SECTION 5. TERMS OF REFERENCE

Service Description Professional Design and Construction Supervision for a High-tech

Agriculture Greenhouse in Djibouti (one hectare)

Duty Station Djibouti, Republic of Djibouti

Employer UNDP DJIBOUTI

Project Title Rising Djibouti Project

Duration of Assignment 25 (twenty-five) man-days for the design; 60 (sixty) man-days for the

supervision upon the commencement of the construction phase of the

greenhouse.

Type of Contract Service contract

Language English with working knowledge of French; knowledge of Somali and /or

Afar will be highly preferred

Expected Start Date Feb 15, 2022

1. BACKGROUND

The impact of COVID-19 has harshly impacted the domestic economy of Djibouti. The pandemic which engulfed the world has affected the lives and livelihoods of the Djiboutian, notably after the Government announced the confinement on Mar 24, 2020. The precaution measures adopted by the national authorities and the population against the viral disease have reduced the mobility of the large percentage of the people to avoid the COVID-19 spread within the country.

To provide a strategic and sustainable stimulus package with ingredients of sustainable development, the Government of Djibouti announced the National Solidarity Pact and sought support from Development Partners. As the leading UN Agency in supporting the country's Socio-Economic Recovery Plans globally, UNDP assisted the Government of Djibouti in developing its National Solidarity Pact and Socio-economic Recovery Plan leading up to the formulation of the National Development Plan – Djibouti ICI.

Building upon initial but crucial support mechanisms - the **Rising Djibouti** campaign, which embraced the notion from citizen to citizen and included crowdfunding at its core, UNDP developed a portfolio of Socio-Economic Recovery Interventions under the same name — Rising Djibouti.

Through this portfolio and in partnership with USAID, Multi-Partner Trust Fund, and Islamic Development Bank, UNDP strives to introduce catalytic socio-economic recovery efforts in the country. The portfolio targets a wide range of affected populations, including local micro, small and medium-sized enterprises (MSMEs), youth, CSOs (civil society organizations), and entrepreneurs, to mitigate the socio-economic impacts of COVID-19 and rapidly recover from the socio-economic crisis.

The portfolio will improve the livelihood and socio-economic recovery of over 5,000 beneficiaries and enhance the social inclusion of the most disadvantaged and unemployed youth.

2. PROJECT DESCRIPTION

The portfolio will support the establishment of new livelihood and job opportunities in Djibouti, targeting mainly agricultural and fishery-based livelihood. The portfolio will also assist in establishing MSMEs, generating employment opportunities for youth, and enhancing market linkages for domestic products and services through digital applications and partnerships with the private sector outlets. The portfolio will integrate skills development elements as its tandem approach to post COVID recovery process. The portfolio will also leverage the skills of youth trained by ongoing skill enhancement project interventions supported by development partners, including USAID.

Additionally, this portfolio will also support existing vulnerable MSMEs heavily affected by the COVID-19 crisis to reinvigorate and recover their businesses' socio-economic dividends. The identified MSMEs will receive a comprehensive package of support to help fast-track recovery. These include stimulus packages, technology transfer, production equipment or materials, business advisory services, and ecosystem enhancement. This project will also increase new livelihood opportunities for the unemployed youth through value chain assessments, market analysis, and trade intelligence to identify local and regional production, transformative industry & processing opportunities.

This will contribute to the fast-track socio-economic recovery and improved livelihoods support systems to increase their agility, adaptability and resilience during the COVID-19 era or any future crises.

3. SCOPE OF WORK OF THE SERVICES

This is a first-time pilot intervention in the agriculture sector that is expected to be a game-changer, particularly in the context of diversification of the national economy. This pilot is also expected to break the stereotype that Djibouti does not have agriculture potential and contribute towards the country's food sovereignty, which is at the crux of the Rising Djibouti portfolio.

In this regard, the UNDP Djibouti, in collaboration with the Ministry of Economy and Finance, in charge of industries (MEFI) and USAID, is launching a two-phase procurement process – a) Design and Construction Supervision for a High-tech Agriculture Greenhouse in Djibouti; and b) Construction of a High-tech Agriculture Greenhouse following Build, Operate and Transfer model.

