Terms of Reference for Service

Title: Establishing Green-Soilless Farms in Karak and Madaba Governorates.

Background

Project Reference: **P04385**, Donor reference: **AVRO-00078**.

About IUCN

IUCN is a membership Union uniquely composed of both government and civil society organisations. It provides public, private and non-governmental organisations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together.

Created in 1948, IUCN is now the world's largest and most diverse environmental network, harnessing the knowledge, resources and reach of more than 1,400 Member organisations and around 15,000 experts. It is a leading provider of conservation data, assessments and analysis. Its broad membership enables IUCN to fill the role of incubator and trusted repository of best practices, tools and international standards.

IUCN provides a neutral space in which diverse stakeholders including governments, NGOs, scientists, businesses, local communities, indigenous peoples' organisations and others can work together to forge and implement solutions to environmental challenges and achieve sustainable development.

Working with many partners and supporters, IUCN implements a large and diverse portfolio of conservation projects worldwide. Combining the latest science with the traditional knowledge of local communities, these projects work to reverse habitat loss, restore ecosystems and improve people's well-being.

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About the Project

Jordan's water scarcity is compounded by different pressures including climate change, industrial and agricultural practices, population growth, and Syrian refugee's influxes, which create barriers to economic development. Climate-related hazards in Jordan include droughts, extreme temperatures, storms, landslides, and flash floods. While these hazards are a natural occurrence in Jordan, they nevertheless pose serious constraints on development, and their intensity and frequency are likely to increase under a changing climate. Climate change is increasingly affecting vulnerable communities in Jordan, as the country simultaneously grapples with social cohesion and rapid population growth. Refugee arrival waves and the existing presence of Syrian refugees increase citizens' discontent towards local governmental entities and their ability to fairly manage shared resources such as water and land. The most affected sectors by water issues in Jordan are the agricultural sector and the labour sector. Those sectors are already impacted by the Syrian crisis and the presence of refugees. Responding to these challenges, the AMER project has been developed to enhance sustainable economic mechanisms in the agriculture and food security sectors as drivers to empower Jordanian host communities and Syrian refugees in southern governorates. The project would create job and livelihood opportunities in the agriculture sector. Moreover, it will introduce and promote sustainable agriculture practices that build the resilience of vulnerable farmers and residents against climate change impacts. The main project's objectives:

1. Improve the living conditions of Jordanian host communities and Syrian refugees in the targeted governorates through income-generation practices related to agriculture and sustainable production methods.

2. Strengthen the capacity and awareness of local communities, local authorities, academic institutions, and schools in the targeted governorates regarding sustainable practices for agriculture and food security.
3. Improve the resilience of small farmers and breeders from host communities and Syrian refugees in the targeted governorates to climate change challenges.

Description of the Service

This tender aims to introduce and promote smart agriculture practices by establishing 10 Green-Soilless Agriculture farms for the local agriculture cooperatives to empower the local communities and Syrian refugees in the Madaba and Karak governorates. The established Green-Soilless farms will serve as production farms adopting soilless agriculture techniques in the targeted governorate to promote, support, and achieve optimal water and renewable energy utilisation, besides, maintaining the soil ecosystem.

The Green-Soilless farms will be a multi-span greenhouse (total area 540 m^2) including two hydroponic systems of soilless agriculture techniques inside, (14) volcanic tuff channels and a (13) filling basin to offer a variety of crops for the cooperatives' benefits and introduce the knowledge and know-how of different types of hydroponic according with the key components illustrated in the BOQs and specifications.

This tender implementation is comprised of three main phases as follows:

A. Design phase:

The key tasks to be undertaken to deliver this phase should be included but not limited to the following:

