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Terms of References

Country: Jordan

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| Post Title: | RDF and Waste Recycling Machinery and Equipment Designer |
| Starting Date: | 11 July 2021 |
| Duration: | 21 working days during the period of 100 calendar days |
| Location: | Amman - Jordan |
| Project: | Reduction and elimination of POPs and other chemical releases through implementation of environmentally sound management of E-Waste, healthcare waste and priority U-POPs release sources associated with general waste management activities. |

Background

The Ministry of Environment is implementing the project “Reduction and elimination of Persistent Organic Pollutants (POPs) and other chemical releases through implementation of environmentally sound management of E-Waste, healthcare waste and priority Unintentional POPs release sources associated with general waste management activities” with UNDP technical assistance and funded by the Global Environment Facility (GEF). The project aims to protect human health and the environment from the negative impacts of (POPs), as POPs is organic toxic substances accumulate in human body and stays long in the environment causing serious damage.

The avoidance of releases of POPs and unintentional POPs (U-POPs) like Polybrominated Diphenyl Ethers (PBDEs), Furan and Dioxin is vital to fulfil Jordan`s commitments towards Stockholm and Basel conventions and will contribute to the development of the waste circular economy elements based on the 3R (Reduce, Re-use, Recycle) approach principles. The project is designed with the three (3) components:

Project Component 1: Development of an environmentally sound management (ESM) system for E-waste, which has the objective to improve and enforce the E-waste regulation in the country, and to develop capacity for the collection and disposal of POPs Contaminated E-waste products and end-of-life articles;

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Project Component 2: Achievement of environmentally sound healthcare waste management (HCW), which has the objective to build on the existing potential of the country to further improve and extend the current HCW practices, including training, certification and procurement of HCW waste treatment technology;

Project Component 3: Development of waste diversion/resource recovery capacity for reduction of U-POPs emissions, accompanied by GHG related improvements, with the objective to demonstrate minimization in the amount of municipal waste (containing potentially hazardous fractions such as plastic etc) improperly dumped or disposed of through recycling techniques and application of refused-derived fuel (RDF) principles in modern qualified cement kiln industry, including improved management of hazardous waste through establishing of a public/private partnership.

RDF and Recycling in Jordan.

Under this project it is planned to have a sorting and recycling activity alongside an organic waste processing, in addition to the production of Refuse Derived Fuel (RDF) from the collected materials. The recycling activity will include receiving station of dry materials, separation line of plastics, metals, and paper/cardboards with a capacity to intake the at-source sorted material of 1000 generators (i.e. households) with a capacity of 2 tons/day of received material, in addition to material received from other sources for the RDF production, which will add approximately 8 tons per day to the received amount, making the first phase income amounts around 10 tons/day. The facility is planned to have a capacity to produce around 20 tons of RDF daily and sort additional 10 tons/day of recyclable material, with design of 30 tons/day overall.

RDF production needs to be sustainable, with a large daily amount of RDF of fairly stable composition guaranteed. One of the targeted buyers would be cement kiln, where they work on a continuous basis and needs relatively stable properties of the fuel, which also constitutes an important part of the raw material, discontinuity in the supply of RDF would not be acceptable.

This project intends to assist the Government of Jordan in designing and implementing the procurement process of machinery and equipment relevant to a sorting facility and Refuse Derived Fuel (RDF) processing plant.

For this reason the UNDP is seeking to hire a qualified engineer/team (the consultant) to develop the required designs, drawings, specifications, and BoQs within the available resources, to have the required machinery and equipment for this station, with designs of each machinery/equipment fully integrated the other parts of the station to have connected and integrated workstations principle that regulate all machinery processes with the least human resources possible.

The proposed site for the new station, could have some existing machinery and equipment, which the Consultant shall inspect, propose and maintenance and if needed upgrade plan, with clear designs for elements that would allow integration of existing machinery (if found on site) with the new proposed machinery, to ensure continuous flow of work, integration/full connection of workstation, and optimized use of available and planned machinery resources.

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The project contracted another consultant (IC) to provide technical assistance on types of materials targeted, the final outcome of material processing at the station, and the quantities to be processed. The other Consultant (under this ToR) will work with the other consultant to have a final coordinated scheme of the station and specifications for the machinery and workstation flow, which would require a high level of coordination between the Consultant, the UNDP, the MoEnv., and other consultants.