UNDP DJIBOUTI is, hereby, seeking professional services of a qualified firm(s) to provide the design of a high-tech agriculture greenhouse. The design will include the engineering design of the greenhouse along with the civil and electrical engineering details, bills of quantity, solar pumping and irrigation system design, listing the procedures and requirements for construction clearance, and safety measures to be considered during the construction and operation phase.

In addition, UNDP Djibouti seeks the services of the same firm to provide construction supervision during the construction phase of the greenhouse.

WORK AND OPERATIONS

Scope associated with the design of the project

- i. Provide detailed design option for high-tech turnkey solution for durable commercialscale agriculture greenhouse accommodating Djibouti weather and geological conditions in one hectare of agricultural land.
- ii. Provide Grow Systems design for at least four most commercially profitable vegetables.
- iii. Provide Integrated solar energy design and cost estimates into the overall design and construction of the greenhouse.
- iv. Provide design for water pumping and irrigation systems.
- v. Provide electrical design.
- vi. Site preparation and all the corresponding civil works.
- vii. **Cost Estimate and Technical Specifications:** Technical Specification shall be transparent and referred to respective Bill of Quantities (BOQ) Items. They should include a detailed clarification of the item or the product and the standards or norms that must be followed during implementation. The final cost estimate should be prepared based on each component's final set of approved drawings, technical specifications, relevance to required standards, and UNDP Albania's specific format.
 - a. <u>Bill of Quantities and Cost Estimation</u> based on official and market prices for each work item shall be detailed, accompanied by detailed analysis for each item.
 - b. **Works Schedule**: A detailed Chart of detailed works according to work items reflecting the implementation methodology of construction works.
- viii. **Environmental and Social Impact Assessment**: The service provider shall prepare an Environmental and Social Impact Assessment. The report may be separate or in chapters but shall include all facilities included in the TOR. The report shall follow the applicable law requirement and have a branch of public consultation and photo documentation annexes. The Consultant shall be free to choose the format, time, and place of public consultation. However, the report shall comply with all permit requirements.
 - ix. **Support during the tender process**: The service provider is expected to support the UNDP DJIBOUTI during the tender process as required and needed. Such support may include participation in site visits during the pre-bid phase, support in the clarifications received (technical clarifications), and support during the evaluation process (if required by the UNDP DJIBOUTI).

Scope associated with the Construction Control of the project

- i. Construction quality control monitoring, testing and inspection
- ii. Document and coordinate request for changes
- iii. Document management and control including all construction administration documents, correspondences, as-built; regardless of format (paper or electronic)
- iv. Perform all test requirements

v. Perform commissioning services up to the official hand-over.

The service provider is expected to propose a detailed timeline which should include the dates on which the consultant expects to start the project; deliver Concept Designs and cost estimate; Design Development; and Bid Set inclusive of specifications, and cost estimation.

To support a pilot intervention on commercial-scale agriculture, UNDP Djibouti Country Office is, hereby, seeking a qualified firm to provide *design solutions for agriculture greenhouse*. The firm shall have a verifiable track record of custom designing, supplying, installing, and operating a state-of-the-art and high-tech agriculture greenhouse and growing high yielding climate-resilient and pest/insect tolerant varieties of vegetables

4. OBJECTIVES OF THE SERVICES

The overall aim of this assignment is to pilot a high-tech commercial-scale greenhouse farming in Djibouti to draw experience and learnings on the required skills, required material, investment needs and agriculture yield potential for the further replication in the future.

The objective of the Services is to provide turnkey solutions for durable high-tech agriculture greenhouse and greenhouse farming to contribute to the COVID Socio-Economic Recovery Project.

The purpose of this assignment is to hire an agriculture greenhouse specialist firm that would design, a state-of-the-art high-tech all-inclusive commercial one-hectare multi-panel agriculture greenhouse in Djibouti.

The high-tech greenhouses will be built of durable, corrosion-resistant, climate-resilient material suitable for climate, soil, water and humidity conditions of Djibouti.

The expected result of the assignment is to demonstrate the success and financial viability of high-tech commercial-scale agriculture greenhouse farming in Djibouti and provide an educational experience and prototype of viable commercial-scale greenhouse - leading to commercial success and positive development outcomes contributing to the achievement of the SDG.

5. KEY FUNCTIONS

ENGINEERING AND DESIGN

The service provider will provide design options that would support commercial-scale greenhouse vegetable farming in one hectare of land.

