at different aspects of Solid Waste Management in the capital region of Liberia (Monrovia, Paynesville, and surrounding townships). For example, CLUS is primarily working with Secondary Waste Collection (landfill) while the Primary Waste Collection is seeking synergies with CLUS by working with Community-Based Enterprises to strengthen, expand and diversify Primary Waste Collection in Greater Monrovia while also piloting composting and recycling alternatives. The Liberia Country Programme is working with communities, local and national government to harmonize national urban policies; profile slums; establishing a Community Upgrading Fund; strengthening the Informal Traders Association; and working with the private and public sector to create a demand-driven market for low-income housing upgrading in Greater Monrovia.

To support the aim of feasible costed options for Waste to Energy (W2E) in the geographic scope of the project, Cities Alliance (UNOPS) seeks to acquire the services of a Consultant or Consultancy Firm to develop a feasibility study on Waste-to-Energy Options for Monrovia, Paynesville, and surrounding townships. This study will benefit from the data collection and baseline study currently underway in the same geographic scope – the baseline study will include an assessment of waste generation, composition,

and carbon emission of the area; an assessment of current primary and secondary waste collection operations, a financial analysis of the current primary and secondary waste collection operations, and the review of institutional and regulatory arrangement of Solid Waste Management in urban Liberia.

## Objectives

The overall objective of this assignment is to conduct a feasibility study and propose an Action Plan covering the geographic scope of this project and to prepare the necessary documentation (business model) for piloting small-scale Waste-to-Energy (W2E) solutions (containerized, modular, other) for a post-humanitarian, low-capacity context. Transfer of knowledge will be carried out through de-briefing and a validation workshop for the final Action Plan, with participation of relevant stakeholders, in which the contractor will participate and facilitate the knowledge transfer discussion, present the findings of the feasibility study, and recommend an Action Plan that should then get the clearance during the validation workshop. The organization of the workshop will be supported by Cities Alliance (UNOPS) Country Team. The feasibility Study should also include the preparation documentation (for example, the TORs and design of possible small-scale solutions) and Action Plan to lay foundations for introduction of small-scale, W2E options as pilot initiatives in the geographic area. The total length of the service is to be implemented over a 3-month period.

The deliverables will be considered acceptable after clearance and acceptance by the Technical Committee Group of this project. The Contractor will be working in close coordination with the relevant experts of the Cities Alliance (UNOPS) Country Office in Liberia and headquarters (in Brussels), representatives from the host government and project stakeholders.

### **GEOGRAPHIC SCOPE**

The geographic scope of the study includes Monrovia, Paynesville, New Georgia, Garwolon, West Point, Brewerville, Virginia, Congo Town, Johnsonville, Dixville, Caldwell, New Kru Town, Barnersville, Gardnersville and the Township of Cheesemanburg.

## Scope

The scope of work is designed to address the objectives described above. The scope of work has three key components, namely:

### ***Part 1: Inception Report.***

The Inception Analysis will provide the methodologies to be employed in the Feasibility Study and Action Plan. It should include interpretation of this TOR, preliminary materials/literature review, draft interview schedule; envisaged methodology for the following reports; proposed table of contents for the report, detailed work plan and refined timeline. It should contain an initial plan for content of these reports, milestones, and dates of field work.

### ***Part 2: Feasibility Study***

The feasibility study is to cover all pertaining aspects to the subject for ensuring sustainability of the intervention such as technical, financial, economic, social, regulatory elements of the action to install, commission and operate a small-scale W2E options. The assessments should include, but not limited to following:

- Assessment of the institutional framework and regulations concerning Solid Waste Management and its connection to Waste to Energy options;
- Provisional assessment and identification of potential sites in terms of suitability of construction, waste composition, infrastructure, and operation of small-scale W2E options.
- Assessment and description of the existing environmental setting of the proposed sites.
- Rapid assessment of existing waste flows and capacity of waste (such as, but not limited to waste composition and characteristics, waste quantities, calorific value) as well as consideration of

potential flows to ensure sustainability (consideration of socio-economic and regulatory aspects in-country)

- Assessment of any proposed construction
- Evaluation of CAPEX (initial capital expense) and OPEX (estimated operating expenses)
- Development of the business case/model for the respective pilots to include but not limited to market analysis, energy demand, stable waste supply etc.
- Assessment of the optimal institutional/management arrangements for the management and operation of the W2E solutions (in close collaboration with the Cities Alliance Country Office and relevant local authorities, governmental institutions). In assessing the institutional/management arrangements, an assessment of potential, scale of and environment for engagement of private sector should be examined (country experience in private-public partnerships, level of investment in waste/energy/environmental solutions, etc.)
- Assessment of socio-economic impacts of different W2E solutions (e.g. potential direct or indirect livelihoods opportunities generated for women and men, etc.)
- Assessment of financial implication of different W2E solutions (e.g. return on investment)
- Costed feasibility study. Develop a costed feasibility model that includes different scenarios (for funding gap) and those that can be covered under the project's current cycle, including small infrastructures, land needed, micro-loan and credit facility, and capacity building of communities, local and national authorities

The result of the feasibility studies conducted should contain recommendations on:

- The suitable technologies for small-scale W2E solution for each country
- Proposed sites for the W2E solution;
- Proposed institutional/management arrangements for the management and operation of the W2E solutions for each country;
- Based on the findings of viable alternatives, propose cross visits to identified best practices and technologies. Ideally, these would take place within West Africa. If no such best practices can be found in the region, other options in Africa may be considered;
- Based on the assessments and findings, a TOR with the set of capacity building modules for Community-Based Enterprises (CBEs), local, and national authorities that should be implemented through the Action Plan. The summary of training modules should include aspects related to Gender and W2E sensitization. The TORs of the training modules should include: Topic, Objective, Subjects to be covered, Target Groups, Resources, and Length of Training.

