

Annex -1-

Terms of Reference (TOR)

Project Name: Support to Economic Recovery, Community Security and Social Cohesion in Lebanese Communities Affected by the Syrian Crisis Program

Reference Number: 00090039

Subject: International Biomass Expert

1. Background

The UNDP, through support to the “Lebanon – Support to Economic Recovery, Community Security and Social Cohesion in Lebanese Communities Affected by the Syrian Crisis Program” has initiated a project of energy supply for host communities funded by the Netherlands Ministry for Foreign Trade and Development Cooperation, in partnership with the Ministry of Energy and Water and the Ministry of Agriculture.

As part of the above project, between 2 to 3 biomass briquetting process facilities are required to be implemented in areas which are mostly impacted by the Syrian refugees. The raw biomass material for these briquetting facilities are expected to come from the residues of sustainably managed forests and/or agricultural residues.

The international consultant will support the UNDP project in all this project life-cycles, namely; (1) Assisting in the decision on the best locations and raw materials to use, (2) assisting in setting up a sustainable forestry management plan and agricultural waste collection and management plan, and (3) thoroughly complete the full technical specifications for the biomass briquetting plants.

To this end, an international consultant with extensive experience in scoping and developing biomass projects in rural communities and in various sub-sectors is required to prioritize projects, and write up the technical specifications (tender documents) of these identified projects.

This project requires approximately 40 man-days spread out over a 12 month interval.

2. Scope of Work, Responsibilities and Description of the Proposed Work

In full coordination with the UNDP project manager and engineers, the International Consultant is tasked with the identification of technically and economically viable and environmentally sustainable projects in biomass briquetting.

In specific, the consultant will:

Task 1. Support the identification of the forest(s) and/or agricultural location/source

- Assist in setting up the criteria for forest(s) and/or agricultural residues selection which can be utilised as a standard for such measures in the future based on international best practice and national circumstances;
- Assist in site identification based on thorough assessment of forested land in Lebanon (data will be provided by UNDP), especially in the 251 areas (areas most impacted by the Syrian refugee crisis), and undertake cost-estimates for the implementation of bioenergy production from forest with a preference to include agricultural residues/organic waste (particularly given the current solid waste crisis facing the country). Assess other potential bioenergy streams that may be used to increase or improve production.
- A 5-day working visit to Lebanon is expected in this Task.

Task 2. Collection procedures and methods

- Assist the UNDP team and a specialist on forestry management in setting up sustainable collection methods and characterization, which will ensure the safekeeping of the forest and its nutrient cycles
- Determining the most feasible means of collecting waste from other sources in parallel while considering the creation of new sources of livelihood and decreasing solid waste issues in rural communities
- Assist in setting up the required training support for the collection process team(s), adhering to sustainable harvesting/collection processes and other criteria for the each type of waste stream
- Assist in setting up the standards and criteria for storage of collected dried matter

Task 3. Support the design of the biomass pilots

- Identify and assess the optimal and replicable solution for the processing and treatment of collected dry matter; estimate the financial requirements for the recommended works; and establish the timeframe and major milestones for the proposed works;
- Prepare the necessary technical specifications and tender documents for the procurement of goods and services for all proposed works (especially the processing and compressing plant). The Tender documents and technical specifications will include: design and engineering specifications; equipment specifications; installation requirements; testing and commissioning procedures; monitoring and verification methods; warranty arrangements, etc. Up to 3 sites are targeted.
- A 5 day visit to Lebanon is expected for this Task.

- Assist in the reply to queries by prospective contractual bidders, and in the review and evaluation of the received bids/offers; assist in the establishment of general work procedures for contractors, including: supply schedules, goods inspection and certification, quality control and assurance procedures and measures, receipt of goods procedures and arrangements, standard site work formats, etc.

Task 4. Support the supervision of the biomass pilot(s)

- Develop checklists for the following: site supervision; operation and maintenance (taking into consideration suppliers' recommendations); performance monitoring, and data collection and evaluation;
- Support the review of certificates of works, and provide advice to address problems that may arise during the execution of works; as well as advice on handover arrangements and spare parts arrangements;
- Undertake selected and targeted site supervision and testing of performance;
- Assist in capacity building on the operation and maintenance of the selected processing unit

3. Qualifications Required

The Individual Consultant should possess the following minimum qualifications:

a. Academic Qualifications:

- Bachelor's degree in mechanical engineering, chemical engineering, renewable energy (esp. biomass) or related field
- Master's degree in renewable energy with biomass focus is preferable

b. Years of Experience:

- Relevant experience in biomass value chains of not less than 10 years
- Relevant experience in developing countries and/or rural communities
- Experience in designing biomass systems with a strong understanding of forest management and agricultural waste

c. Competencies:

- Strong analytical and report-writing skills
- Excellent interpersonal and communication skills
- Commitment to team and cross-disciplinary work
- Emphasis on delivery of results and reacts well to constructive criticism
- Proficiency in English

4. Duration of Contract

The contract is 40 man-days spread out over a period of 12 months. Two 5 day missions each are expected during the span of this consultancy.

5. Schedule of Implementation

| ID | Task | Duration | Dates | | | | |
|----|---|-------------------------------------|-----------------|---|---|---|---|
| 1 | Task 1. Support the identification of the forest(s) and/or agricultural location/source | 15 man-days (5 of which in Lebanon) | Month 1 | | | | |
| | | | Week | 1 | 2 | 3 | 4 |
| | | | | X | | X | |
| | | | Month 2 | | | | |
| | | | Week | 1 | 2 | 3 | 4 |
| | | | | X | | | |
| 2 | Task 2. Collection procedures and methods | 15 man-days | Month 3 | | | | |
| | | | Week | 1 | 2 | 3 | 4 |
| | | | | X | | X | |
| | | | Month 4 | | | | |
| | | | Week | 1 | 2 | 3 | 4 |
| | | | | | X | | |
| 3 | Task 3. Support the design of the biomass pilots | 20 man-days (5 of which in Lebanon) | Month 5 | | | | |
| | | | Week | 1 | 2 | 3 | 4 |
| | | | | X | X | X | |
| | | | Month 7 | | | | |
| | | | Week | 1 | 2 | 3 | 4 |
| | | | | X | | | |
| 4 | Task 4. Support the supervision of the biomass pilot(s) | 10 man-days | Month 8 | | | | |
| | | | Week | 1 | 2 | 3 | 4 |
| | | | | | | X | |
| | | | Month 12 | | | | |
| | | | Week | 1 | 2 | 3 | 4 |
| | | | | | | | X |

6. Deliverables

All deliverables, including supporting documents, should be written in English and submitted in one original and one copy including one soft copy in word format on CD.

The project manager shall subsequently have five (5) working days within which to forward all comments, required modifications and adjustments to the consultant. The approval of the submitted deliverables will be based on a comprehensive review by the project. The project manager reserves the right to request additional evaluation time if other information or clarification is further needed. Payments will be issued upon satisfactory completion of the required outputs.

All travel expenses (for 10 working days in Lebanon) as per Task 3 must be included in the financial offer.

7. Payment terms/schedule

| Task | Payment | Deliverables | Potential dates |
|-------------|--|---|---------------------------------------|
| 1 | First Payment (20% of the contract value) | Task 1. Support the identification of the forest(s) and/or agricultural location/source | End month 2 after contract signature |
| 2 | Second Payment (40% of the contract value) | Task 2. Collection procedures and methods Task 3. Support the design of the biomass pilots | End Month 6 after contract signature |
| 3 | Final Payment (40% of the contract value) | Task 4. Support the supervision of the biomass pilot(s) | End month 12 after contract signature |