

Government of the People's Republic of Bangladesh
Agro-Meteorological Information Systems Development Project
Component-C of BWCSR
Department of Agricultural Extension
Khamarbari, Farmgate, Dhaka-1215

Request for Expressions of Interest (REOI)
for

Consulting Firm on Web Server Based application software for BAU and BSMRAU on "Agro-Meteorological Information Systems Development Project" (Component C of Bangladesh Weather and Climate Services Regional Project) (Contract Package No.: UNI-SD-05)

Memo: 12.01.0000.018.01.001.21.6363

Date: 19.12.2021

The People's Republic of Bangladesh has received a credit in the amount of USD 113million as from the International Development Association (IDA) towards the cost of Agro-Meteorological Information Systems Development Project [Component -C of Bangladesh Weather and Climate Services Regional Project (BWCSR)] to be implemented by Department of Agricultural Extension (DAE) and it intends to apply part of the proceeds to payments for the provision of consultancy services for the project by hiring of an International Agro-Meteorological Services Consultant.

2. Scope of Task /Service:

The design & development scope will be limited to the scope of work as identified in the TOR. The scope of work can be categorized with the following tasks:

- a) Conduct a needs assessment of the existing system to prepare the precise System Requirement Specification (SRS) for designing and developing a website development plan in the SRS, which should include context diagram of the proposed system, Sequence Diagram, Use case Diagram, and Process Flow Diagram.
- b) Design the solution architecture of the website platform in a manner for better performance, flexibility, scalability, extendibility and multitenancy of the system for future expansion.
- c) Compatible for exchanging data with another website or portal (e.g., www.met.du.ac.bd).
- d) Ensure access control, application-level security and on-demand support to Helpdesk (layer-2) for uninterrupted live service.
- e) Design and develop Role-wise credential system incorporation for better user role management. System should support user registration in multiple ways including PC, Laptop, Tab, Mobile & Others by auto responsive format.
- f) System shall provide the ability to encrypt user IDs and passwords and impose minimum password lengths along with ability to reset passwords following a standard password strategy. User log management shall be recorded.
- g) There will be a Dashboard presenting dynamic data in reports in tabular and graphic presentations.
- h) Develop a CMS Web site platform with features as required.
- i) The Web site will have Accessibility compliance as per W3C to support learning for the differently abled persons.
- j) The proposed Web site platform should have a robust multimedia content management system with support of video, audio, pdf, word, ppt etc. It should have an on- demand video streaming capability for conducting live sessions. It should have provision for Two-way real-time audio and video chat support. Third party tools can be integrated for this.
- k) The system should have provision for periodical & instant Data Backup & Auto Archiving System.
- l) The system should migrate all data from other web site with appropriate data validation; a report should be presented of data migration.
- m) It should have a dynamic content management system (CMS) with support of contents upload, tagging, searching and download features. Content hit/view/download count will be recorded and presented in dashboard and printable reports.
- n) A user level permission will be set to control who can upload, publish and download contents. The CMS should also migrate contents (video, audio, images, texts, pdf etc.).
- o) Web Site platform should be SCORM compliant: it should have open ended API to share or exchange data with 3rd party.
- p) Web Site platform should be cross browser compatible, responsive and graphically attractive.
- q) The system must have a Certificate Verification mechanism.
- r) The developed system must support Bengali UNICODE enable font so that Bengali content can be viewed properly from any machine, which support Unicode. The proposed system must facilitate for showing the content both in English and Bengali Language.
- s) Vendor Company will ensure system to be tested at module integration and load level. All necessary security test at application-level architecture needs to be followed and conducted by the vendor.



3. Department of Agricultural Extension (DAE) now invites eligible consulting firms ("Consultants") to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The short-listing criteria are:

- (a) General experience of the Firm(s);
- (b) Experience in similar assignments of compatible size, complexity and technical specialty in the required area;
- (c) Financial soundness of the firm; and staffing and logistics of the firm.