- i. Provide detailed design options for a high-tech turnkey solution for durable commercial-scale agriculture greenhouse accommodating Djibouti weather and geological conditions in one hectare of agricultural land.
- ii. The detailed engineering design and specifications need to provide:
 - a. Norms of steelworks
 - b. Norms of aluminum structure
 - c. Specifications of the greenhouses covering:

- ♦ Alignment of the greenhouse vis-à-vis the wind directions
- ♦ Position of the cooling pads
- Details of the Skeleton and Cover such as dimensions, components, and material based on wind speed, humidity, temperature, soil texture, and water quality
- ♦ Cooling and Heating Systems
- ◆ Types of greenhouses (Single span and dimensions of multiple spans)
- d. Grow Systems for the at least main four vegetables such as Zones demarcated clearly for different vegetables and their specific requirements Zone 1 for tomatoes, Zone 2 for Cucumbers, Zone 3 for Lettuce and Zone 4 for green beans and Zone 5 to be proposed by the service provider.
- e. Ventilation, Temperature and Humidity Control mechanisms.
- f. Energy requirement estimates to operate the equipment in the greenhouse for humidity and temperature control, for irrigation pumps, for light bulbs and other ancillary equipment needed.
- g. Energy distribution design plan.
- h. Water pumping and irrigation system requirements and the corresponding specifications.
- i. Civil works details and plan.
- iii. Plan and Design of the Site Preparation
- iv. Greenhouse glazing, if deemed necessary
- v. Dimensions, materials and type of doors and windows
- vi. Material, dimensions, and type of shades, if deemed necessary
- vii. Provide Production Estimates for each type of vegetable for each harvest season

Expected deliverables (tangibles)

- Detailed design options for high-tech turnkey solution (including civil work details, norms of steelwork, norms of aluminum work and plan among others)
- **Energy requirement and distribution plan.**
- Water pumping and irrigation system plan.
- Provide estimate of all proposed design.

CONTROL & SITE SUPERVISION

The service provider will oversight directly on a day-to-day basis the construction of the Greenhouses and ensure it is in full compliance following the UNDP contract for civil works; Environmental Management Plan, design and BOQ as well as the Djiboutian legislation. The following activities are expected as part of site supervision:

- ensure that the quality of materials and the end product complies with the requirements.
- order the Contractor to substitute and make good any part of the works, if levels, dimensions, materials, or workmanship do not conform to the requirements and specifications or are otherwise insufficient/inferior.
- conduct regular site inspections to check the quality of the workmanship and materials following the Contract and good engineering practice.

- Inspect, approve and monitor that all relevant measures and activity related to Health, Safety and Environmental performance from the Contractor during all the project lifetime is in compliance with local and/or international legislation in force.
- Ensure that the UNDP is informed of all matters relating to payments, cash flow, or any other impacts on budgetary provisions.
- Keep accurate records taken throughout the contract's duration to reach an agreement on the Contractor's final account.
- Assist UNDP and ensure the works are implemented following the Environmental Management Plan and report any environmental issue.
- Assist UNDP to monitor and address all the citizens' and beneficiaries' complaints during the works' implementation. Monitor the progress of the works by comparing the actual progress with the approved programme of the works and to recommend the Contractor the appropriate measures to be taken, in case the works are behind schedule;
- Provide adequate support and strength in monitoring the implementation of the Contract for the construction and installation of the greenhouses.
- Arrange and take part to regular site progress meetings by liaising with the municipalities' representatives;
- Provide assurance that all relevant documentation is prepared and provided to UNDP in at each milestone payment.

Measurement of Works

The service provider shall measure and keep accurate records of permanent works executed by the Contractor. The works shall be measured on-site, following the appropriate clauses in the Contract's General Conditions associated with the Works contract.

