Terms of Reference

Providing comprehensive and regular crop advisory services

I. Background

1. The Sustainable Livelihoods and Adaptation to Climate Change (SLACC) project (hereafter referred to as the project) is being implemented in Madhya Pradesh and Bihar under National Rural Livelihoods Mission (NRLM) of Ministry of Rural Development (MoRD), Government of India. National Rural Livelihood Promotion Society (NRLPS) is the coordinating agency under MoRD, whereas State Rural Livelihoods Missions of Madhya Pradesh and Bihar are the implementing agencies. The SLACC project is funded by the GEF-SCCF of World Bank and respective SRLMs. This is a three years project. The project will be implemented in 200 villages of Madhya Pradesh & Bihar spread over 2 districts each. The states have selected one drought and one flood prone districts for climate change interventions. SLACC project will be implemented in convergence with the MKSP, MGNREGS and other programmes of the Government contributing to strengthen climate resilience.

II. Project Objectives

2. The Project Development Objective (PDO) is to improve adaptive capacity of rural poor engaged in farm-based livelihoods to cope with climate variability and change. The components of the project are:
    a) Component 1- Planning, Service Provision and Implementation of Climate Change Adaptation. The objective of this component is to support risk assessment, planning, service provision and implementation of climate change adaptation interventions. A key input to improving adaptive capacity is knowledge of weather and its impact on farming such as on soil moisture, nutrient status, pest build up, etc. This component seeks to deliver crop advisory services to farmers that is based on local weather and local crop conditions.
    b) Component 2- Scaling and Mainstreaming Community-based Climate Adaptation. This component seeks to build the capacity of the national and state level staff of NRLM and build a cadre of CRPs to mainstream and scale-up planning and implementation of climate change adaptation in the country.
    c) Component 3 – Project Management and Impact Evaluation. This component will support creation of climate change adaptation units in the NRLM and SRLMs to manage the SLACC project.

3. This assignment is related to providing crop advisories to farmers in SLACC project that is based on local weather forecasts, local crop and soil conditions.

III. Objective of the Assignment

4. The objective of the assignment is to provide regular and periodic ***expert***crop advisories customized to each farmer selected by the SLACC project, covering all major crops grown by the farmer for the entire period of the crop and for all seasons of cropping, that is based on local weather, crop, water and soil conditions.

5. The purpose of the crop advisory is to ensure that right information and knowledge on crop production that is actionable is delivered to the farming household so that they are able to take action in time to achieve steady crop productivity and production.

6. Unlike traditional crop extension/advisory services, the assignment expects the use of ICT tools to deliver high quality, expert advice that takes into account data on various parameters such as local weather, crop condition, water, soil, etc., in a timely and cost-effective manner without needing physical visit of experts to each and every farm. Thus, the assignment expects that a system will be developed that will ***collect data*** on crop, weather, soil and water for each crop, an ***expert group*** that will analyse and interpret the data to generate advisories and an ***ICT platform*** that brings, data collected, advisories given and action taken by the farmers into a database for further analysis.

7. In the process of delivering such crop advisories, the service provider is expected to use Community Resource Persons identified by the project from time to time, such that their knowledge and capacity in terms of providing crop extension services is also enhanced.

IV. Scope of the Assignment

8. The assignment will cover selected farmers in 50 villages[1] each in Sheopur and Mandla districts in Madhya Pradesh and 50 villages each in Madhubani and Gaya districts in Bihar over a period of 36 months. The key components of the assignment are as follows:

A. ICT Platform for Managing Advisory Generation, Transmission, Archiving &Data Mining

9. The service provider will employ a ***proven***[2] ICT platform that will gather data electronically on various parameters listed in the preceding section (the list is only indicative and not exhaustive) and make available to selected agri-experts who will generate the crop advisories. The platform should be capable of electronically receiving and using data generated by third party[3] such as weather forecasts from IMD, remote sensing data on soil, crop condition and water, weather data from AWS and ARGs installed in the project. It may be noted that the project is in the process of subscribing/ hiring the services of a services provider for provision of data based on the weather conditions such as (i) Air temperature; (ii) Relative humidity; (iii) Wind speed and direction; (iv) Rainfall; (v) Solar radiation; (vi) moisture condition etc., collected from Automated Weather Stations and Automated Rain gauges installed in the project area.

[1]On an average each village is expected to have 50-70 farmers who would receive the crop advisory service for 3-4 crops in a year. The farmers and the crops will be selected by the project.
[2]The chosen ICT platform should have been used to deliver crop advisories to at least 10,000 farmers over a period of 5 years for 2-3 different crops.
[3]The project will make available such data to the service provider from time to time

10. It should be capable of electronically (including through SMS and smartphones)transmitting the advisory to designated recipients (farmers, Community Resource Persons, etc.). In addition, the platform should be capable of storing the data collected, the advisory given, action taken by the farmer and its result for each farmer for whom the advisory has been delivered. The platform should be able to search the database created and make suggestions to the expert advisor on possible solutions for a given set of parameters.

B. Process for Collecting Data and Generating and Transmitting Advisories

11. The service provider will deploy a ***proven***[4] process for collecting data and uploading data onto the ICT platform, which involves a regular, periodic and pre-decided visit schedule for each crop from each selected farm using ***CRPs.***The service provider will develop forms and formats for collecting data; crop, pest and disease calendar for selection of critical period for each crop when the data must be collected; timing and technique of pictorial data (photographs of the crop) collection that shows crop growth, pest and disease attack, etc. A system for adequate quality check of data being collected will be an integral part of the ICT platform as well as the process of collecting the data.

12. The service provider will provide ***training*** to such CRPs that the project will select from time to time to carry out the above tasks.