Consultants are requested to submit the following supporting documents in support of the above-mentioned criteria:

(a) Registration paper of the firm (s); (b) JV agreement/letter of intent (if applicable); (c) Firm's brochure; (d) Audited financial reports for last three years; (e) service experience record (including nature, total cost, total input in terms of man month, employer, location of service etc.).

4. Consultants may associate to enhance their qualification, but should mention whether the association is in the form of a "joint-venture" or of "sub-consultancy". In the case of an association, all members of such "association" should have real and well-defined inputs to the assignment and in such "association" it is preferable to limit the total number of firms including the associates to a maximum of three.

5. Department of Agricultural Extension (DAE) now invites eligible applicants to indicate their interest in providing the services. Applicants are invited to provide information indicating that they are qualified to perform the services **(Application Submission Form and supporting documents)**.

6. Detailed Terms of Reference (ToR) will be available upon request from the address provided below either through email or in person. ToR will also be available in the website of DAE (www.dae.gov.bd/site/view/tenders/tender-EOI-job-circular and <https://www.bamis.gov.bd/en/page/tender/>). Interested consultant may obtain further information from the office of the undersigned from 09:00 to 17:00 hours (Except holidays).

7. The consultant shall be selected following Consultants Qualification Selection Method (CQS) set forth in Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, January 2011 (Revised July 2014) on the basis of consultant's qualification, experiences and capability to carry out the assignment.

8. Expression of Interest (both hard and soft copy) must be delivered to the address below (in person or by mail or by email) by 16:00 hours (GMT+ 6 hours) on or before January 05, 2022. The authority reserves the right to accept or reject any or all EOIs without assigning any reason, whatsoever.


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Terms of Reference for Consulting Firm on
Web Server Based application software for BAU and BSMRAU,
Package No: UNI-SD-05 under Agro-Meteorological Information Systems Development Project,
Bangladesh Weather and Climate Services Regional Project (BWCSR)
Department of Agricultural Extension
Dhaka, Bangladesh

(a) Background

The website will be found to precursor visiting the campus. The website is a virtual platform for education, skills and professional development for agrometeorology department at Bangladesh Agricultural University (BAU) and Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU). Various educational courses and contents are delivered through website to diversified professionals including teachers, students, unemployed youths, journalists, government officials and NGOs. The Web Site also offers courses and tutorials for the unemployed and under-employed youths of Bangladesh with a view to encourage them in self-employment. The courses and contents are designed and developed by relevant experts under supervision of appropriate domain specialists.

The website has to be designed and developed as a learning management system (LMS) so that the participants of this e-learning platform can learn appropriate knowledge and skills in a chronological way with appropriate support from online facilitators. The participants' learning progress is recorded and tracked by the LMS and they are notified about their progress. There are dedicated online facilitators who communicate with the participants and provide necessary supports. The learning activities in website include watching attractive videos, information, forum discussions and live sessions and submitting assignments and quizzes.

The website to be developed will help students in learning processes and will be guided and monitored regularly by the assigned coordinators and facilitators who communicate and provide feedback to individual participant and help individuals to complete the courses. The best performers of a course have opportunities to be a facilitator in the future course-sessions and to get other facilities.

There is a growing need to include different educational and administrative features in the website. This platform also needs to be made more secured and scalable so that multiple partner organizations can use this platform to deliver their professional learning and training courses with appropriate flexibility and security. Therefore, a new version of the website will be created with improved features and supports.

(b) Objectives: The overall objectives of the assignment will be the following:

- To build the website platform making its architecture robust, secured and flexible to integrate different e-learning features.
- To develop website as an e-learning framework based on multilayered business, content and operational components along with multitenancy supports.
- Apart from HTML documents, images, style sheets, test etc. the web server also need to support SMTP (Simple Mail transfer Protocol) and FTP (File Transfer Protocol) protocol for emailing and for file transfer and storage.