Expected deliverables (tangibles)

- Agendas and minutes of meetings of all formal visits.
- Interim Payment Certificates.
- Final payment certificate.
- Routine implementation reports (frequency will be as agreed with UNDP)
- Final report

6. METHODOLOGY / APPROACH OF THE SERVICE

The overall aim of this assignment is to **pilot** a high-tech commercial-scale greenhouse farming for the first time in Djibouti to draw experience and learnings on the required skills, required material, investment needs and agriculture yield potential for the further replication in the future. The GPS coordinated where the project is intended to be implement (approximate geocoordinates) are:

11°12'32.7"N

42°38'28.3"E



TESTS AND STUDIES

UNDP conducted soil and water sample assessments of the areas that have comparatively higher agricultural potential in Djibouti. These are:

- Gobaad in Dikhil,
- Assamo in Ali Sabieh,
- **7** An intersection between Ali Sabieh Highway and Highway 5, in Ali Sabieh.

The laboratory reports of these samples are available and will be provided to the bidders. UNDP will also provide the humidity and temperature data for Djibouti. The bidders will develop the technical and financial proposal of the Turnkey solutions for commercial-scale agriculture based on these data.

The firm will have to propose a design within 25 days based on the requirements specified under the scope of work. The design needs to provide an estimated harvest for each type of vegetable / crop proposed under the greenhouse farming along with the projected financial returns over a period of 1 year. In the subsequent phase, the construction firm will follow this design to build, operate and transfer (BOT) modality and will need to demonstrate the technical feasibility and financial viability of the commercial-scale greenhouse farming in Djibouti, with particular focus on tomatoes, lettuce, cucumber and green beans. Technical feasibility and financial viability will be demonstrated through the real time harvest from multiple seasons over a period of nine months.

LICENSE TO OPERATE

The GH will be installed in the land that Government will allocate within the afore mentioned location. UNDP received a confirmation letter mentioning the same. No expropriations are foreseen.

COMMUNITY ENGAGEMENT AND CONSULTATION

UNDP has organized community engagement at the locality level and has discussed the options of different modern agriculture development support that the project could explore further. The discussions which involved the local farmers also included the needs assessment which identified the existing status and areas of improvement to increase the yield from smallholder farms.

The design and further concept of the greenhouse farming will be discussed at length with the community once the procurement process will be finalized. Regional Council government, Ministry of Economy, Finance and in-charge of Industries, and Ministry of Agriculture are the main government stakeholders with whom UNDP is collaborating for this one-of-its-kind greenhouse farming in Djibouti.

Interactions between the company and the local community will be facilitated by UNDP and will be limited to the capacity building interventions unless other communications will be deemed necessary.

7. ORGANIZATIONAL MANAGEMENT

Project parties: The key stakeholders of the Rising Djibouti portfolio, specifically for this activity, are:

THE CONTRACTING AUTHORITY

The contracting authority for this project is UNDP DJIBOUTI and shall be responsible for the management and operating of the contract. The overall management and supervision will be under the umbrella of UNDP DJIBOUTI.

UNDP rules and procedures for managing contracts will prevail throughout the contract life span.

• THE CONTRACTOR

The selected firm for the presently proposed contract shall be responsible for the design and control of the installation

• THE EXTERNAL STAKEHOLDERS

- The Ministry of Economy, Finance and in-charge of Industries (Implementing Partner).
- The Ministry of Agriculture, Water, Fisheries and Livestock, Responsible for Fisheries Resources (thematic partner).
- ❖ The Offices of Regional Council President and Prefecture for Ali Sabieh and Dikhil (subnational government partner).
- USAID (donor).
- FAO (sister UN organization).

• THE BENEFICIARIES

The Installation and Operation of the greenhouse will benefit three categories of beneficiaries:

- Smallholder farmers and cooperatives from Ali Sabieh and Dikhil who would be leasing the portion of greenhouse for the farming purposes.
- Smallholder farmers and cooperatives from other regions who will be trained on the proper agriculture techniques and the seeds and saplings produced in the nursery.

8. PROPOSED DELIVERABLE SCHEDULE AND SCHEDULE OF TRANSFER (preferred schedule)

	Deliverables / Outputs	Deliverable Due Period (starting with
		the first day of signing contract unless
		stated otherwise)
Į		(man-days)

DESIGN COMPONENT	
1. Detailed Engineering and Design Plan	15 days
Detailed design options for high-tech turnkey solution (including civil work details, norms of steelwork, norms of aluminum work	
and plan among others).	
Energy requirement and distribution plan	
4. Water pumping and irrigation system plan	
5. Finalized priced BOQ, Drawings, SOW and any other documents	10 days
relevant to bidders to be advertised	
SUPERVISION COMPONENT	
6. Milestone-based in line with the contract for civil works	Invoiced monthly as per offer

NOTA BENE: <u>Proponents should refer to the above schedule when drafting the Project Schedule as required for the Technical Proposal.</u>

Comments on the Preferred Schedule are encouraged.

