

Annex I - Terms of Reference for Individual Contractor (IC)

National or International consultants: National Consultant

Description of the assignment (Title of consultancy): Development of Capacity Building and Seed Provision Program for Farmers to Improve Water Management and Agricultural Practices.

Project Title: Support to host communities in the WASH sector; KfW phase 4.2.

Period of assignment/services: 90 workdays spread over a period of 5 months

Is this an LTA (yes/no): No

1. Background

The UNDP's "Sustainability, income generation and job creation through the support of irrigation and water collection infrastructure in Lebanon" initiative (the "UNDP's Irrigation Project", under the Support to host communities in the WASH sector; KfW) aims at creating short-term job opportunities for vulnerable Lebanese and Syrian labourers during the implementation of the works themselves while also contributing to longer-term benefits such as improved food security, water resource management and potential employment opportunities through the expansion of agricultural lands and increasing agricultural production. The short-term jobs will be created through the labour-intensive infrastructure projects targeting the agricultural sector in Lebanon, the importance of which is increasing due to the recent financial and economic crisis.

The UNDP's irrigation project is funded by the Government of Germany through the KfW development bank and is implemented in partnership with the Ministry of Energy and Water (MoEW) in Lebanon. The project has so far rehabilitated 15 irrigation canals and 2 hill-lakes covering 21,875 ha of agricultural lands across over 50 municipalities, where approximately 1,800 farmers are benefiting from improved access to irrigation water.

Even though the canal and hill-lake rehabilitation has improved the efficiency and water availability/access at infrastructure-level (c.a., canal network), there is still a significant need for water management on-farm level and in terms of general irrigation water management to mitigate water stress in Lebanon.

From the viewpoints of farmers, the UNDP conducted (internally and informally) a survey¹ covering over 200 farmers in the Bekaa. Results showed that the primary concerns of the surveyed farmers are 1) high cost of inputs (seeds, pesticides, and fertilizer), 2) impacts of extreme weather events and crop pests and disease. Regarding irrigation water management at farm-level, the survey indicated that farmers are managing crop water requirements based on their empirical experience while also following the schedule of water caretaker, instead of minimizing water cost or maximizing crop yields. This implies that it would be more efficient approach to primarily address the main concerns of farmers (input cost, resilience to extreme weather events and crop pests and diseases) while also improving the water management as the co-benefit rather than targeting solely water efficiency.

¹ UNDP (2020), Unpublished.

To design such a training program for farmers, it is necessary to undertake a preliminary rapid assessment of current agricultural and irrigation practices while addressing the overall water management and ensuring environmental soundness. In addition, this exercise should be done in close coordination with the Ministry of Agriculture (MoA), LARI, and the other relevant agricultural institutions/private sector (e.g. ICARDA), as well as local communities including municipalities, water caretakers and farmers to address their needs.

2. Scope of work, responsibilities, and description of the proposed analytical work

Objective

The objective of this consultancy is to design and scope a capacity building program to support farmers for reduction of soaring input cost, resilience to extreme weather events and crop pests and diseases and more efficient water management. The capacity building program should target a specific number of municipalities (to be determined in this consultancy) that the UNDP Irrigation project has implemented activities in. The selection of municipalities and related representatives should take into account the diverse agriculture practices. The capacity building program should be designed by following the principle of environmental-soundness (with special focus on the sustainable use of natural resources) and climate-mitigation/adaptation practices in order to improve irrigation water management while supporting farmers' socio-economic conditions.

This consultancy is divided into the following tasks:

Task 1: Preliminary rapid assessment of current agricultural and irrigation practices both at farm- and municipality-level

Task 2: Identification of environmentally-sound alternative practices/options

Task 3: Design a capacity building plan for farmers and municipalities

Task 4: Drafting terms of reference (ToRs) and cost estimates for implementation

Scope of Work

The tasks mentioned below shall be performed in close cooperation with the UNDP Irrigation Project team (that includes area-based site engineers) but should also be closely coordinated with the Ministry of Agriculture (MoA), LARI, and the other relevant agricultural institutions/private sector (e.g., ICARDA, FAO), as well as local communities including municipalities, water caretakers and farmers to address their needs.

The Tasks involved will cover the followings:

Task 1: Preliminary rapid assessment of current agricultural and irrigation practices both at farm- and municipality-level

The consultant shall undertake a rapid assessment of current agricultural practices including on-farm irrigation adopted by farmers and identification of training opportunities for the reduction of input cost, improved preparedness for extreme weather events and crop pests and diseases' management as well as more efficient water use.