(c) Scope of Work /Description of Work:

The design & development scope will be limited to the scope of work as identified in the TOR. The scope of work can be categorized with the following tasks:

1. Conduct a needs assessment of the existing system to prepare the precise System Requirement Specification (SRS) for designing and developing a website development plan in the SRS, which should include context diagram of the proposed system, Sequence Diagram, Use case Diagram, and Process Flow Diagram.
2. Design the solution architecture of the website platform in a manner for better performance, flexibility, scalability, extendibility and multitenancy of the system for future expansion.
3. Compatible for exchanging data with another website or portal (e.g., www.met.du.ac.bd).
4. Ensure access control, application-level security and on-demand support to Helpdesk (layer-2) for uninterrupted live service.
5. Design and develop Role-wise credential system incorporation for better user role management. System should support user registration in multiple ways including PC, Laptop, Tab, Mobile & Others by auto responsive format.
6. System shall provide the ability to encrypt user IDs and passwords and impose minimum password lengths along with ability to reset passwords following a standard password strategy. User log management shall be recorded.
7. There will be a Dashboard presenting dynamic data in reports in tabular and graphic presentations.
8. Develop a CMS Web site platform with features as required.
9. The Web site will have Accessibility compliance as per W3C to support learning for the differently abled persons.
10. The proposed Web site platform should have a robust multimedia content management system with support of video, audio, pdf, word, ppt etc. It should have an on- demand video streaming capability for conducting live sessions. It should have provision for Two-way real-time audio and video chat support. Third party tools can be integrated for this.
11. The system should have provision for periodical & instant Data Backup & Auto Archiving System.
12. The system should migrate all data from other web site with appropriate data validation; a report should be presented of data migration.
13. It should have a dynamic content management system (CMS) with support of contents upload, tagging, searching and download features. Content hit/view/download count will be recorded and presented in dashboard and printable reports.
14. A user level permission will be set to control who can upload, publish and download contents. The CMS should also migrate contents (video, audio, images, texts, pdf etc.).
15. Web Site platform should be SCORM compliant: it should have open ended API to share or exchange data with 3rd party.
16. Web Site platform should be cross browser compatible, responsive and graphically attractive.
17. The system must have a Certificate Verification mechanism.
18. The developed system must support Bengali UNICODE enable font so that Bengali content can be viewed properly from any machine, which support Unicode. The proposed system must facilitate for showing the content both in English and Bengali Language.
19. Vendor Company will ensure system to be tested at module integration and load level. All necessary security test at application-level architecture needs to be followed and conducted by the vendor.

(d) Support & Maintenance Requirement

- i. Provide 2 Years support & maintenance service of the Web site platform from the date of contract signing. Support & Maintenance will cover fixing all bugs and system errors as and when identified by the system users.
- ii. Vendor shall take or advice server maintenance engineer to take timely backup of the entire database to meet up the challenge of system recovery, in case of any disaster or missing data.
- iii. The vendor's team will work at their office premises, but in case of special requirement, they may work at the client's premises or any client designated location.
- iv. Assign a Project Manager who will work closely with the clients designated official to ensure proper delivery of any assignment during the support and maintenance phase.

- v. The concerned company cannot assign the programmers to other project till completion of the assignment and will ensure the continuity of the scheduled work by other programmer in case of his/her absence.
- vi. The hired and assigned IT personals for support & maintenance must be regular employees of the vendor company.

(e) Expected Outputs/Deliverables

1. Inception Report
2. Software Requirement Specification SRS
3. Development of Web Site platform
4. Cloud/VPS Hosting
5. Mail Service
6. Data Migration Document
7. API Specification of the Web Site platform
8. Software Deployment on Live Server
9. User Manual
10. Knowledge transfer through workshop/Training
11. Source code & database
12. Project Completion report including upcoming challenges if any
13. Provide 24 months Support & Maintenance Service

(f) Technological Specification

1. Need to use Open-Source Development Platform.
2. PHP based platform with tool architecture like Bootstrap, framework like Php/ Laravel/Python can be used.
3. Database support will My SQL.
4. Future technology Change, iterative prototyping and agility in product design are the generic expectation.
5. Technology and all related design/data will be open to Client.
6. Need to work in DAE with Professional Team or another assigned team.
7. The vendor should follow any of the industry standard secure development methodology such as (but not limited to) Comprehensive Lightweight Application Security Process (CLASP) by OWASP etc.
8. The vendor should consider (but not limited to) common vulnerabilities such as SQL Injection, Cross Site Scripting (XSS) etc.
9. Vendor will undertake responsibility for Input Validation Controls, Authorization/Authentication Control and other security controls in place in both test and production environment of application.

