**TERMS OF REFERENCE FOR SUPPLIER OF IRRIGATION SYSTEMS AND GREENHOUSES**

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| **Title of Assignment** | **Establishment of a farming cluster in Al Mafraq governorate** |
| **Specific Location** | Al Za'atari municipality within Al Mafraq governorate |
| **Duration** | Two months |

## Background and Justification

### BACKGROUND

As the world's second-largest refugee-hosting country, Jordan faces major strains on its economy and natural resources. While the international community has stepped in to alleviate the pressures of the Syrian refugee crisis, matching resources with growing needs has proven difficult, particularly with regard to workforce inclusion.[1] Jordan suffers from a high rate of unemployment (19% nationally) and rising poverty, with nearly 16% of Jordanians and 78% of Syrian refugees living below the poverty line[2]—a trend likely to worsen as the impact of the COVID-19 pandemic continues to unfold.

Most Syrian refugee men work in the agricultural sector as hired farm labor, while women tend to engage in home-based activities such as food processing owing to family obligations and the prevalent socio-cultural mores.[3] While the seasonal and informal nature of agricultural work exposes refugees to precarious living conditions—increasing the incidence of child labor to supplement household incomes—the limited livelihood opportunities make women-headed households especially vulnerable.

Overall, work in the agricultural sector is characterized by low wages, long hours, poor working conditions, lack of occupational health and safety, and a high incidence of child labor. According to estimates by the International Labor Organization (ILO), close to 70% of workers on farms are Syrian refugees.[4] Syrian workers often bring their entire families to live on the farm, where employers do not always provide decent accommodations, especially for children or the elderly. The lack of suitable childcare arrangements and accessible schooling options often lead farmworkers to bring their children to work, exposing them to health and safety hazards. Women and girls are especially vulnerable on farms, where they are at risk of exploitation and gender-based violence.5 The COVID-19 pandemic has exacerbated the vulnerabilities of Syrian and Jordanian agricultural workers, leading to increased poverty, deteriorating wages and work conditions, and higher risks to children, including school dropout, child labor, and child marriage.
In recent years, the Jordanian government has made significant strides in efforts to improve work conditions and formalize the sector, such as by introducing flexible work permits for Syrians, increasing labor inspections, and enrolling Syrian children in schools. Yet, labor

[1] Amjad R. et al. "Examining Barriers to Workforce Inclusion of Syrian Refugees in Jordan." ILO/IFC, July 2017.
[2] "Geographic Multidimensional Vulnerability Analysis: Jordan." UNICEF, February 2020.
[3] "Agricultural and Syrian Refugees in Jordan: Current Situation and Opportunities Ahead." UNHCR/ICARDA, May 2017.
[4] "Decent Work and the Agriculture Sector in Jordan: Evidence from Workers' and Employers' Surveys." ILO, 2018.
[5] "Women in the Agricultural Sector: Hard Work and Harsh Life," Tamkeen Fields for Aid, 2017.

inspectors typically focus on checking work permits rather than working conditions and wages on farms.[6] To address the limited capacities of the Ministry of Labor (MoL) and Labor Inspection Department, agricultural cooperatives are since 2017 in charge of facilitating access to flexible work permits. However, much more needs to be done to educate workers and employers on labor rights and decent work standards, with opportunities to elevate the role of agricultural cooperatives in furthering these rights.

In addition to competition over jobs and a large informal economy, Jordan faces severe water scarcity, with annual demand roughly double the available supply and weak water resource management exacerbating the problem.[7] Since the start of the Syrian conflict in 2011, the northern governorates of Mafraq, Amman, Irbid, and Zarqa—where 90% of Syrians living outside refugee camps are concentrated— have experienced the highest increase in unemployment, along with a 40% rise in water demand (compared to 21% nationally).[8]

Climate change further threatens the water supply and an agricultural sector that is also constrained by limited arable land. While contributing 4% of GDP and 15% of employment, agriculture accounts for up to 75% of Jordan's total water consumption.[9] The scarcity of water and productive land poses a risk to food security, leading to low agricultural yields and overreliance on imports as the agricultural sector supplies less than 20% of the country's food.[10] Furthermore, increased groundwater salinity in the past 30 years has had a negative impact on crop yield and farmer incomes. Due to lack of knowledge, farmers tend to over-irrigate to wash out salts accumulated around the root of different crops, increasing water and energy costs while threatening sustainability due to soil salinization. The lack of know-how on saline water irrigation is leading to poor crop quality and adding stresses on vulnerable farmers, with adverse effects on marketing potential.

## What is the Project?

Drawing on over 15 years of experience in Jordan, deep contextual knowledge, and vast networks with local stakeholders, the International Union for Conservation of Nature (IUCN) has formed a consortium of partners with complementary expertise to address the range of challenges and opportunities facing vulnerable populations in the agricultural sector. Our team brings together proven leaders in agriculture, water, and livelihoods, and combines local innovations with international best practices to shape impactful initiatives that will boost and diversify incomes, improve work conditions, and address the complex vulnerabilities affecting Syrian refugees and the Jordanian host communities in which they reside.

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[6] "Work Permits and Employment of Syrian Refugees in Jordan: Towards Formalizing the Work of Syrian Refugees," ILO, 2017.
[7] "Beyond Scarcity. Water Security in the Middle East and North Africa." World Bank, 2018.
[8] Appendino M. et al. "Jordan: Selected Issues." International Monetary Fund (IMF), 2017.
[9] Vasquez O., Khraishy M. (eds). "Market Overview and Guide to Jordanian Market Requirements." USDA, December 2015.
[10] The Hashemite Kingdom of Jordan. "A National Green Growth Plan for Jordan." Ministry of Environment, Amman, 2017.

