

International Labour Organization
Terms of Reference for service provider to Evaluate and Promote Climate-Smart solutions

1- Background

Lebanon is facing a severe financial and economic crisis that has drastically devalued its currency and pushed many, including 1.5 million Syrian refugees, into poverty. With unemployment at unprecedented levels, the agricultural sector remains an important source of legitimate employment for both Syrian refugees and vulnerable Lebanese communities. However, the sector has been severely affected by the crisis.

The International Labour Organization (ILO) is therefore implementing a project aimed at 'Promoting Decent Jobs for Lebanese host communities and Syrian refugees' funded by the Swedish International Development Agency (Sida). The project focuses on the agriculture and agri-food sector as a key sector for the livelihoods of both Lebanese and Syrian vulnerable population groups and in particular women of both communities and aim to develop specific agricultural and agri-food value chains with potential for decent job creation that will benefit both groups. The project uses the ILO's Approach to Inclusive Market Systems (AIMS) to safeguard and create jobs in these sectors.

Within one component, the project focuses on increasing on-farm productivity, through new technologies and improved techniques, as a means of securing jobs and livelihoods for farmers and workers, who are predominantly Syrian. This also represents an opportunity to promote green jobs and enhance climate resilience.

This assignment focuses on increasing the adoption of climate-smart irrigation and fertigation systems to improve both environmental and employment outcomes. In this context, the BOUZOUR Project will bridge the gap between innovative climate-smart systems and their potential users by tackling both supply and demand:

- On the supply side: We'll work with agricultural technology providers to develop a compelling business case for offering these systems to farmer cooperatives. This will include clarifying the economic benefits and showcasing successful implementation examples.
- On the demand side: We'll raise awareness among farmers and agribusiness stakeholders of the incentives associated with using climate-smart systems. This includes demonstrating the potential for increased productivity, reduced costs, and improved environmental sustainability.

2- Objectives

The BOUZOUR project is implementing an intervention focused on increasing the adoption of climate-smart irrigation and fertigation systems to improve both environmental and employment outcomes. In this context, the intervention seeks to bridge the gap between innovative climate-smart irrigation and fertigation systems and their potential users.

The primary objective of this contract is to evaluate climate-smart irrigation and fertigation systems as a sustainable and scalable business model to improve farmers' livelihoods. The aim is to determine whether these systems can effectively improve farmers' access to technology, productivity, income, and climate resilience.

In partnership with an agritech company, climate-smart systems will be implemented in selected farms, including advanced irrigation and fertigation technologies, in a pilot initiative to assess their impact on farm productivity and environmental sustainability. These systems incorporate sensors to collect data on soil moisture, nutrient levels, and atmospheric conditions, enabling precise water and nutrient management. The systems are also integrated with mobile phone applications for remote monitoring and control, providing farmers with real-time data and insights.

This contract aims to evaluate the results of the pilot project by having the consultant collect data directly from the field and from participating farmers. In close collaboration with participating farmers, the consultant will analyze and evaluate the results, documenting experiences and lessons learned, and providing recommendations.

To demonstrate and analyze the impact of the climate-smart systems, participating farmers are expected to install systems on half of their field, to enable a comparison in terms of productivity and environmental impact between the part of the field where systems are installed and the part that operates without the climate-smart systems.

Data shall be collected on both parts of the field and will include measurements such as for example:

- water use efficiency (quantity of water used to irrigate crops)
- crop yield (as measured by kg of yield per square meter)
- energy efficiency (as the system works on solar energy)
- input efficiency (as measured by quantities of fertilizer used)
- soil health indicators, and overall environmental impact

The measurement criteria will be discussed and validated during the preparatory phase. Next to the quantitative data, qualitative feedback from farmers on the system's usability and

effectiveness shall be obtained as well. In addition, the consultant will assess financial efficiency by measuring reductions in fertilizer and fertilization related costs, water use, and electricity and labor costs. The goal is to increase farmers' climate resilience by providing tools and strategies to mitigate the impacts of climate variability on agricultural productivity. The consultant will also assess the climate-smart systems by comparing results from plots using the advanced technologies with those using traditional methods. This will involve a comparative analysis of data collected from both halves of the fields.

The primary objective of this contract is to:

- Provide advice and monitor the implementation to ensure consistency across all fields.
- Collect and analyze data from the field and from farmers who participated in the pilot project.
- Prepare a detailed report on the impact of the pilot and usage of the climate-smart system, integrating both quantitative and qualitative data analysis between plots using the advanced systems and those using traditional methods, highlighting differences in productivity, environmental sustainability, and cost-effectiveness.
- Develop narratives or stories that present the experiences and results of the pilot project to effectively communicate its successes and challenges.

3- Scope of Work

The service provider will:

Data Collection and Analysis:

- Informing participating farmers and workers on the farm about the functioning of the trial and production techniques to be applied in both the test field and the control field.
- Develop an excel data entry tool and ensure that all data is entered correctly in the excel tool and transferred to ILO.
- Collect and identify key data factors and performance metrics.
- Collect qualitative and quantitative data from the field and from farmers involved in the pilot project. Ensure that data collected is accurate
- Regular check-ups on the farms to ensure that farmers proceed as instructed and do not change relevant parameters of the trial
- Conduct surveys to assess system performance, challenges, and benefits, and inform ILO immediately about any problems occurring on the farms.
- Conduct regular monitoring and site visits to observe system use and document impacts on productivity and environmental outcomes. Regional selection is still underway; however, the farmers will be in at least 3 clusters across the country.



