

**TERMS OF REFERENCE (ToR)**

**GENERAL INFORMATION**

**Services/Work Description:** Designing a Concept Note on Digital Farming Technologies for Developing Countries

**Project/Program Title:** UNDP Global Centre for Technology, Innovation and Sustainable Development

**Post Title:**  Specialised Firm on Digital Farming Technologies for Developing Countries

**Duty Station:** Home-based

**Duration:** 25 days, from 21 September to 23 November 2020

**Expected Start Date:**  21 September 2020

**I. BACKGROUND / PROJECT DESCRIPTION**

The UNDP Global Centre for Technology, Innovation and Sustainable Development (‘The Global Centre’, ‘we’, ‘our’) aims to identify, co-design and share innovative and technological solutions for sustainable development. We aim to catalyse new insights, partnerships and action on the ground in the countries where UNDP works. Our initial areas of focus are: Sustainable Agriculture, Sustainable Finance, and Smart Cities and Digitalisation. We aim to leverage expertise in Singapore, as well as across the network of over 60 newly established UNDP Accelerator Labs, and from experts and partners around the globe.

The Global Centre is a joint initiative of the Singapore Government and UNDP, currently being led by a small team that is focused on programme and partnerships development – both with the public and private sector in Singapore and international partners (including the above UNDP network). Singapore Government partners include the Ministry of Foreign Affairs (MFA), the Ministry of Environment and Water Resources (MEWR), the Public Service Division, and the Economic Development Board (EDB).

As part of our efforts on Sustainable Agriculture, we are engaged in the discovery and dissemination of technologies and innovations in the area of precision agriculture. Digital farming broadly encompasses technologies to assist producers in farming, generally associated with benefits such as greater efficiency and higher yields. Under digital farming, one of the most common set of technologies are for precision agriculture. Precision agriculture involves measuring and responding to inter- and intra-farm variability in crops and offers several benefits over conventional methods of farming. Through the efficient use of inputs including water, fertilisers and pesticides, precision agriculture reduces costs and increases profitability, preventing the overuse of agricultural inputs mitigates the environmental impact of farming. The use of technology reduces the manual labour involved in farming activities and enhances farmer productivity.

Recent advances in IoT, UAVs, and sensors, and the decreasing costs of their application are demonstrating the utility of precision agriculture in improving the profitability and sustainability of agriculture for even smallholder farmers. Precision farming enables the achievement of Sustainable Development Goals (SDGs) 1, 2, 6, 9, and 12.

The Consulting Firm will deliver a report to demonstrate the utility and viability of adopting digital farming technologies (focused on precision agriculture), which will guide UNDP Country Offices in implementing pilot projects in collaboration with the Global Centre and other stakeholders.

**II. SCOPE OF THE WORK**

The Firm is expected to conduct extensive research on the global landscape of precision agriculture, particularly in relevance to its application in developing country contexts and for smallholder farmers, and in doing so produce a research piece in the form of a report for publication by UNDP. The objective of this deliverable would be to demonstrate the utility and viability of adopting digital farming technologies to enable achievement of the SDGs in developing countries.

**III. EXPECTED OUTPUTS AND DELIVERABLES**

The report should include, but not be limited to, the following elements:

* Background summary of digital farming technologies with a focus on precision agriculture, and relevance for developing countries
* Detailed study and analyses of existing digital farming technologies, including hardware and software components, covering:
  1. General description of technology
  2. Software and hardware requirements
  3. Step-by-step applications, supported with infographics
  4. Outcomes/impact of technology application on crop forecasts, input optimisation, cost optimisation, etc.
  5. Feasibility of technology use, including size of investments, optimal size of farm, return on investment, and average increase in profit for a typical farm (3–5 ha.), etc.
  6. Assessment of various methods and channels of technology transfer
* A digital farming model for a farm of typical size growing a specific crop in a developing country, detailing estimated costs of implementation, effect on profitability, reduction in use of inputs, and environmental impact (e.g. carbon footprint)
* 3-5 case studies based on real-life examples
* Countries and regions most suited to adoption and mainstreaming of precision agriculture technologies, considering types of technologies, financial feasibility, available technological expertise, etc.
* Policy recommendations for governments to build a favourable regulatory environment for wide-scale adoption and mainstreaming of digital farming, as well as recommended government support measures to stimulate adoption.
* Limitations and gaps in the study and opportunities for future research

The report should be in English, easily understandable by a general audience, include an executive summary highlighting key points of the document, and should not exceed 20 A4 size pages. The report should also be presented in a visually engaging way and supplemented with infographics and images where appropriate, that should be sourced by the Consulting Firm withstanding licensing rights. The final publication should follow guidelines mentioned in the UNDP Brand Manual (the Centre will provide this).

