بسم الله الرحمن الرحيم

Ministry of Agriculture and Animal Welfare

Male', Republic of Maldives

Ministry of Agriculture and Animal Welfare

Terms of Reference to Recruit ICT & Digital Agriculture Consultant

for

The Enhancement of Agriculture Information and Communication Technology (AICT) platform and Development of Mobile Application

Ref No: MAP/CS/2023/12

Submission date: 28th January 2024

Maldives Agribusiness Programme
Information Communication Technology (ICT) & Digital Agriculture Consultant (Ref no: MAP/CS/2023/12)

Foreword

These terms of reference have been prepared by Project Implementation Unit of the Ministry of Agriculture and Animal Welfare and are based on the 1st edition of the IFAD-issued standard procurement documents template for terms of reference available at www.ifad.org/project-procurement. This document is to be used for the procurement of services in projects financed by IFAD.

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Terms of Reference (TOR)

Recruitment of ICT & Digital Agriculture Consultant for The Enhancement of Agriculture Information and Communication Technology (AICT) platform and Development of Mobile Application

1. Client
The client for this assignment is Project Implementation Unit (PIU) under the Ministry of Agriculture and Animal Welfare (MoAAW).

2. Country Background
Maldives being located near the equator is a tropical country with warm and humid tropical monsoon climate with an annual temperature of 28°C. The hottest month of the year is April with an average daily maximum of 32°C and an average low of 29°C. The coolest month of the year is November with an average daily maximum of 30°C and an average low of 27°C. There are two distinct seasons in Maldives. The Southwest monsoon and the Northeast monsoon. From May or April to October or November is the southwest monsoon which brings windy and rainy weather, and the rest of the year is usually dry and sunny days. Between December and April rainfall amounts are at their lowest, accompanied with the longest hours of sunshine.

Agriculture is one of the primary industries involved in domestic production along with Fisheries in Maldives. Its contribution to GDP was at 1.6% in 2020. Production has remained constant throughout the past five years with a slight increase of 1.6% in 2020 compared to 1.1% and 1.2% in 2019 and 2018 respectively.

Due to the geographic nature of the country, visiting farmers regularly to provide technical support is a costly operation. Almost all Maldivian farmers use smart phones and mobile internet service. In order to increase outreach to farmers, it is essential to make the best use of user-friendly smart technologies.

3. Project Background
The Government of Maldives (GoM) through the Ministry of Agriculture and Animal Welfare (MoAAW) is initiating the implementation of the Maldives Agribusiness Programme (MAP) with the support of International Fund for Agriculture Development (IFAD). The Project Implementation Unit (PIU) set up within the MoAAW will manage the Program in accordance with the guidelines provided by the design report, implementation manual and under the guidance of the project steering committee and IFAD supervision missions.

The main aim of MAP is to enable small farmers in the Program area to sustainably enhance their production levels, increase income, secure food and nutrition for their household demands, and deliver produce to connected markets.

The Programme will be of nation-wide scale, covering all regional and sub-regional hubs, clusters and islands where agriculture is undertaken by small farmers. The main Programme hubs for Programme activities are in region 1-3 are Haa Alif Hoarafushi for region 1. Haa Dhaalu Vaikaradhoo for region 2, and Shaviyani Milandhoo for region 3. Each of these hubs will serve 8, 9 and 9 inhabited agriculture islands respectively. Specifically, under different technical components:
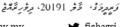
- Component 1 of Enabling policy, institutions, and services will be nationwide in scope covering all 19 atolls, 21 regions covering 188 inhabited islands of these 98 are inhabited where agriculture is practiced on around 800 registered hectares. Also belonging to the Programme area are 50 uninhabited islands leased for commercial agricultural purposes, with a total of 956 hectares of land of which 24 islands are actively doing agriculture on 582 hectares of land.
- Component 2 of Climate smart production will initially focus on region 1-3, covering 3 atolls and 40 inhabited islands. Of these, 26 are inhabited agriculture islands with 280 hectares of registered land cultivated by 2,150 registered farmers, and 85 hectares cultivated by 645 non-registered farmers. Within this production area there are 6 active commercial islands cultivating a total of 250 hectares.
- Component 3 of Market connection will initially focus on regions 1-3 during the first two years and then expand to regions 4-7 and eventually cover the whole country.