Objectives of the assignment:

The objective of this assignment is to provide support and expertise through the UNDP to the Ministry of Environment (MoEnv.) in developing the designs and specifications for the required machinery at the targeted sorting station and RDF production line.

Duties and Responsibilities

The design will be conducted by a national consultant, who will closely work in consultation with and under the guidance and supervision of UNDP SWM Programme Manager and Ministry of Environment Focal point. The Consultant will be responsible for the following tasks:

Task 1: Review the existing data relevant to the project, and make necessary site visits and inspection of existing machinery (if any), and make market survey to identify the best specifications of machinery that would ensure fair competition, best value for money principles, sustainability of product and operations, and conformity to the requirements of the project.

Under this task the Consultant is expected to:

- Conduct desk review of the existing regulations and documents on machinery design relevant to waste sorting/recycling and RDF production. The Consultant will look into all relevant and available documents included but not limited to documents provided by the other consultant (working on RDF production plan), previous analyses documents and lessons learned available in the Ministry of Environment, UNDP for similar projects (if any).
- Hold introductory meetings with the Ministry of Environment and other relevant stakeholders and the other consultant who was recruited by UNDP to support RDF planning activities.
- Conduct site visit to the proposed facility and inspect existing machinery (if any).
- Conduct, or use any available resources about the relevant market, to ensure tailoring of machinery that could be manufactured nationally if possible, or easily imported with the minimal period and best potential after sales services, and user-friendly technology.
- Identify the best international practice in this field and identify the relevant design codes/standards to be used for UNDP approval (should be similar to Jordanian national requirements and the EU relevant standards and directives).
- Design a workplan and a brief methodological approach to conduct the design shall be presented, showing how each stage of the process will be carried out, and agreed with the Ministry of Environment and UNDP.

Task 2: Provide the design for machinery, indicating the overall capacity of the station

In developing the designs, the Consultant shall take the following steps and provide the below outputs:

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- Identify the machinery required and existing and get UNDP’s approval for the required machinery list to be designed.
- Identify approved design standards and take into consideration the environmental and operational safety elements of the whole system, and each machine individually.
- Provide a workflow scheme with capacity indicated, that includes all the new design machinery and if any, the existing machinery to be integrated with the system.
- Provide repairs and upgrade plans for existing machinery, and their integration plans with the newly designed system, including all BoQs and specifications.
- Provide detailed design of the proposed sorting station of dry material and the RDF production line with the capacity of 10 ton/day recyclables and 20 tons/day of RDF. The RDF will include plastics, textile and paper/cardboard in different percentages. The machinery shall be designed based on the workflow scheme submitted by the designer and approved by the UNDP.
- The Consultant shall provide the design drawings, specifications, BoQs and cost estimate, and a list of potential bidders, five national and five international that could be invited to the later bid, which should be qualified as per the Consultant’s proposed qualifications of manufacturers.
- The design of the sorting shall include separation process of metals (through magnetic separation at minimum), manual separation on belts of plastics and cardboards/paper, and later diversion of material either to shredding and baling station for recyclables, or to further RDF processing for shredded material of textile, cardboard/paper, plastics for shredding, drying, mixing, baling and final packaging, and then weighing and transporting to storage area through forklift. Machinery and equipment should be designed for all of these processes, even if not mentioned herein.
- Provide insight on required infrastructure upgrade if needed for civil and electro-mechanical works in the existing building, in case of additional capacity of this infrastructure is required for the machinery to operate properly.
- Provide final version of design drawings, workflow scheme, specifications, BoQs and cost estimates, for the UNDP to issue the machinery supply tender.

Task 3: Support in offer evaluation for bidders

- The Consultant shall participate in pre-bid meetings when required by the UNDP (if such meetings are put into the machinery supply ITB).
- The Consultant shall provide technical advice during bidding phase and answering bidders’ technical queries relevant to the design in timely manner.
- The Consultant shall be a member of the machinery suppliers’ evaluation committees (as many as can be) within the UNDP POPP regulation framework, and shall sign on all evaluation reports relevant to these machinery.