- The contractor should assign a team comprised of six experts in construction, agriculture, irrigation, renewable energy, crop management, and technical field supervisor to work collaboratively on developing the design and implementing the green-soilless farms in full compliance with the key farms' components which are listed in the initial BOQ and specs (annexe.1), with IUCN oversight and guidance.
- The contractor should adhere to the green-soilless farms' BOQ and specs that outline the design requirements and implementation standards for components.
- The expert team should conduct field visits to explore and assess the farm sites and available resources and infrastructure. Consider taking advantage of the infrastructure available on the project site to benefit the cooperatives, if it exists.
- The contractor should determine the tolerated crop varieties (seedlings) and the available sources for the selected crops, considering that they should be highly resilient to climate change challenges, high yield productivity, pest resistance, etc.
- Multi-span greenhouse orientation should be such that: it receives maximum sunlight in winter and prevailing winds should have the minimum effect on the greenhouse structure and other operations.
- Developing a plan for crop farming (crop calendar) with full cooperation with the IUCN team based on selected crop types and the nature of each location for three cultivation cycles.
- Submission of a complete package of design for the farms, including drawings, detailed BOQs, specifications, monitoring systems, and implementation methodology. Both soft (AutoCAD & PDF) and hard copies.
- The contractor should identify crop water requirements for different crops and irrigation scheduling.
- During design, all safety precautions and environmental regulations must be followed.
- The contractor should calculate the required water, fertilizers, and pesticides for cultivation cycles for each farm based on the selected crops.
- The contractor must test the water resource quality and characteristics for each farm site (water resources) as determined by the beneficiaries.
- Before implementation, the design package must obtain written approval by the IUCN.

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B. Implementation phase.

The key tasks to be undertaken to deliver this phase should be included but not limited to the following:

- The contractor must obtain full approval from the IUCN on the design package before starting implementation.
- The contractor should provide a detailed implementation plan within a defined time frame including needed resources, materials, equipment, roles and responsibilities, etc.
- The contractor should bear all resulting costs from opening access roads, land levelling and reshaping, , and land cleaning and preparation.
- The contractor should provide seedlings, fertilizers, and pesticides for the first farming cycle, as agreed upon in the design phase.
- The contractor should provide a monthly progress report so IUCN can follow up with the process of the implementation and ensure the implementation is aligned with the work plan and designs.
- The contractor should be responsible for all needed resources during installation such as water, electricity, facilities for the staff and workers, guarding, etc.
- The contractor should supply and install all required goods, materials, and equipment for the farms in compliance with the approved design.
- The raw materials of the plastic sheets and pipelines are 100% virgin, with the needed certificates for that being ISO and DIN certificates.
- The contractor should be responsible for guarding the implementation sites and materials until the final handover to IUCN and its partners.
- During implementation, all safety precautions and environmental regulations must be applied.

C. Commissioning phase (operation, training, and handover).

- The contractor should plant the seedlings in collaboration with cooperative members (beneficiaries). then, the contractor should operate all farmland components before handing them over to beneficiaries in order to ensure that all system components are optimally functional.
- The testing should be supported with full documentation (photos and video) and handover forms.
- According to the installed systems, the contractor should develop and submit operational and maintenance guidelines material in Arabic and English for the entire system (including agriculture, irrigation, and renewable energy devices and components) for the cooperative operator's use. Furthermore, the guidelines should include an annexe for the various farming steps (Input materials supply, preparation, crop management, greenhouse management, etc).
- Conducting training courses (on-site) for the cooperative's members who will run and operate the farm, not less than 5 participants from each cooperative, and maintaining the installed system.
- Develop and submit a list of the spare parts and warranties for the installed systems.
- As built drawings should be developed and submitted to IUCN.
- Handing over the whole site to the IUCN and beneficiaries, which will take place after delivering the training.
- During the project life, the contractor should provide weekly/monthly reports for the progress of this contract.

Essential Requirements

1. *Qualification* of experts.

The contractor should provide a team of experts should have the following qualifications and experiences as a minimum requirement:

Expert qualifications

1. Construction Expert (team leader)
   - University degree in civil engineering or a relevant field (master's /PhD degree is an advantage).
   - A minimum of 10 years of experience in the area of agriculture.
   - Proven expertise and in-depth knowledge of the field of agriculture with work experience in a similar project.
   - Expertise in managing the implementation of various Agri-projects that applied new agricultural practices such as soilless agriculture projects.
   - Advanced knowledge of English and Arabic languages. Strong interpersonal skills and the ability to communicate with various stakeholders in politically sensitive situations with diplomacy and tact.
2. Agriculture expert
   - University degree in agriculture or a relevant field (master's /PhD degree is an advantage).
   - A minimum of 10 years of experience in the area of agriculture.
   - Proven expertise and in-depth knowledge of the field of agriculture with work experience in a similar project.
   - Expertise in designing, supervising and implementing various Agri-projects that applied new agricultural practices such as soilless agriculture projects.
   - Advance knowledge about crop management and irrigation networks.
   - Advanced knowledge of English and Arabic languages. Strong interpersonal skills and the ability to communicate with various stakeholders in politically sensitive situations with diplomacy and tact.
3. Irrigation expert
   - University degree in irrigation or relevant field (master\PhD is an advantage).
   - A minimum of 10 years of experience in the area of design and implementation of smart irrigation systems such as soilless agriculture, aquaponic, etc.
   - Proven expertise in-depth knowledge of the field of agriculture, irrigation in Jordan.
   - Expertise in designing, supervising and implementing various smart irrigation systems (especially systems that utilize efficient water use such as soilless agriculture, aquaponic, and drip irrigation).
   - Advanced knowledge of English and Arabic languages. Strong interpersonal skills and the ability to communicate with various stakeholders in politically sensitive situations with diplomacy and tact.
4. Renewable energy expert
   - University degree in Renewable energy or relevant field (master\PhD is an advantage).
   - A minimum of 5 years' experience in the designing and implementation of renewable energy techniques.
   - Proven expertise and in-depth Knowledge of the field of renewable energy in Jordan.
   - Expertise in designing, supervision and implementing various Renewable energy techniques for agriculture and irrigation (including the usage of renewable energy for at least one project that adopts climate-smart agriculture such as soilless agriculture).
   - Advanced knowledge of English and Arabic languages. Strong interpersonal skills and the ability to communicate with various stakeholders in politically sensitive situations with diplomacy and tact.
5. Crop management expert
   - University degree in agriculture or a relevant field (master's /PhD degree is an advantage).
   - A minimum of 10 years of experience in the area of crop management.
   - Proven expertise and in-depth knowledge of the field of crop and farmland management with work experience in a similar project.
   - Expertise in on-site training and knowledge transfer in Agri-projects that applied new agricultural practices such as soilless agriculture projects.
   - Advance knowledge of crop management, pesticides, fertilization recipes, etc.
   - Advanced knowledge of English and Arabic languages.
   - Strong interpersonal skills and the ability to communicate with various stakeholders in politically sensitive situations with diplomacy and tact.

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6. Technician supervisor.
   - University degree in civil engineering or a relevant field.
   - A minimum of 5 years of experience in the area of agriculture project implementation.
   - Proven expertise and in-depth knowledge of the field of agriculture with work experience in a similar project.
   - Expertise in managing the implementation of various Agri-projects that applied new agricultural practices such as soilless agriculture projects.
   - Advanced knowledge of English and Arabic languages.
   - Strong interpersonal skills and the ability to communicate with various stakeholders in politically sensitive situations with diplomacy and tact.

Duration of the tender

The contractor should design, supply, and install the green-soilless farms during the period from 30.11.2024 to 26.02.2025.

Deliverables and Activities

The contractor will provide the following deliverables and carry out the following activities:

Deliverable/Activity	Description	Deadline
Deliverable 1;	Submit the inception report	07/12/2024
Deliverable 2;	Submit a Full design package that includes a design drawing, detailed BOQ, and Specs by the design phase for all farmlands	20/12/2024
Deliverable 3,	Supply, install, commission, and hand over 5 green-soilless farms in accordance approved design, implementation phase, and commissioning phase (operation and handover).	15/01/2025
Deliverable 4;	Supply, install, commission, and hand over 5 green-soilless farms in accordance approved design, implementation phase, and commissioning phase (operation and handover).	26/02/2025

Payment Schedule

The Timetable below summarises the chronological order of deliverables and indicates milestones at which IUCN will pay the Consultant.

Deliverable	Expected time to submit the payment	Milestone payment
Advance payment (upon contract signature)	Upon signature of the contract with bank guarantee	10%, of the corresponding total amount
Deliverable 1;	Upon approval of the inception phase	10% of the corresponding total amount
Deliverable 2;	Upon approval of the design phase	25% of the corresponding total amount
Deliverable 3;	Upon handing over 5 Green-soilless farms	25% of the corresponding total amount
Deliverable 4;	Upon handing over 5 Green-soilless farms and conducting training	30% of the corresponding total amount

Supervision and coordination

The consultant will report to and work under the supervision of (the IUCN project team).