(g) Project Time Line:

Duration of this contract is 4 months and necessary support & maintenance for next 16 months . To be effective from the date of signing the contract.

SN	Activity	Time
	Phase 1: Development	
1	Conduct background scoping and research work and finalizing the system requirements	15 days
2	Development of Web Site including LMS, interactive features, dashboard, communication, Server Integration, Uploading System etc. to incorporate client requirement as per approved SRS	30 days

SN	Activity	Time
3	1st level feedback collection and incorporation	10 days
4	Testing, debugging, update	10 days
5	Delivery of UAT and 2nd level feedback collection	10 days
6	Knowledge transfer through workshop/training	10 days
7	Delivery of the final version of the system along with all required documentation including source code, user manual and technical documentation (SRS Final Version)	5 days
	Sub-Total	3 Months
	Phase 2: Review; Identification of gaps and fulfilling them	1 Month
	Phase 3: Support	
8	Provide required and necessary support & maintenance	16 Months
	Total	20 Months

(h) Supervision and Performance Evaluation.

Awarded vendor will be working with DAE and both University Team.

(i) Project Management

The bidders are expected to provide a detailed project plan and an implementation strategy of the project. This plan is expected to include:

1. Information regarding the development process (the bidder will comply with all standards).
2. Application development tools, language, and database requirements
3. Maximum lead time for delivery of services.
4. A development method and schedule with indicative timeline (Gantt chart).
5. Risk management strategy and quality control mechanism.
6. Any development tasks or assumptions that may be required to render the solution fit-for-purpose.
7. Any anticipated integration tasks.
8. Comprehensive contingency plan.

(j) Team Requirements:

Team Leader /Project Manager	
Number of Persons	1 person
Job Description	The Project Manager is responsible for the day-to-day operational management of the project, including developing and overseeing work and preparation of project progress reports. S/he is responsible for regular reporting to the client. The chosen candidate is responsible for overseeing all technical aspects of the project implementation including analyze the user requirements, develop software design, choose the right technical solution as well as oversee the right implementation to ensure sustainability.

Requirements	i) Minimum graduate in Computer Science and Engineering/ICT preferably having a degree from a reputed university. ii) 10 years of progressive experience in managing large scale IT projects. iii) Past Experience in leading such an assignment, role including software design and development, preferably in Bangladesh Government IT projects.
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System Analyst	
Number of Persons	1 person
Job Description	<p>The System Analyst is expected to analyze the user requirements through meetings and discussion session with the targeted beneficiaries. After finalizing the primary draft of User Requirement Specification through vetting with the users, the System Analyst will prepare the Software Design Document in consultation with the Team Leader /Project Manager and share the document with QA Specialist. Specifically, the System Analyst will –</p> <ul style="list-style-type: none"> ▪ Design the architecture for systems integration as required ▪ Prepare plans for optimal data storage and retrieval procedures ▪ Prepare plans for data standardization ▪ Prepare SRS ▪ Prepare other technical documentation as per project requirement.
Requirements	i) Minimum graduate in Computer Science and Engineering / relevant subjects. ii) 5 years of progressive experience in the sector of software development ii) Experience of working with similar projects.