Expected Outputs & Deliverables Timeframe

| | Deliverable | Duration/Deadline |
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| D1 | Report on existing data relevant to the design, design standards, inspection reports, market identification and workplan as in task #1. | 5 working days (W/D) - 5 days after signing the contract |
| D2 | <ul style="list-style-type: none"> - Workflow scheme of the station - Design of existing machinery upgrade/repairs and integration with the new system, and the design of all machinery required under task #2, with the specifications, drawings, BoQs and cost estimate. - List of potential bidders. - Report on any infrastructure upgrade required to have the machinery installed and operating properly. | 11 W/D – after 15 days from signing the contract |
| D3 | <ul style="list-style-type: none"> - Report on answered queries during bidding phase - Report on evaluation of machinery supply offers as per task #3. | 5 W/D after 100 days from signing the contract |

Compensation and special conditions

All payments are subject to deliverable approval by MoEnv focal point and UNDP CO. Payments are transferred in the following manner]:

- The 1st payment (15 % of the total) after delivery and approval of Deliverable 1.
- The 2nd payment (65% of total) after delivery and approval of Deliverables 2.
- The 3rd payment (20 % of total) after delivery and approval of Deliverable 3.

Functional competences:

- Ability to conduct research and analysis and strong synthesis skills
- Proven experience in conducting field assessments.
- Excellent facilitation and communication skills
- Proven ability to deliver quality results against tight deadlines.
- Up-to-date knowledge of environment and waste topics and issues.
- Highly developed inter-personal, negotiation, teamwork skills and a networking aptitude
- Knowledge of Basel and Stockholm conventions technical guidelines is desirable
- Competency in the use of standard Microsoft computer packages is essential.
- Competency in AutoCAD and other computer-aided drawing programmes is essential.
- Competency in mechanical machinery design software is essential.

Corporate competences:

- Demonstrate integrity by modeling UN values and ethical standards.
- Promote the vision, mission and strategic in goals of the UNDP

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- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability
- Treats all people fairly without favoritism.

Required skills and experience

- Bachelor's Degree in mechanical or mechatronics engineering or other relevant study.
- Over 10 years of experience in engineering machinery design projects, with at least 3 major machinery design projects within the experience records.
- At least one project with experience in SWM recycling/RDF machinery related projects.
- Membership in Jordan Engineers Associations is essential.
- Previous experience with Government, UNDP, or other UN organizations or INGO's would be an added advantage.
- Language skills: fluency in English and Arabic, with high skills in technical writing and specifications drafting.
- Identify the skills of the backstopping team for specifications drafting and specific engineering support if required.

Proposal Submission Requirements

Interested individual consultants must submit the following documents in order to be considered for the assignment:

1. Technical Proposal

- (i) Explaining why they are the most suitable for the work (1 page max.)
- (ii) Providing a brief methodology on how they will approach and conduct the work including the support provided by the backstopping team, such as the specifications drafts person and the specific engineering support persons to the key consultant . (4-5 pages)

2. Financial proposal

- (ii) Indicating the total lump sum for the assignment.

The financial proposal shall specify a total lump sum amount, and payment terms around specific and measurable (qualitative and quantitative) deliverables. Payments are based upon delivery of the services specified in the TOR. The financial proposal shall include a breakdown of this lump sum amount (including travel, per diems, and number of anticipated working days).

3. Personal CV including past experience in similar projects and at least 3 references.

Received offers will undergo two phases of evaluation as described below:

1. Shortlisting Criteria (only shortlisted offers are evaluated – passing score for shortlisting is 85/100 point:
 1. Relevant education background– (35 points)
 2. At least 10 years of progressive experience in related fields (35 points)
 3. Language, Skills and competencies (30 points)

Cumulative analysis:

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When using this weighted scoring method, the award of the contract should be made to the individual consultant whose offer has been evaluated and determined as:


- a) Responsive/compliant/acceptable, and
- b) Having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.

* Technical Criteria weight; 70%

* Financial Criteria weight; 30%

Only conditions obtaining a minimum of 50 points would be considered for the Financial Evaluation
Technical evaluation criteria

- Background and similar experience in similar tasks with (if required) sufficient backstopping team, 20 points.
- Methodology – demonstrating good understanding of assignment and scope of work, 30 points.
- Relevant experience, 20 points

| UNDP Signature | IC Signature |
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