**TERMS OF REFERENCE (ToR) FOR DEVELOPMENT OF WEBSITE AND MANAGEMENT INFORMATION SYSTEM (MIS) FOR BRECSA PROJECT**

**BACKGROUND**

The Ministry of Agriculture and Livestock (MoAL) of the Royal Government of Bhutan (RGoB) is implementing *Building Resilient Commercial Smallholder Agriculture* (BRECSA) project financed by Global Agriculture and Food Security (GAFSP) of USD 13 million grants. The project is co-financed by International Fund for Agricultural Development (IFAD) with a highly concessional loan of USD 8.934 million. IFAD is the Supervising entity, while WFP is the supervising entity for Technical Assistance. BRECSA will be implemented in four Dzongkhags of Sarpang, Trongsa, Tsirang and Zhemgang comprising of 37 Gewogs and 539 villages.

The main goal of the project is to catalyze a 30% increase in resilient commercial agricultural production and improve food and nutrition security in the 4 target Dzongkhags by 2030. The developmental objective of the project is to transform smallholder agriculture into inclusive and resilient agri-food systems that are increasingly profitable and food and nutrition secure. The project management unit (PMU) based at Samtenling Gewog, Sarpang Dzongkhag will spearhead the implementation of the seven-year project.

Thus, in order to ensure effective knowledge management, management of information system (MIS) and to disseminate the knowledge to wider audience, the project is required to develop a secured system. In this connection, the PMU is inviting proposals from reputable Information and Technology (IT) firms having competent professionals to develop system.

**OBJECTIVES**

 The BRECSA project aims to have user-friendly, responsive, dynamic, vibrant, easy-to-update and receptive project management information system.

### DELIVERABLES

1. The system should incorporate project planning (AWPB), Procurement Process, Physical reporting and financial reporting.
2. Develop a user manual and teach the primary users and system administrators to perform content upload, system maintenance and administration.
3. **Support and maintenance:** Administrative and technical support, quality control for a period of 6 months.
4. **Source code handover:** Full source code including all developed libraries shall be handed over to PMU.

Once a firm is selected, the contract may be amended with a time and materials to capture new specific developments on the system upon request of the PMU. Other more specific deliverables are following:

* Study ToR and User requirement analysis
* DB design and Project Profile Management
* Master Management
* User management
* Project Planning module
* Annual Work Plan and Budget (AWPB) module
* Procurement Planning module
* Physical Progress module
* Financial Progress module
* Outcomes Survey module
* Report

*\*\*\* for Detail refer User Requirement Document*

**USER REQUIREMENTS**

* The detail of the user requirement is specified under Separate Document “User Requirement”. ***(Any unforeseen requirements or requirements missed out while preparing user requirements should be accepted by the consultant during the process of development).***

**Time Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| SL NO | **Activities** | **Schedule after signing contract** | **Deliverable** |
| **1** | **Study ToR and User requirement analysis** | **35th Day** | Demo those modules on local |
| 2 | 1. DB design and Project Profile Management |
| 3 | 8. Master Management |
| 4 | 9. User management | 70th Day | Demo those modules on stagging |
| 5 | 2. Project Planning |
| 6 | 2.1. Annual Work Plan and Budget (AWPB) |
| 7 | 2.2 Procurement Planning |
| 8 | 3. Progress Report | 105th Day | Demo those modules on stagging |
| 9 | 3.1 Physical Progress |
| 10 | 3.2 Financial Progress |
| 11 | 4. Outcomes Survey |
| 12 | 5. Release |
| 13 | 6. Configuration |
| **14** | **7. Project Review** | **140th Day** | Demo those modules on **Production** |
| **15** | 10. Report |
| **16** | 10.4. M&E level (Physical) |
| 15 | 10.5 M&E Financial |
|  | 10.1. Geo Level | 161th Day | Demo those modules on production |
|  | 10.2. DAO level |
|  | 10.3. DFO level |
|  | 10.6 Management level |
|  | **UAT Exercise** | **162 -168** |  |
|  | **UAT sign off** |  |  |
|  | **User Training** | **170-175** |  |

**REPORTING**

A first meeting will be scheduled with PMU team to brief the firm on the background information to develop each of the requested deliverables.

**Reporting relationships and identification of responsibility for assessment of the services/outputs**

The firm will work in close consultation and under the supervision of the Project Director. The Project Director in close consultation with Monitoring and Evaluation and Knowledge Management Officer (M&EGKMO) will assess the services and outputs of the firm. The system will be finally approved by joint committee of PMU, PPD, IFAD and WFP.

**OWNERSHIP OF SOURCE CODE**

The BRECSA PMU will be the final owner of the developed system, data, consultations records, etc., and all documents generated as part of the consultancy.

Full source code including all developed libraries shall be handed over to System Administrator of PMU.

**DEVELOPMENT PLATFORM AND TECHNOLOGY**

The firm shall comply with the Electronic Government Interoperability Framework (e-GIF) during the development of the system. Following technologies and standards are also recommended:

*The project manager has to provide the information from e-GIF portal*

1. **Database System:** The database for the application is recommended to be implemented using an open source database management system.
	1. Postgres or Mariadb( should be load tested)
2. **Development Languag**e: The firm must recommend one of the best open source development frameworks after understanding the system requirements and load of the application. The details of the development framework should be included in the proposal.
	1. Development language should be either Java or Python Tech Stack(PHP and .Net framework is not recommended for the system development)
3. **Database Design and Modelling**: Comply with e-GIF data standards such as table naming conventions, data modeling, data types, codes, etc
4. System Development should be using **microservice** architecture with functional and nonfunctional microservice clearly segregated.
	1. This is to ensure that whatever microservice has high load should be auto scalable using cluster management tools or other solutions.
5. Should use **DevOps Design** principles and tools such as Git, Unit Testing, CI/CD tools Docker Containers and cluster management tools such as Kubernetes.
6. Systems once developed should be **deployable** using Docker Compose and Dockerfile with clear documentation on how to backup and restore systems in case of a system failure.
7. System Should be developed using **3 tiers System Architecture**( UI/UX, Logical and Database)
8. Tech Stack and **Technical Clearance** needs to be sought from GovTech before the system development starts.