9. PAYMENT PLAN & PAYMENT MECHANISMS

The cost of the contract will be fixed for the successful contractor. No adjustment will be made on the assignment period and price determined by the signed contract. The price should take into account all HR, operations, fees, travel, logistics, etc. for all activities mentioned under outputs and deliverables.

Payment will be made in tranches based on milestone deliverables upon submission of invoices and upon certification of the work completed.

No operational payment will be until service commencement and no payment shall be made in advance of a delivery.

Any payments made to the Authority shall be net and free of and without any present or future deductions such as for the payment of any taxes, executions, duties, expenses, fees, deductions or retentions regardless of the nature thereof or the authority levying the same.

Any repayment schedule for any reimbursable proposed in the contract shall be included in the financial offer.

The Authority shall ensure that payments for all the invoices raised shall be reimbursed to the contractor within a period of thirty (30) days of receipt and certification of invoice. In case of discrepancy between the invoice of the contractor and the record of UNDP, the UNDP shall settle the invoice to the extent of undisputed amount of the invoice in the said period.

Any reimbursable will need to be *clearly identified* in the proponent's respective financial proposal.

The below table is indicative and serves ad guidance to proponents to prepare their financial offers. Proponent as requested to submit their schedule in accordance and proportionally to their technical offer.

Outputs	Percentage	Timing	Condition for Payment Release
Design	40% of Design Component related contract amount	For the preliminary evaluation report and Conceptual Design	For Design services Within thirty (30) days from the date of meeting the following conditions: a) UNDP's written acceptance (i.e., not mere receipt) of the quality of the outputs; and b) Receipt of the invoice from the Service Provider.
	Component delivering the	Upon completing/ delivering the detailed design	c) UNDP's written acceptance (i.e., not mere receipt) of the Successful completion of the Contract.
Supervision	Monthly based	Invoice shall be issued bi-monthly based on the number of involved experts.	For Supervision Services Within 30 days from approval of invoice from UNDP supervising (monitoring) engineer.

10. INSTITUTIONAL ARRANGEMENTS/ REPORTING MECHANISMS

The company will provide a team and appoint a team leader who will be responsible for the overall quality of the activities described in the Scope of Work and Detailed Activities in Sections 3 and 4. UNDP will liaise with the Team Leader and the Lead Business Liaison Person in the matters of the scope of work, progress updates and any other activities related to this assignment.

The Team Leader will be responsible for the day-to-day activities and will be responsible for the periodic progress updates. A bi-weekly meeting will be arranged between the UNDP and the firm to touch base on the progress and discuss about the challenges or adaptative management approaches, if needed. The Team Leader will work closely with the Project Engineer of the Rising Djibouti Portfolio for better coordination and facilitation with the stakeholders and partners as needed.

The individual and sector experts of the team such as agriculture expert, energy expert and engineers (as mentioned in the Section F) will work under the overall leadership of the Team Leader.

The Service Provider will be under the overall supervision of the Chief Technical Advisor / Portfolio Manager and will work in collaboration with UNDP Project Engineer. The Service Provider will seek approval from and obtain certificate of acceptance of output from the Chief Technical Advisor of the Rising Djibouti Portfolio.

The service provider will be responsible for all the deliverables above and will also work closely with the other consultants responsible of conducting complementary studies and surveys such as the Social Business Lead Expert, Access to Finance Expert and the Value Chain Expert.

The firm will conduct consultations with Government and other key partners including the direct beneficiaries.

UNDP RESPONSIBILITIES

1. Liaise with the Government to avail the land for the installation and operation of the greenhouses

- 2. Provide hydro-met data (Humidity, Precipitation and Temperature data)
- 3. Provide water and soil laboratory test data
- 4. Support the service provider in selecting the project beneficiaries, farming groups or cooperatives.
- 5. Provide value chain analysis data
- 6. Explore possibilities for further market linkage

The costs associated with the logistical arrangements will be the company's responsibility.