Senior Software Engineer	
Number of Persons	1 person
Job Description	<p>The Senior Software Engineer will provide support to development team to develop and design different modules for technology solutions for the target population. The systems will be designed after taking necessary input from the target population. He will be responsible for designing and developing system for successful deployment. Additionally, he will monitor the programmers for executing different development tasks to implement different modules of the system. The position is also expected to provide necessary technological solution to the Software Engineers to the team if required. Additionally, the position will –</p> <ul style="list-style-type: none"> ▪ Conduct requirement analysis for a particular ICT for development solution ▪ Develop the necessary business and system specifications ▪ Provide assistance to develop system design for any technical solutions ▪ Develop URS, SRS for any outsourcing of project work ▪ Carry out the technical evaluation for project development standardization ▪ Monitor execution of the outsourced project work.
Requirements	i) Minimum graduate in Computer Science and Engineering/ICT ii) 8 years of progressive experience in the related field.

Software Engineer	
Number of Persons	2 persons
Job Description	The Software Engineers are expected to drive the major software programming initiative in the project. This includes design, develop, and modify the modules with arranging the needed functionalities accordingly. The database backend is also expected to be developed by this team, including adding and modifying the structure, the stored procedures (if any), SQL queries, triggers and enable necessary security with backup features.
Requirements	i) Minimum graduate in Computer Science and Engineering/ICT ii) 4 years of progressive experience in the related field.

Quality Assurance Engineer	
Number of Persons	1 person
Job Description	The QA Engineers will work under the supervision of the QA Specialist for ensuring the quality of the products that reach the client. Specifically, they will: <ul style="list-style-type: none"> ▪ Prepare test cases in accordance with the test plan and share with QA Specialist ▪ Execute the test cases, log the results and ensure steps to reproduce (in case of software bug) ▪ Share the results with the QA Specialist within expected deadline
Requirements	i) Minimum graduate in Computer Science and Engineering or relevant subjects ii) 3 years of progressive experience in the sector of software testing and quality assurance

UX Designer	
Number of Persons	1 person
Job Description	The UX Designer will be responsible for supplying all digital imagery required for preparing the software including CSS templates, GUI for each screen. Specifically, they will – <ul style="list-style-type: none"> ▪ Understand the full functionality of the software applications and organize the UI components in different pages, sections, tabs to ensure maximum user-friendliness and aesthetics ▪ Prepare mock HTML /PSD screens for each page of the web-based applications and get the design approved from the relevant authority ▪ Prepare and supply the developer team with CSS, GIF, and JPEG files for screens, buttons, banners and other items as required ▪ Prepare the help files, manuals, and other documentation to ensure accessibility and attractiveness
Requirements	5 years of progressive experience in the sector of UX designing for software development purpose.

Support Engineers	
Number of Persons	1
Job Description	The support engineers will be responsible for helping the end user use the software applications developed in every mean possible, by identifying and solving the issues, and work as the interface between the software engineer and the targeted users.
Requirements	2 years of experience in IT-related fields, with clear understanding about web-based applications development based on 3-tier technology, and hands on-experience in solving end-user problems.

(k) Special Note:

1. DAE will preserve full rights to be confirmed security clearance of the personnel [if necessary] who will be working for this assignment through proper agency.
2. Contractor may need to sign separate non-disclosure agreement with DAE considering data/information sensitivity [if needed].
3. Intellectual Property Right will strictly be controlled under regular state law for IPR protection.
4. Vender will have to be clear concept on the expected components before start work.

(l) Support/Assistance to be provided by DAE

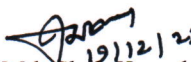
1. Training venue & support will be provided.
2. System design supports.
3. Coordination in hosting will Cloud/VPS platform.

(m) Selection Method:

The consulting firm shall be selected for assessing the “Web Server Based application software for BAU and BSMRAU” on the basis of Consultants Qualification Selection Method (CQS) set forth in guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, January 2011 (Revised July 2014) on the basis of consultant’s qualification, experiences and capability to carry out the assignment.

(n) Others:

Ensure speed, responsiveness (which allow layout fit with different device screens), extendibility (for further development), interoperability (where systems relate with each other via API), security and maintainability (backup) throughout entire design and implementation of application platform.


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