**Note;**

1. The use of any development framework and database management system should be discussed with the client.
2. The infrastructure for hosting the applications gateways, databases and platforms shall be provided by the Procuring Agency in the Government data center.
3. The proposed application must run on popular mobile OS (iOS and Android).

**DEVELOPMENT PROCESS FLOW**

The following are some of the activities required to successfully complete the assignment:

* The Vendor shall carry out a detailed required assessment.
* The Design and development of the APP should be as per the Agile Development methodology and replicate all functionalities onto a mobile APP except the report feature..
* The Vendor will build on the approved prototype, the new system which will be fully functional at its own premises. The vendor must have own Software Development Laboratory within its local premises with adequate Hardware and Software.
* After the development is over, the app will be first tested from the vendor’s side. Any reported bugs shall be fixed.
* The final testing of the software package will be done by the procuring agency. After the user acceptance test succeeds, the software will be deployed for live operation.

**COST OF LICENSES**

The Cost of all licenses during the warranty period will be borne by the vendor including licenses required by the proposed application software during the development, hosting and production (including but not limited to the cost of IDE, databases, server OS, virtualization, orchestration, storage, network equipment and other software/hardware/platform/technology).

**CONCURRENCY, BROWSER COMPATIBILITY AND BANDWIDTH OPTIMIZATION**

The application including the databases must provide at least 100 concurrent access with load balancing/caching facilities for high performance.

**12. Naming Conversion / Standard**

In order to keep source codes organized, vendors must strictly follow standards for forms, reports, database, triggers, views, stored procedures, coding etc.

**PATENT AND COPYRIGHT**

* The Vendor represents that the solution or any product/Component, supplied by the Vendor does not infringe any patents and copyright. If, however, a third-party claim that the solution or any product/component thereunder, supplied by the Vendor under this Contract, infringes a patent or copyright (“IP Claim”), the Vendor shall defend the Client against the IP Claim at the Vendor’s expense and pay all costs, damages and legal fees that a court finally awards.
* If the vendor determines that no alternative is reasonably available, and the client agrees to return the Product/Component/Solution to the Vendor on the Vendor’s written request, an appropriate compensation has to be proposed and be acceptable to the client.
* The vendor has and will have no obligation to the client regarding any “IP Claim” based on:
	+ The Client’s modification of a Product/Component under the solution unilaterally;
	+ Use of the program in other than its specified operating environment:
	+ The combination, operating or use of a product/Component under the solution with any other product, program, data or apparatus has not been envisaged in this contract and such product, program, data or apparatus is solely responsible for such infringement.

**CHANGE MANAGEMENT**

* The next enhancement of the system, if required, will be awarded directly to the same vendor provided the estimated budget for the enhancement does not exceed the limit set in PRR 2019.
* The Annual Maintenance Contract (AMC) shall be undertaken by the same bidder as per the AMC agreement. The quotation for AMC must be included clearly in the financial proposal.

**QUALITY OF WORK**

The Vendor must ensure quality while implementing the system at all times.

**COMMENCEMENT AND EXPIRY OF CONTRACT**

This contract shall come into effect from the date of signing the contract for the duration specified herein. The contract duration shall be 170 days from the date of signing.

**WARRANTY**

Provide one year of warranty after the user acceptance sign off. During this period, the vendor is responsible for following technical support:

* Update server patches
* Fix bugs,
* Make some minor changes such as changing of label names, adding simple labels on the page and tweaking color combinations, etc.
* 10 % of the system development project cost will be retained by the client

**TERMINATION OF WORK**

The contract shall be terminated if the selected consultant breaches any of the terms and conditions stipulated under the contract or shall be governed by the existing law of the kingdom of Bhutan.

### PAYMENT SCHEDULE AND TIMELINE

|  |  |  |
| --- | --- | --- |
| Deliverables | Schedule after signing contract | Payment (%) |
| * Signing of contract,
* study ToR and user requirement analysis
* DB design and Project Profile Management
* Master Management
 | 35th Day | 20%  |
| * User management
* Project Planning
* Annual Work Plan and Budget (AWPB)
* Procurement Planning
* Physical & Financial progress reporting
* Outcome Survey
 | 105th Day | 30% |
| * Project Review
* M&E level (Physical) report
* M&E Financial report
* Geo Level
* DAO level
* DFO level
* Management level
 | 161th Day | 30% |
| * UAT Exercise
* UAT sign off
* User Training
 | 170th Day | 20% |

***\*All templates should have the functionalities outlined in deliverables section.***

**EVALUATION AND SELECTION PROCESS**

\*\*\****The evaluation of the firm will be based on the standard criteria set by the Gov Tech***

**The proposal may be submitted to Project Director, BRECSA at sonamgyeltshen@moal.gov.bt. with the subject line: Development of Website and MIS for BRECSA Project.**