- Evaluate the effectiveness of climate-smart systems using quantitative and qualitative data.
- Work on data collection and farmer advisory.
- Identify and analyze key themes from interviews and observations.
- Facilitate visits and focus group discussions with farmers and workers to analyze results

Reporting:

- Write a detailed report based on the data analyzed, highlighting the successes, challenges, and overall impact of the pilot. In addition, include an Excel spreadsheet with the raw data collected.
- Develop narratives or case studies based on farmers' experiences and outcomes to illustrate the benefits and lessons learned from the pilot.

Advice and follow-up:

- Provide ongoing advice and follow-up support by coordinating with both agritech company and the farmers to address any issues.
- Facilitating the effective implementation of climate-smart systems and addressing any operational challenges.
- Provide technical advice to farmers on system use, maintenance and crop management to ensure optimal production and maintain crop quality.
- Monitor system performance and provide ongoing recommendations for improvement.
- Collaborate with the vendor to deliver timely updates and progress reports.

4- Timeline

The work will tentatively be performed between September 2024 and April 2025.

Key Milestones	Tentative dates
Development of Data Collection Tools and Work Plan	September 2024
Baseline Data Collection	October 2024
Pilot Implementation and Monitoring	October 2024 – March 2025
Endline Data Collection	April 2025
Data Analysis and Reporting	April 2025

5- Deliverables

- **Deliverable 1: Detailed workplan and data collection preparation**

- Provide a comprehensive work plan that outlines the steps, timeline, and methodology for the assignment.
 - Develop baseline and endpoint questionnaires tailored to assess the impact of climate-smart systems.
 - Specify data collection tools and methods, including surveys, interviews, and field observations.
 - Clearly define the types of data to be collected and ensure that they meet the ILO requirements for this assignment.
 - **Deliverable 2: Follow-up Progress Report**
 - Prepare a report detailing the progress on data collection, any challenges faced, and preliminary findings.
 - **Deliverable 3:**
 - **Deliverable 3.1: Comprehensive analysis and report**
 - Prepare a detailed report that analyzes the data collected and presents both statistical and thematic findings.
 - Include impact assessment of the pilot implementation of the climate-smart system, highlighting the environmental and economic benefits.
 - Summarize the results of the pilot project, highlighting key findings, successes and challenges.
 - Develop success stories or case studies that showcase farmers' experiences and achievements and provide insights of the systems implemented.
 - **Deliverable 3.2: Data collection**
 - Compile and document all data collected, detailing the methods used.
 - Provide summaries of farmer interviews, survey results, pictures and field observations.
 - Ensure that data is organized and prepared for subsequent analysis to facilitate a thorough and accurate evaluation.
- 6- Payment Schedule**
- **First payment** of 20% of the total payment, tentatively due by 30 September 2024 upon satisfactory delivery and project acceptance of Deliverable 1.
 - **Second payment** of 30% of the total payment, tentatively due by January 2025 upon submission and approval of a follow-up report detailing the progress on data collection, any challenges faced, and preliminary findings.
 - **Third and final payment** of 50% of the total payment, tentatively due by 30 April 2025 upon satisfactory delivery and project approval on Deliverables 2 and 3.

Payment Terms:

- All payments shall be made in fresh USD by international wire transfer.
- A USD account in the name of the consultant must be available for wire transfers.

7- Qualifications

- Advanced degree in agricultural engineering, crop science, or related field. An emphasis on irrigation and fertigation systems is highly desirable.
- Demonstrated experience in agricultural research or extension, particularly in conducting demo plots, data collection and analysis related to agricultural practices.
- Experience working directly with farmers and understanding their needs, challenges, and practices.
- Knowledge of climate-smart agricultural practices and their impact on farm productivity and environmental sustainability.
- Experience conducting site visits and observations, with the ability to effectively document and evaluate agricultural systems' impact.
- Ability to conduct quantitative soil and water measurements and assessments to ensure accurate evaluation of system impacts and related financial studies.
- Excellent communication skills in both English and Arabic, including the ability to write detailed reports and develop compelling narratives or case studies.
- The consultant is expected to have his own equipment for necessary measurements and assessments, such as water meters and soil testing tools.

8- Application process and deadline

Interested service providers are invited to submit their resume, technical proposal along with proof or sample of previous work related to the required qualifications and financial proposal (including number of proposed workdays for the assignment as well as expected daily rate in USD).

Information should be sent to loutfi@ilo.org, ayalal@ilo.org and saadi@ilo.org by a maximum of 2:00 PM Beirut time on August 19, 2024. Late applications will not be considered. Any questions should be referred to loutfi@ilo.org and ayalal@ilo.org before August 19, 2024.



9- Focal Point(s) at ILO

The Service Provider will coordinate with the Project Technical Officer and National Officers in the ILO Beirut Office and with relevant technical departments involved in the ILO Beirut Office and ILO Headquarters. The service provider will designate a focal point from its side to manage the assignment.