The Firm is expected to work closely with the Global Centre to develop this report, take into account possible changes in its scope, and take responsibility of acquiring required data and information. The Global Centre will provide support where possible and get the Firm in touch with relevant partners and stakeholders for the assignment.

**Deliverables timeline:**

The Consulting Firm should have the first draft of the knowledge product done by 1 November 2020 and make necessary edits upon feedback from UNDP **within 3 working days**.

**The final knowledge product should be ready for publishing by 23 November 2020.**

**IV. INSTITUTIONAL ARRANGEMENT / REPORTING RELATIONSHIPS**

The Firm will report to the Senior Advisor, UNDP Global Centre leading the Sustainable and Digital Agriculture team.

**V. DURATION OF THE WORK**

The Firm will deliver the outputs within the period from 21 September to 23 November 2020

**VI. DUTY STATION**

The assignment will be home-based. The Firm will be required to use their own computer.

**VII. QUALIFICATIONS OF THE SUCCESSFUL FIRM**

**Team Requirements:**

* **Senior Project Manager:** at least 10 years of experience in managing agricultural projects involving precision agriculture technologies, especially in developing country contexts.
* **Technical Consultants (or similar):** at least 7 years of research and/or consulting experience in agricultural technologies or innovations more broadly.

**Experience of Firm:**

* The Firm will have at least five years of experience in research, analysis and/or consulting on agri-food technologies or related innovations for the agriculture sector.
* The Firm will have produced at least two reports on agri-food technology applications, and at least one of which focuses on developing countries. These should be submitted as part of the Firm’s application for this Terms of Reference.
* Proven experience in the production of quality technical reports on topics relevant to this Terms of Reference (innovation, digital farming, precision agriculture, smart farming technologies etc.)
* Experience working with international development organisations desirable.
* Proven ability to work under pressure with tight deadlines, and to deliver in a timely manner within cost and quality standards.

**Language**

* Proficiency in written and spoken English required. Proficiency in other UN official languages is an asset.

**Important Note:**

The Firm is required to have the aforementioned professional and technical qualifications**. Only the applicants who hold these qualifications** will be shortlisted and contacted.

**Evaluation process**

Applicants are reviewed based on Required Skills and Experience stated above and based on the technical evaluation criteria outlined below.  Applicants will be evaluated based on cumulative scoring.  When using this weighted scoring method, the award of the contract will be made to the individual Firm whose offer has been evaluated and determined as:

* Being responsive/compliant/acceptable; and
* Having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation where technical criteria weigh 70% and Financial criteria/ Proposal weighs 30%.

**Technical evaluation - Total 70% (70 points):**

The technical evaluation will be evaluated based on the following criteria:

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Points** | **Maximum points** |
| Professional working experience in relevant fields and similar activities as the ones of the Terms of Reference | 10 points if number of total years is above threshold (5), and 1 point per relevant year of experience additional to the threshold. | 15 |
| Experience in the production of analyses for agri-food technology applications. | 10 points for each analysis or report referenced and reviewed by the evaluation panel. | 20 |
| Experience in conducting similar research in developing countries. | 5 points if satisfied. | 5 |
| Quality of expert team | Maximum of 5 points per CV. Split by: relevance of training (2), relevance of experience for the assignment (3) | 15 |
| Relevance of proposal in response to the Terms of Reference | Understanding of the assignment (5), proposed methodology (10). | 15 |

Candidates obtaining a minimum of 70% (49 points) of the maximum obtainable points for the technical criteria (70 points) shall be considered for the financial evaluation.

**Financial evaluation - Total 30% (30 points)**

The following formula will be used to evaluate financial proposal:

p = y (µ/z), where

* p = points for the financial proposal being evaluated
* y = maximum number of points for the financial proposal
* µ = price of the lowest priced proposal
* z = price of the proposal being evaluated

**Contract Award**

Candidate obtaining the highest combined scores in the combined score of Technical and Financial evaluation will be considered technically qualified and will be offered to enter into a contract with UNDP.

**Payment modality**

Payment to the Firm will be made according to the following invoice schedule:

|  |  |
| --- | --- |
| Deliverable | Percentage |
| Upon signing of contract | 20% |
| Delivery of Draft report | 30% |
| Satisfactory delivery of final report | 50% |