The recommendation should include justification for the proposed solutions providing a cost-benefit analysis in relation to several factors including but not limited to: contextual (post-humanitarian), technical, environmental, socioeconomic, institutional, regulatory and financial considerations, including identification of roles for local authorities, government, private sector.

### **Part 3: Action Plan**

The Action Plan should be informed by the previous products and be agreed with the stakeholders of the project including timeline for implementation, target beneficiaries, necessary training of beneficiaries, milestones, concrete outputs, costing of outputs, date of delivery and a simplified Monitoring and Evaluation System. The Action Plan should be simple, concrete, and easily understandable by all stakeholders involved. It should be made of the following:

- Executive Summary;
- Background of the project;
- Methodology of the Action Plan, including stakeholder consultation;

- Draft TORs for small-scale W2E technological solutions proposed and agreed with for Monrovia, Paynesville, and surrounding townships;
- Summary of the training modules (and their TORs) to be procured with a training institution;
- Explanation of each milestone of the Action Plan, including responsible institution, costing, and date of delivery;
- A simplified version of the Action Plan presented as in a table format, so stakeholders and project implementation team can keep track of progress;
- Baseline, indicators, and targets of the Action Plan.

### 3. Monitoring and Progress Controls

Deliverables	Tentative deadline
<b>Inception Report</b> , including: interpretation of this TOR, preliminary materials/literature review, draft interview schedule; envisaged methodology for the following reports; proposed table of contents for the report, detailed work plan and refined timeline. It should contain an initial plan for content of these reports, milestones, and dates of field work.	15 days of signature
<b>Feasibility Study</b> : Within 45 days, the consultants shall produce an inception analysis outlining the methodologies to be used in the study, initial observations, apparent availability of data, and detailed work program for the two components of the study. The work program shall describe the survey, sampling, and laboratory analytical protocols to be used in data collection. The work program shall include a detailed schedule for all work, including field work in project participating cities/townships. The inception report shall also report on the fulfillment of the study conditions, as outlined above.	45 days of signature
<b>Action Plan</b> : The Action Plan should be submitted within 90 days. The consultants will then run a workshop with stakeholders to agree on, prioritize and sign off on the Action Plan.	90 days of signature

### Minimum Requirements

This Request for Proposal is open to environmental and/or energy consultant companies. A successful Contractor should demonstrate:

- Proven experience in conducting feasibility studies and consultancy on Waste-to-Energy.
- Availability to carry out field visits to the site of this project.
- Minimum 7-10 years of experience in projects in development/humanitarian contexts;
- Minimum 5 years of experience of working with International Organizations or other development/humanitarian partners;
- Experience in technical cooperation projects with local and international institutions (listed with name of the project, year, international institution and contact person).
- Proven experience in working with the private sector and resource mobilization for similar projects

The awarded company must have the work team, professionals with a degree in civil, mechanical, electrical, commercial, environmental, or chemical engineering, economists, or other related disciplines. Availability to carry out field visits to each site selected in the studied regions and regular meetings with the technical counterparts in the respective pilot sites. Team work (all members) with at least 10 years of work experience in different subjects needed for this consultancy, such as technical, economic, and financial evaluation of projects, energy and waste planning models; engineering; financial analysis and business models. The team must also have experience in resource mobilization from private sector/investors in implementation of

similar projects. Summaries of the resumes of every work team member must be included using the same format.

**Competencies**

- Appreciation for and understanding of European Union Projects and the mission and objectives of the Cities Alliance;
- Strong ability and proven experience in presenting and communicating complex development issues to an international audience
- Ability to synthesize and consolidate substantive comments and views of multiple stakeholders in a balanced and concise manner
- Integrated understanding of the functioning of cities and of sustainable development programmes and practices that support and strengthen the role of cities
- Good interpersonal skills and ability to work effectively with internal/external partners in a multi-cultural environment

***Conditions of the Study:***

The Consultant/firm shall use the Cities Alliance office as its base and be in close contact with the local and national stakeholders to maximize technology transfer and training to counterpart staff and other stakeholders. There is an expectation that results of the project will be shared with the Technical Working Group of Solid Waste Management established by Cities Alliance, and other partners as necessary (and vetted by the Technical Working Group) to ensure ownership of the final products.

Local consultants participating in the study shall work at the Cities Alliance office while the study is on-going. All other local consultants participating in data collection and analysis, under the guidance of the Consultancy Lead, shall attend regular meetings (e.g., weekly) for purposes of direction and monitoring, but will work on a day-to-day basis in the field.

The study shall have a clear approach, i.e., the methods and approaches shall lead to comparable data and the evaluation of background conditions and shall enable understanding of the similarities and differences among the cities and townships.

The outputs for each city/township shall be reported in the same format, for ready comparison of data and findings.

The process used for data generation and analysis shall be replicable, and simple spreadsheets for data management and analysis shall be developed.

Costing conducted during the study shall clearly outline all costing factors used in a manner which readily enables comparison of costs and updating, including unit prices, percentage increases for benefits and administrative overhead, consumption rates for consumables and unit prices, interest rates, insurances, duties, economic life, downtime, and productivity assumptions. As appropriate, the basis for calculating costs of civil works shall be provided in terms of local costs for time and materials, as well as any foreign exchange requirements. Also, costs for imported equipment shall be provided in terms of international quotations plus factors applied for costs attributable to shipping, portage, registration, duties and sales tax.