The firm needs to provide the initial design options which can accommodate the climatic conditions along with the soil and water profiles of the proposed site. The design needs to provide the greenhouse farming options for the high-value vegetables such as follows (but not limited to) tomatoes, lettuce, cucumbers and green beans.

11. PROPOSED DURATION

The total anticipated duration for the design component of this consultancy is **25 days**. However, bidders are allowed to propose their *realistic number of days for each expert*. The timeline provided is for information. A justification should be provided for the proposed number of days for each expert.

12. TRAVEL

Travel to Ali Sabieh area is foreseen. The Financial Proposal has to specify the cost breakdown of the travel and logistics. If the financial proposal is submitted as lump sum, all the costs associated with the travel and logistics will be borne by the firm.

The multi-disciplinary team should comprise at minimum the below listed members with the following educational qualifications, experience and competencies:

13. KEY TECHNICAL TEAM MEMBERS

SI.	Key Position	No.	Required Minimum Qualification	Score
1.	Senior Architect – Team Leader Expected number of days: expected 20 man- days Design period: 15 days Assistance period: 5 days Maximum Score: 70 points	1	 Academic Qualification University degree in architecture from a recognized university Experience: At least 10 years of professional experience in engineering design. Proven experience of leading a multi-disciplinary team of experts. Proven experience in agricultural construction designs. High Proficiency in English is required for this position. Working knowledge of French and/or Arabic is highly desirable. 	20 20 10 15 05
2.	Architect - Senior Expert Expected number of days: expected 20 man-	1	Academic Qualification University degree in architecture form a recognized university.	10

	days		Experience:	
	Design period: 15 days		1. At least 05 years of practical experience in	15
	Assistance period: 5 days		engineering design. 2. Proven experience in agricultural construction	10
	Maximum Score: 50		designsFamiliarity with the Djiboutian agriculture practices, opportunities and challenges will be highly desired.	05
	points		 Prior experience in design of greenhouses facilities is an added advantage. 	05
			5. High Proficiency in English is required for this position. Working knowledge of French and/or Arabic is highly desirable.	05
3.	Structural engineer- senior expert Expected number of days: 20 man-days	1	Academic Qualification At least university degree in civil engineering from a recognized university	10
	spread over the entire contract duration		Experience:1. 10 years' experience in construction engineering	15
	Maximum Score: 40		2. Familiarity with the Djiboutian agriculture practices, opportunities and challenges will be highly desired.	10
	points		 High Proficiency in English is required for this position. Working knowledge of French and/or Arabic is highly desirable. 	05
4.	Civil engineer- construction engineer Expected number of days: 50 man-days	1	Academic Qualification university degree in civil engineering from a recognized university.	10
	spread over the entire contract duration		1. 10 years' experience in the field of engineering construction	15
	Maximum Score: 40		2. Experience in the implementation of agricultural engineering constructions highly desirable	10
	<mark>points</mark>		 High Proficiency in English is required for this position. Working knowledge of French and/or Arabic is highly desirable 	05
5.	Energy Specialist Expected number of days: 10 man-days		Academic Qualification Minimum university degree in electrical engineering or energy studies.	10
	spread over the entire contract duration Maximum Score: 30		Experience: 1. Minimum 3 years' experience in designing energy systems. Experience of calculating energy	05
	points		requirements and designing energy systems will be highly preferred.2. Good understanding of the energy requirement fluctuations in the hot and humid weather	05
			conditions.Minimum 2 years' experience of installing and operating solar powered systems is required.	05

Familiarity with the Djiboutian agriculture practices, opportunities and challenges will be highly desired.	05
High Proficiency in English is required for this position. Working knowledge of French and/or Arabic is highly desirable	

14. CONFIDENTIALITY AND INTELLECTUAL PROPRIETARY INTERESTS

The Service Provider and Team Members shall not either during the term or after termination of the assignment, disclose any proprietary or confidential information related to the consultancy or the Government without prior written consent.

Proprietary interests on all materials and documents prepared by the consultants under the assignment shall become and remain properties of UNDP DJIBOUTI. UNDP DJIBOUTI owns all right, title and interest, including all related Intellectual Property Rights, in relation to this contract.

This assignment will be administrated by the United Nations Development Programme (UNDP), and all relevant UNDP rules, policies and procedures will apply.