In addition, the rapid assessment should also cover the canal irrigation water management at the municipality-level. More specifically, it should investigate how the canal water is managed (c.a. water caretaker), available human and financial resources, their know-how, and tools available (water scheduling, fee collection, weather forecast etc.).

The rapid assessment shall cover at least but not limited to the farmers' current practices of the following items:

- a. Seeds used by farmers (type, cost, source, seed quality, including physical, physiological and genetic or varietal characteristics, variety choice, variety testing, introduction, seed multiplication, selection, dissemination and storage, certification, productivity, pest and disease resistance, climate resilience, stock management (seed availability, access and utilization))
- b. Pesticides and fertilizers (type, cost, source, safety, management including amount used²)
- c. On-farm irrigation practices and technologies
- d. Information management of farmers (e.g., how they typically obtain information related to the above items a-d as well as weather and crop pests/disease (early warning systems), how they decide timing/amount of irrigation water, pesticides, and fertilizers etc.).
- e. Canal water management at municipality-level

The Consultant shall first conduct a desk review of the information to be provided by the UNDP irrigation project team and design the necessary survey in coordination with the UNDP team (including information management officer). The Consultant should propose additional information to be reviewed or she/he already possess in the proposal. After desk review and survey design, the Consultant shall undertake survey with the support of the UNDP team or obtain the list of needed information from the Chamber of Agriculture in order to determine a representative number of municipalities for each region that can then be interviewed based on a questionnaire that needs to be developed by the consultant. The number of municipalities should be determined by the consultant and taking into account possible restrictions in terms of COVID-19 pandemic lockdowns. If a survey cannot be conducted, alternative means of verification of data and needs should be determined by the Consultant, based on other projects or knowledge from the field.

Task 2: Identification of environmentally-sound alternative practices/options

Within this task, the Consultant shall explore and identify environmentally-sound alternative agricultural and irrigation practices/approaches easily available and adoptable for farmers in order to address cost of input and resilience to extreme weather events and crop pest/disease management while also improving irrigation water management.

While agricultural practices/options should be ideally backed by international best practices or recognized guidelines, the Consultant should focus on identification of locally available practices/approaches that fits with the local context. The consultant shall take into account the legal and regulatory aspects of the alternative solutions and practices (especially related to seed propagation, pesticides/fertilizers uses, water usage, etc.,). Such an alternative might be developed and promoted within an extension program by SMEs, above-mentioned agricultural institutions, and local NGOs/cooperatives as well as other international organizations or INGOs. For this sake, the Consultant should identify on-going similar projects/initiatives by MoA, LARI, ICARDA, FAO, universities/companies, and other organizations (NGO, SMEs, cooperative, etc.) and establish network of UNDP with them.

The potential alternative solutions can be the following:

- a. New type of seeds that are 1) more resilient to extreme weather events/crop pest and disease as well as climate change and 2) locally available and/or domestic land races (traditional varieties), and 3) reusable from its production while keeping genetic stability.

² National level data is available here: <http://www.fao.org/faostat/en/#data>

- b. Alternatives for conventional pesticides and fertilizers, including better agricultural practices (biopesticides, biological control, IPM)
- c. Better irrigation practices/technologies that addresses input cost and resilience to extreme weather events and crop disease while improving irrigation water efficiency
- d. Information management tools for farmers
- e. Improved canal water management plan/practices at municipality-level

Task 3: Design a capacity building and technology transfer plan for farmers and municipalities

Based on the findings from Task 1 and Task 2, the Consultant shall design a capacity building plan and training program so that the UNDP's team can implement the training via contractors (e.g., private companies, NGO, agricultural institutions) at later stage. The capacity building plan should define the audience; a minimum/representative number of municipalities to cover or group of municipalities that should be targeted depending on the types of interventions and need.

The UNDP team envisage that the whole capacity building plan should consist of 1) quick pre-survey for each municipality, 2) find-tuning of capacity building program for farmers, 3) execution of capacity building program and 4) follow-up. The pre-survey should be undertaken to fine-tune and tailor the capacity building program to the local context by taking into account the specificities of farmers at each municipality (e.g., crop type and climate etc.). The Consultant should propose quick and low-cost survey methodology based on her/his own experience as well as the lessons learned from **Task 1**. The follow-up aims at continuous support and engagement of farmers after the training program. Thus, it should identify and engage relevant stakeholders and establish following-up mechanism.

The capacity building plan should include objectives and scope for each components of the training building on the findings of **Task 1** and **Task 2**. Afterwards, the Consultant shall define and develop the detailed training contents which should include tangible example solutions and their sources identified in **Task 1** and **Task 2** to guide implementation partners (e.g., contractors). The training should have at least 5 topics.

