

Terms of Reference

Providing regular crop advisory services to Farmers in BTDP

I. Background

Bihar Rural Livelihoods Promotion Society (BRLPS), an initiative of Government of Bihar with an objective to provide livelihoods opportunities for rural communities with special focus on poor. Bihar Rural Livelihoods Promotion Society through support from the World Bank aims to scale up the JEEVIKA model of poverty alleviation in 300 blocks of 32 districts in Bihar under Bihar Transformative Development Project (BTDP). Bihar Transformative Development Project aims to improve the rural livelihood options and works towards social and economic empowerment of the rural poor and women by promoting self-managed community institutions and further strengthening their livelihoods. BTDP intervenes with the community through the following four themes or programmes: institution and capacity building, social development, microfinance and livelihoods. BTDP project will be implemented for the period of 6 years. It is expected to cover around 60 lakh poor families spread over 300 blocks across 32 districts of Bihar.

II. Project Objectives

1. The Project Objective is to improve productivity and capacity of rural poor engaged in farm-based livelihoods to cope with climate variability and extreme weather conditions by providing them with timely information which results improves in their income. The components of the project are:
 - a) Component 1- Planning, Survey, Designing of farmers data base, Service Provision and Implementation of ICT platform for information in accordance with weather and climate change. The objective of this component is to support risk assessment, planning, service provision and implementation of required action in light of weather and climate change information. A key input to improving adaptive capacity is knowledge of weather and its impact on farm productivity 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 of Community-based weather and Climate Adaptation. This component seeks to build the capacity of farmers and build a cadre of VRPs/CRPs/SEWs to mainstream and scale-up planning and implementation of crop planning based on climate change in the state.
2. This assignment is related to providing crop advisories to farmers in BTDP that is based on local weather forecasts, local cropping pattern, soil conditions and market situation.

III. Objective of the Assignment

3. The objective of the assignment is to provide regular and periodic training and *expert* crop advisories customized to each farmer selected from the project area, covering all major

crops grown by the farmer in all seasons of cropping in the year that is based on local weather, cropping pattern, water and soil conditions.

4. 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 households so that they are able to take action in time to achieve steady crop productivity and production.
5. 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 and for each farmer, 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 and report generation. Time to time needed training will be given by the agency to core staffs, cadres and prospective farmers.
6. 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

7. The assignment will cover selected farmers in 10 villages each in Patna, Vaishali, and samastipur districts in Bihar over a period of 12 months. The key components of the assignment are as follows:

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

8. The service provider will employ a *proven*¹ 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.
9. It should be capable of electronically (including through SMS, Apps and smartphones) transmitting the advisory to designated recipients (farmers, Community Resource Persons, staffs 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.

¹The 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.

B. Process for Collecting Data and Generating and Transmitting Advisories

10. The service provider will deploy a *proven* 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 **VRPs/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.
11. The service provider will provide *training* to such CRPs/staffs that the project will select from time to time to carry out the above tasks.
12. 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).
13. 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.
14. 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
 - Weather forecast
 - Estimated yields from the farms
15. The frequency of the crop advisories will be decided in consultation with the project and will be based on the crop phenological cycle so that advisories adequately cover critical stages of the crop. However, the frequency of the crop advisory will not be less than 2 for each crop for each farmer in a fortnight.

C. Database Management, Data Mining and MIS

16. 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.
17. 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

18. 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:
- Subject Matter Specialists (preferably agronomists) that are familiar with local cropping conditions and local language.
 - Information Technology Specialists who will set up and manage the ICT platform on which the crop advisory system will be based.
 - Project Manager and Supervisors
 - Community Resource Persons (to be provided by the BRLPS) 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

19. The service provider will deploy the following staff²:

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 products, preferably for agri/rural applications. Essential to have experience in having operated the ICT platform being proposed for this assignment	Not relevant
Project Manager	1 (full time)	Graduate in any discipline,	Not relevant

²The service provider may propose a larger team.

(Managing implementation and admin aspects at field level)		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	
Field Supervisors	2(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	Not Relevant
Subject Matter Specialists	3districts	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	1 each for each project district

VI. Details of Man-month required

Sl.No.	Name of Experts	No. of days	Total Month
1.	Team leader -1	180 (15 days x 12 month)	6
2.	Project Manager -1 (full time)	-	12
3.	Field Supervisors -2 (full time)	-	24
4.	Subject Matter Specialists – 3 (full time)	-	36
Total Man month			78

VII. Duration of the Assignment

20. Duration of the assignment will be 12months from the time of signing the contract including 1 months' time for mobilising the staff and setting up the system.

VIII. Support from the BRLPS

21. BRLPS 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 VRPs/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

IX. Outputs

22. 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 (Voice SMS, Appsetc.,) and other modes as agreed by the project.

23. 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.
- 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 one project district by the end of the assignment.
- e) Provide Farmers Profile in Farmer Card as developed by the project.

X. Payment Schedule

Deliverables	Period from the Date of Agreement	Payment Schedule
Inception report and Manpower Placement	1 Month	30%
DPR submission, Farmer Profiles captured on ICT Platform and Regular Report Generation	6 Months	40%

Final Report Submission	12 Months	30%
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XI. Services Provided by the Client

The State Project Manager (Livelihoods-Farm) BRLPS, would supervise the assignment and facilitate the interaction and exchange of information between the Consultant and BRLPS. All relevant Project documentation will also be made available to the Consultant.

XII. Review Committee to Monitor Consultants Work

The Chief Executive Officer, BRLPS in association with State Project Manager (Livelihoods Farm) shall be responsible for reviewing and monitoring the work of consultants. S/he may constitute a review committee to monitor the progress and interact with the Consultant. The Committee may also seek comments and inputs on the Consultants work from the World Bank officials and from the other experts.

XIII. Ownership

This assignment is funded by BRLPS and therefore shall be the owner of the assignment output. The Consultant will have no right of claim to the assignment or its outputs once completed. Any reports / research outputs /process documents produced as a part of this assignment shall be deemed to be in the property of BRLPS and the consultant will not have any claims and will not use or reproduce the contents of the above documents without the written permission of BRLPS.