4. Background of the assignment

The overall purpose of this assignment is to develop a mobile application compatible to both Android and ios mobile devices (in English and Dhivehi) that can facilitate ease of dissemination of agriculture advisory information. This application should also provide a new communication pathway for the agriculture community to interact with agriculture advisory personnel.

The service provide (SP) will be responsible for the development of a multi-user system application followed by bug fixes and troubleshooting. Thereafter, the Expert will conduct awareness raising programmers for farmers and ToTs for the extension officers, which requires the support of the SP. A variety of information materials (videos, leaflets etc.) will further facilitate the training programs. And also provide technical trainings for famers and Technical Officers, to men and women, equally.

5. Overall objectives

The Programme's goal is to sustainably increase the incomes, food security and nutrition status of small farmer households.

The development objective is to strengthen and enable the environment for sustainable and climate-resilient agriculture. This objective will be achieved through identification of improvements in the existing policies, development of new regulations to strengthened the institution and the services, to enhance agricultural technologies and access to financing and markets for small farmer households.

6. Objectives of the assignment

The overall purpose of this assignment is to make agricultural technical information easily accessible to farmers and creating a mutually beneficial relationship between agricultural research & extension personnel and farming communities.

7. Scope of work

7.1. The Expert will:

7.1.1 liaise closely with all stakeholders, including the IT / software development Service Provider (SP) to guide and support the development, implementation and training of a multi-user mobile application.

7.1.2 Ensure that the source code and the software is archived in IFAD software development lifecycle (SDLC).

7.1.3 Provide technical trainings for famers and Technical Officers, to men and women, equally.

7.2. Technical Focus:

7.2.1 Guide, support, monitor and evaluate the development of a mobile application in Dhivehi that can facilitate ease of dissemination of agriculture advisory information. This application should also provide a new communication pathway for the agriculture community to interact with agriculture advisory personnel.

7.2.2 Conduct awareness-raising programmes for farmers and conduct ToTs and trainings for users to strengthen the functional capacities of agricultural extension services.

7.3. Tasks and Responsibilities:

7.3.1 Carryout virtual, as well as face to face meetings/sessions wherever possible, to conduct a situation analysis on existing gaps, identify user knowledge and capacity, feasibility of identified geographical locations, availability of internet connectivity, interface requirements etc.

7.3.2 Identify relevant web and mobile applications that are already in use by the Government of Maldives in providing any agriculture related service.

7.3.3 Based on the Ministry of Agriculture and Animal Welfare (MoAAW) and other potential user's necessities, guide and support the development of

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extensive software requirements specification, including overseeing stakeholder consultations on software requirements gathering

7.3.4   In developing the mobile app and system structure, consult with both internal and external users including senior officials of MOAAW and National Centre for Information Technology (NCIT) to ensure that the system is in line with relevant policy, procedures and meet legal/regulatory requirements.

7.3.5   The expected system/outcome would include IT application objectives, conceptual design and framework, type of data/information inputs (including its source), user interface requirements (extension and farmer) and operational/work flow structure (information and data extraction, dissemination and sharing).

7.3.6   Ensure that the mobile app provides all content, data, features and functionality as present in the existing web app, and as per specifications in the TORs for the mobile app development

7.3.7   Ensure that the Service Provider (SP) designs the mobile app in a manner that optimizes the end users experience.

7.3.8   Facilitate trial runs, bug fixing and submit the final mobile app following a thorough trouble-shooting carried out by the SP.

7.3.9   Carryout virtual or face to face training program for application users (e.g. Govt. officers, field Officials, farmers and Farmer Organizations).

7.3.10   Closely liaise with the MoAAW National Project Coordinator, who would facilitate consultations with Government stakeholders, MoAAW field officers, technical offices, Farmer Organizations and farmers.