13. The service provider will ***identify and recruit agri-experts*** (especially agronomists and/or entomologists/plant pathologists) that have adequate knowledge of local cropping conditions and have extensive experience in providing agri-advisories or extension services. Specifically, expertise in IPM (integrated pest management) and INM (integrated nutrient management) would be highly desirable. Such experts should be capable of using ICT tools and communicating in local language (in this case Hindi).

14. The service provider will establish and maintain a system such that crop advisories are developed and transmitted within 48 hours of collecting data from the selected farms. While the thrust of the system will be to provide proactive (without waiting for a query from the farmer) crop advisories, the service provider will make appropriate arrangements to provide solutions within 48 hours to queries from farmers as and when they arise.

15. Based on the data collected the service provider will generate crop advisories covering, but not limited to, the following areas:

    - Crop management practices to be undertaken for the stage of the crop
    - Pest and disease forecast and management practices to be undertaken for their control
    - Nutrient management practices to be undertaken for the stage of the crop
    - Soil and water management practices to be undertaken for the stage of the crop

[4]Ibid 3

- Weather forecast received from third party agencies hired by the project

16. The frequency of the crop advisories will be decided in consultation with the project and will be based on the crop phonological cycle so that advisories adequately cover critical stages of the crop. However, the frequency of the crop advisory will not be less than 1 for each crop for each farmer in a fortnight.

C. Database Management, Data Mining and MIS

17. The ICT platform will have an architecture to store the data collected, the advisories rendered, action taken by the farmers and results thereof in the form of a database. At the beginning of the implementation, it shall collect baseline information for each selected farmer on parameters such as extent of crop land, number of parcels, type and characteristics of soil, water sources and availability, cropping history, cropping income in the last 5 years, etc.

18. The platform shall provide tools for carrying out simple analysis and generating reports on performance of the advisories. In addition, the database should be able to support querying and providing data in various formats such as excel, etc., that the project may decide from time to time. The platform shall provide a mechanism to port data to and from the MIS that the project will develop separately through other vendors.

D. Project Management

19. The service provider shall deploy adequate numbers of appropriately qualified staff in the project area to implement and manage the project. Some of the key staff needed in the project are:
    a) Subject Matter Specialists (preferably agronomists) that are familiar with local cropping conditions and local language.
    b) Information Technology Specialists who will set up and manage the ICT platform on which the crop advisory system will be based.
    c) Project Manager and Supervisors
    d) Community Resource Persons (to be provided by the SLACC project) who will be responsible for collecting data on crop condition, farmers' problems, actions taken by farmer on a periodic basis and delivering advisories and explaining it to farmers.

V. Manpower Requirement and Qualification

20. The service provider will deploy the following staff[5]:

Position	Number of staff	Qualification	Location
Team leader (Technical, mainly IT related)	1 (part time)	BE/BTech/MTech with 10-15 years' experience in development, installation, commissioning and providing onsite support in operation and maintenance of database management	Not relevant

[5]This is the minimum estimated requirement for covering both states. The service provider may propose a larger team.

		products, preferably for agri/rural applications. Essential to have experience in having operated the ICT platform being proposed for this assignment	
Project Manager (Managing implementation and admin aspects at field level)	2 (full time)	Graduate in any discipline, preferably agriculture/horticulture/animal husbandry, with 10-15 years experience in leading teams in rural areas. Essential to have hands on experience in using smart-phone based mobile platforms for collecting, uploading and downloading data, etc. Knowledge of Hindi is a must	1 each in Bihar and Madhya Pradesh
Field Supervisors	4 (full time)	Graduate in any discipline with 10-15 years experience in working with community institutions and their workers such as CRPs. Familiarity with local conditions and experience in using smart-phones for gathering data and downloading data. Knowledge of Hindi and good oral communication skills is a must	1 each for each project district
Subject Matter Specialists	6-8/district (will work from home)	PhD/MSc. (Agri) in entomology, plant pathology, agronomy with 15-20 years experience in agricultural extension service (government or private sector). Retired agricultural extension staff with good track record would be preferable. Good computer and internet skills and ability to communicate in writing in local language (Hindi) is essential	Essential to be located in the project state Preferably located in the project district. In all each state would need between 12-16 SMSs

VI. Duration of the Assignment

21. Duration of the assignment will be 39 months from the time of signing the contract including 3 months time for mobilising the staff and setting up the system.

VII. Support from the SLACC Project

22. The SLACC project will provide the following support to the service provider:
    a) List of farmers to whom the crop advisories are to be delivered
    b) List of CRPs who will provide the last mile link for collecting data and delivering/explaining the advisories to the farmers
    c) Facilitate in interacting with the local community/Village Organization
    d) Organize crop cutting experiments to collect data on yield at the end of each crop season

VIII. Outputs

23. The service provider will produce farmer specific crop advisories on a regular basis. The advisories should be delivered to all the target farmers through ICT platform (SMS, MMS, smartphone, etc.,) and other modes as agreed by the project.
24. Further, following detailed reports should be submitted
    a) A quarterly report providing details such as number of farmers provided the crop advisory services (covering details of crop, geographical area/ agro climate zone, cropping season, etc.,) number of key and non-key staff deployed by the service provider, handholding support provided to CRPs including their training etc.,
    b) A report at the end of each season that measures the impact of the advisories in terms of yield and net income of farmers, resources saved due to better and timely use
    c) A report at the end of the assignment that estimates the cost benefit ratio for such crop advisory services and suggests a way forward to scale it up to other districts and states under NRLM.
    d) Although the primary focus of the assignment will be to provide crop advisories, the service provider will demonstrate a model for delivering livestock advisories (cattle, goats, sheep, poultry any of these) on a pilot basis in at least 5 villages in each project district by the end of the assignment.