This assignment is under the project titled ‘’ Smart DESERT’’ (Smart Development of Eco-Friendly Solutions and Economic Regional Agricultural Techniques) which is funded by The French Development Agency (AFD).

With an overarching goal of economic empowerment of Syrian refugees and vulnerable Jordanians in the agricultural sector, Smart Desert is designed to achieve two key objectives: (1) increased year-round income and (2) improved work conditions. Given the complex issues at stake, the IUCN consortium will maintain a dual focus on “hard” and “soft” activities combining technical and business/socioeconomic aspects. Hard activities will focus on technical support to farms, agro-processing facilities, and Home-Based Businesses (HBBs) through a holistic water-energy-food-health nexus approach that includes the use of non-traditional water resources to reduce freshwater use, renewable energy to reduce operational costs, and smart crop selection and processing to improve agricultural productivity, economic output, and regularity of income.

After the establishment of a Business Support Incubator (BSI) and comprehensive baseline assessments, the main project intervention will consist of three components: (a) on-farm technical support, (b) business support, and (c) support related to work conditions and labor rights. The first component involves technical assistance to project beneficiaries on farms, at agro-processing facilities, and through HBBs, with a focus on improved agricultural practices and productivity. The second component involves business support to increase the regularity of year-round income through management and entrepreneurship training, partnerships, and market linkages. Finally, the last cluster of activities revolves around labor rights, both directly through a focus on improving work conditions on farms and indirectly through trainings-of-trainers (ToTs) to agricultural cooperatives, outreach campaigns, and advocacy related to decent work standards. As such, the project intervention will focus on the northern highlands, specifically North-East Badia

**Scope of Work and key tasks**.

**Scope of work:**

Under this section, a general description of the farming cluster components is narrated; the detailed components are described in the BOQ, drawings, and specifications.

This assignment aims to carry out establishment of a framing cluster in a piece of land with an area of 45 dunams. Under this assignment, the planned farming cluster comprises protected cultivation (In greenhouses), open cultivation (Open field cultivation), and all related components that are needed to establish the farming cluster from scratch, as detailed in the BOQ, drawings, and specifications.

More specifically, the farming cluster comprises the following main categories:

1- Land preparation works;
2- Main irrigation and drainage systems;
3- Infrastructural components;
4- 30 greenhouses and hydroponic (Tuff-based) systems;
5- Fertigation and pumping units;
6- Fresh water reservoir.
7- Reinforced concrete (Drainage) reservoir;
8- Fertilizers, and pesticides for the 30 hydroponic systems;
9- Irrigation system and seedlings for open cultivation in the perimeter of the land as well as a portion of the land (4.5 dunams)
10- Other categories as mentioned in the BOQ and specifications.

**Key tasks:**

The following key tasks to be undertaken in order to establish the farming cluster:

| Number | Key tasks | Description |
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| 1 | Assigning the required technical staff | Under this contract the contractor must assign the following experts with the listed qualifications:<br>• Team leader;<br>• Irrigation / Agricultural Engineer;<br>• Energy Engineer;<br>• Technician supervisor. |
| 2 | Design verification | The contractor must review all designs and report any needed modifications without additional costs. These needs must be associated with a justification and subject to IUCN's approval |
| 3 | Site handing over | IUCN will officially hand over the site for the contractor at the beginning of the project. Once done, the site security is the |

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| | | sole responsibility of the contractor; a security guard must be assigned for the entire duration of the project, with IUCN's approval. |
| 4 | Supplying and providing Materials | The contractor must supply all materials, equipment, goods, and equipment needed to implement the projects as specified in the specifications, BOQ, and drawings, under full supervision of the IUCN, considering that the contractor should provide the IUCN with samples to get approval before supply. |
| 5 | Execution | The contractor should execute the project according to BOQ, and specifications under full supervision of IUCN. Handing over will be divided into agreed milestones with IUCN. |

## Deliverables and reporting

### Deliverables

Under this contract, the supplier must handover the farming cluster as per the tender documents (RfP, TOR, BOQ, drawings, and Specifications). Handing over any component will only take place once the systems are fully installed and tested.

### Reporting

1- A **detailed workplan** for the tasks which will be done to achieve the objectives of this assignment. This will be a live document that must be updated in a weekly basis.
2- **Weekly progress reports** to the IUCN showing the progress according to the approved work plan; the structure of these reports will be provided by IUCN.
3- After the project completion, the contractor must submit a comprehensive **final report** to IUCN containing implementation works, **as-built drawings**, **equipment catalogues & warranties, operation manuals, list of spare parts, stock inventory, data sets, etc**.

## Payment Schedule

The payments should be made to the consultant upon satisfactory completion of deliverables as follows:

1. The first instalment: 40 % of the agreed amount upon signing the agreement.
2. The second instalment: 20 % of the agreed amount Upon completion of land preparation works as stated in the BOQ, drawings, and specifications, and starting the implementation works.

3. The third and final instalment: 40 % of the agreed amount Upon handing over the farming cluster as a whole (All components must be installed, tested, and approved by IUCN), and handover all deliverables mentioned in the ‘’deliverables’’ section.

**Timeframe**

The contractor must commit to accomplish implementing the farming cluster no later than **50 calendar days** from the effective date of the agreement, and the detailed work plan must be updated accordingly.

**Evaluation method**

The evaluation method will lowest priced technically compliant. The detailed description of each is explained in the RfP.

**Nature of penalty clause in the contract**

If the reports and documents are not submitted according to the deliverables and timeframe stated in this TOR, the payments will be withheld.

IUCN ROWA reserves the right to withhold all or a portion of payment if performance is unsatisfactory if work/outputs are incomplete, not delivered or for failure to meet deadlines. All materials developed will remain the copyright of IUCN and IUCN will be free to adapt and modify them in the future.