7.3.11   Closely liaise with the SP in overseeing, guiding and supporting the mobile app during the requirements, design, development, deployment, training and support thoughout the SDLC

7.3.12   Obtain technical clearance with project technical team in technical matter.

7.3.13   Planning, monitoring and evaluation of the mobile app through the software development life cycle, including QA/SQA activities

7.3.14   Leading stakeholder consultations and discussion throughout the software development life cycle to ensure that expectations and outcomes are met, and feedback is provided

7.3.15   Ensure that the IT SP conducts the following tasks:

7.3.15.1   Ensure that the mobile app aligns with the Unique Entity Identifier (UEI) and Unique Product Number (UPN) framework.

7.3.15.2   Ensure that the mobile application provides access to content stipulated in 5, mobile app development TORs and existing web app.

7.3.15.3   Ensure that modules are developed to exchange communications between farmers and extension officers (enable to share photos, videos and text via the mobile app).

7.3.15.4 Ensure the mobile app enables the exchange information (photos, videos and text) both private and common platform.

7.3.15.5 Ensure modules are developed as per TORs requirement with seamless integration with the web app, AOS and other software.

7.3.15.6 Ensure mobile app functionality to automatically send weather alerts/ pest outbreak alerts to mobile application users and other notifications and alerts

7.3.15.7 Ensure that all newly developed interfaces are fully tested and made available for end users.

7.3.15.8 Ensure that user manuals (both internal and external) are developed for all interfaces developed for service modules.

7.3.15.9 Ensure that the mobile app confirms to the requirements as documented in the SRS

8. Reports and schedule of deliverables

8.1. Ensure that the Software Requirements Specification (SRS) document submitted by the mobile application developer is in line with the technical requirements of MoAAW.

8.2. Develop and submit a workplan along with time line of activities of the project within the second week from project contract signing date.

8.3. Take lead and conduct regular meetings with service providers and MoAAW technical team to assure intended outcomes are achieved

8.4. Keep records of meeting minutes and share the work progress with PIU regularly

8.5. Any other deliverables as per the various clauses of this TOR

9. Consultant's qualifications and experience

Key expert 1: Software Engineer

Qualifications and skills
- MSc Degree in software engineering with 5 (five) years of work experience in related field or;
- Bachelor's Degree in software engineering with 7 (years) of work experience in a related field.

General professional experience
- Proven track record of web and mobile application development for multiple disciplinary organizations
- A team with well-organized and self-directed individuals with sound technical skills, analytical ability, good judgment, and a strong operational focus.
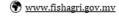
Specific professional experience
- Experienced in requirement gathering, documenting and analysis.

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- Experience in managing ICT infrastructure of state or national level e-governance projects will be an advantage
- Working knowledge of the relevant computer systems and applications

Key Project coordination

9.1. Consultant shall operate under the overall guidance and supervision of the Project Director. Operational support and direct supervision from the PIU and technical guidance from IFAD in collaboration with MoAAW and the relevant national stakeholders must be ensured.

10. Services and facilities to be provided by client

10.1. Assistance required on the client's part in obtaining relevant permissions from authorities (if necessary) to carry out the Services.

10.2. Available relevant data and information requested by the Consultant that are deemed by client to be useful to planning and carrying out the Services.

11. Services and facilities to be provided by the consultant

11.1. The Consultant shall carry out all the services using own material, labour and equipment. The logistics of labour, equipment and tools shall be arranged by the Consultant.

11.2. The Consultant shall ensure that their personnel always carry themselves in good behavior and maintain a cordial friendly atmosphere with other personnel including employees of MoAAW, MAP, and other organizations.

11.3. The Consultant shall provide professional, objective, and impartial advice, at all times holding the client's interest's paramount, strictly avoiding conflicts with other assignments or its own corporate interests, and acting without any consideration for future work. The Consultant has an obligation to disclose to the client any situation of actual or potential conflict that impacts its capacity to serve the best interest of the client.