Task 4: Drafting terms of reference (ToRs) and cost estimates for implementation

The capacity training program will be implemented by the contractors based on the plan developed in **Task 3**. To facilitate this process, the Consultant shall draft the terms of reference (ToRs) as well as estimate the cost for implementation.

The ToRs should clearly define the necessary tasks and profiles and experiences of experts for each task/activity to execute the capacity building plan developed in **Task 3**.

UNDP will inform the selected Consultant of the available budget for the implementation. Taking into account the available budget, the Consultant shall estimate the cost for the implementation and adjust the ToRs so that the program can reach all the targeted municipalities.

3. Expected Outputs and deliverables

ID	Deliverables/ Outputs	Estimated Duration to Complete	Target Due Dates
1	Inception report including: <ul style="list-style-type: none"> • Revised methodology and work plan • Desk review • Survey plan 	10 workdays	3 weeks from contract signature
2	<ul style="list-style-type: none"> • Questionnaire for survey • Report on preliminary rapid assessment (Task 1) (English) • Determination of 5 topics of capacity building 	30 workdays	2 months from contract signature
3	<ul style="list-style-type: none"> • Report on identification of environmentally-sound alternative practices/options (Task 2) (English) 	10 workdays	3 months from contract signature
4	<ul style="list-style-type: none"> • Report on capacity building and technology transfer plan for farmers and municipalities (Task 3) (English) • Development of capacity building/training program content for 5 topics based on task 2 (English) 	30 workdays	4 months from contract signature
5	<ul style="list-style-type: none"> • Translation of the reviewed and approved capacity building/training program content for 5 topics (Arabic) • Report on draft ToRs and cost estimation for implementation (Task 4) (English) 	10 workdays	5 months from contract signature

4. Institutional arrangements

The consultant will work under the direct guidance of the UNDPs Irrigation Project Manager. Regular coordination with the Ministries of Agriculture, Ministry of Energy and Water other concerned stakeholders is expected and shall be channeled through the Project.

5. Duration of work

The overall duration of the contract covered by these ToRs is 90 man-days spread over a period of 5 months from the date of contract signature.

6. Duty station

The assignment requires deskwork, research, meetings, as well as coordination between the different concerned stakeholders (ministry officials, local authorities, experienced NGOs, selected local communities, etc.). The consultant shall undertake site visits for Task 1 as needed, transportation to sites will be provided by

the project. The plan for site visits shall be proposed by the Consultant and documented in the work plan and proposed methodology.

The remaining time of the consultancy can be undertaken from home.

7. Requirements for experience and qualifications

The consultant must present the following qualifications:

I. Academic Qualifications:

Master's degree in agricultural engineering with a crop production specialty.

II. Years of experience:

At least 10 years of work experience in field production of fruits and vegetables, preferably in the field of seeds production, crop protection, fertilization, and crop irrigation systems and management.

III. Technical experience:

- Extensive field experience of working cooperatively with fruits and vegetables' producers.
- Experience of working with relevant government/public agencies (centrally and/or locally) in phytosanitary and/or irrigation sectors.
- Proven knowledge of the Lebanese field crops production systems, preferably in the Project area.
- Experience with UN or international donor project(s) is an asset.

IIV. Competencies:

- Proficiency in English and Arabic languages. French is an asset.
- Demonstrable analytical skills and report writing skills.

8. Scope of Price Proposal and Schedule of Payments

The payments will be issued upon submission and approval of deliverables, and submission of a certificate of payment (COP) as per the following:

Task	Payment	Deliverables	Payment due date
1	10% upon approval of the inception report	Inception report including: <ul style="list-style-type: none">• Revised methodology and work plan• Desk review• Survey plan	3 weeks from contract

2	30% Upon approval of second deliverable.	<ul style="list-style-type: none"> • Report on preliminary rapid assessment including questionnaire (Task 1) (English) • Questionnaire for survey • Determination of 5 topics of capacity building 	2 months from contract signature
3	20 % upon approval of the third deliverable.	<ul style="list-style-type: none"> • Report on identification of environmentally-sound alternative practices/options (Task 2) (English) 	3 months from contract signature
4	20% upon approval of forth deliverable.	<ul style="list-style-type: none"> • Report on capacity building and technology transfer plan for farmers and municipalities; • The content of 5 training/capacity building modules developed (Task 3) (English) 	4 months from contract signature
5	20% upon approval of final deliverable.	<ul style="list-style-type: none"> • Translation of the reviewed and approved capacity building/training program content for 5 topics (Arabic) • Report on draft ToRs and cost estimation for implementation (Task 4) (English) 	5 months from contract signature