

Terms of Reference (TOR)

For

Design, Development, Implementation, Training and Maintenance of "Rubber Garden Management Guideline Apps" for IOS & Android

1. Introduction

Bangladesh Rubber Board (BRB) is responsible for the plantation, production, farmer activities, development, promotion, regulation of rubber cultivation, field monitoring and market dynamics. As part of its mandate and to enhance efficiency, transparency, and real-time data availability, BRB intends to implement a mobile-based digital system by developing a mobile application to improve rubber garden & plantation related information. This app will serve as an integrated mobile platform for rubber garden farmers in Bangladesh. Through it all information and services related to rubber garden management, production, pest control, marketing and government support will be available.

2. Objective

The main objective is to design and develop a user-friendly mobile application that helps to-

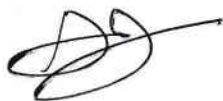
- To enhance knowledge of rubber-related technology and management.
- To develop a platform for central supervision and Monitoring of Data Management and Reporting
- To create a digital registration, licensing system and database of rubber gardens.
- To establish opportunities for direct communication with the rubber market and rubber garden farmers in Bangladesh.
- To increase transparency and efficiency in rubber production and market management.
- To enable real-time data collection and monitoring
- To improve reporting and decision-making processes
- To ensure transparency and accountability

3. Scope of Work

3.1 Core features:

The application must include-

- Application should be lightweight with rich client-side scripting.
- Admin panel for BRB officials with role-based management
- Rubber garden registration, approval, modification, and cancellation
- License issuance, renewal, and fee management
- Field inspection reporting with images and comments
- GPS-based location tracking and digital mapping
- Garden information management (owner, area, tree count, production data)



- Latex collection and sales data recording
- Online application submission and processing
- License status tracking with PDF download
- Mobile OTP-based login and NID verification
- Notification system (alerts, reminders, updates)
- Multi-language support (Bangla & English)
- Data export (Excel/PDF)
- The app must be compatible with both Android and iOS platforms.
- Develop a web-based admin panel

3.2 Detailed Features: The service provider is responsible for the following tasks:

- **Location (Latitude & Longitude)**
 - Allows users to identify their exact location via GPS.
 - Provides location-specific monitoring results for precise analysis.
- **Rubber Garden Management Guidelines**

Step-by-step guidelines for establishing and managing rubber garden (planting, tapping, fertilization, weed control, etc.).

- Age-based plantation management calendar.
 - Identification and control guidelines for pests and diseases (with images and videos).
 - Weather-based recommendations for rainfall, temperature, and climate conditions.
- **Online Registration & Database System**
 - Each rubber garden can be registered online.
 - Rubber garden registration, approval, modification, and cancellation
 - The mobile Application should have a login facility. Based on the logged in user's permission, application components will be available to the user
 - The mobile Applications must have access control and be protected by user ID and Password.
 - Must have role-based user authentication and central user access control system to multilevel user creation and privilege set-up options by system admin.
 - Data export and download facility from the system.
 - Registration form includes:
 - Farmer's name, NID, contact details
 - Land area, number of trees, age, GPS-based location
 - Production data and rubber sales history
 - **Instant Messaging / Direct Communication**
 - The app includes a "Live Chat / Message" feature for direct communication with rubber board authorities.
 - Gardeners can send queries, complaints, or suggestions.
 - Market representatives can resolve issues quickly.
 - The application should have an internal notification system to send and receive notification from Admin Panel.

- **Additional Features**

- Dashboard: Analysis of production, expenses, and income.
- News & Notifications: Latest market information and policy updates.
- Training Videos: Videos on tapping, fertilization, field management, and processing.
- GIS Map Integration: Accurate location mapping of plantations.
- Reminder System: Alerts for fertilization, tapping, and maintenance schedules.
- The app must be available in both online and offline mode and if required, edit/ update the input data. The partial data saving option should be incorporated and the system will send the complete data after 3 hours interval automatically, when the tabs are online.
- There should be skipping options for some questionnaires and also mandatory fill-up features for some information.
- Intelligent dashboard must be in the application for a different level of users with some graphical and different features of smart analysis.
- There should be an option to synchronize data of the mobile-app with the server-based web application on the availability of the internet connectivity.

Additional Tasks

- Conduct a detailed requirements analysis through stakeholder consultations.
- Identify key user groups (farmers, researchers, policymakers, disaster management officials, etc.).
- Analyze the types of data to be provided.

3.3. Design

- UI/UX Design: Develop an intuitive and user-friendly interface for identified user groups. The mobile application interface should be user friendly and dynamic.
 - Multilingual support for both Bangla and English.
 - Responsive design for various devices and screen sizes.
 - The Application should be a centralized, web-based solution and support cross browser platform (Chrome, Internet Explorer/ Microsoft Edge, Firefox, Opera etc.).

3.4. Development

- Frontend Development: Focus on user-friendly, responsive design and data accessibility.
 - Ensure compatibility with Android and iOS.
 - Include offline functionality for certain data viewing features.
- Backend Development:
 - Create or integrate with Bangladesh Rubber Board's existing database and APIs.
 - Establish a backend for real-time data processing.
 - Implement security protocols for data protection and user privacy.



3.5. Key Functionalities

- Available on both Android and iOS platforms.
- Data stored securely in a cloud-based server.
- Integrated Firebase Push Notification, Chat API, and GIS Map API.

3.6. Testing

- Comprehensive testing covering:
 - Functionality: Ensuring all features work as intended.
 - Usability: Validating ease of use for all users.
 - Security: Ensuring data security and user privacy.
 - Performance: Testing app performance under different network conditions.

3.7. Training and Documentation

- Provide training for 08 Bangladesh Rubber Board staff members on using and managing the app.
- Develop a comprehensive user manual and technical documentation.

4. Deliverables

The service provider is expected to deliver the following:

- Detailed requirements report.
- App UI/UX design mockups.
- A fully functional mobile application for both Android and iOS.
- Relevant data entry for both Android and iOS Apps.
- An operational backend system.
- Test reports on functionality, usability, security, and performance.
- Training materials (User manuals and presentations).
- Complete source code for the app and backend systems.

5. Timeline & Technology Details

The project timeline is three months, with the following key milestones:

- Month 1: Requirement gathering and design mockups. Frontend and backend development.
- Months 2-3: Integration of data services and functionalities. Testing, deployment, and training.

Software Requirements:

Technology Platform	
Item/Specification	Values
Database	MYSQL 5.7 /PostgreSQL /Oracle 12C
Caching	Redis
Website & Dashboard Front-end	Angular/ReactJS/VueJS
Scripting Languages	JavaScript, Ajax, JQuery
Web Backend Application	PHP 8.0, Laravel 10.0 OR .NET micro service

App Development Environment	Java, React Native & Firebase, App center
Mobile App	Android & iOS
Message broker/Event streaming	Redis/Apache Kafka/ RabbitMQ
Search Engine	Elastic Search
API	Rest APIs

Typically use the following programming software and tools to Bangladesh Rubber Board Mobile App (Android & iOS):

6. Team Composition

The service provider should consist of:

- **Team Leader/Project Manager (1):**

Responsibilities:

- ✓ Overall management and coordination of the assignment
- ✓ Communication with Bangladesh Rubber Board (BRB) and stakeholders
- ✓ Supervision of technical team and ensuring timely delivery

Qualifications:

- ✓ At least a Bachelor's degree in Computer Science / CSE / ICT / Engineering (Master's preferred)
- ✓ Minimum 8 years of professional experience, including 5 years in project management
- ✓ Experience in at least 2 similar ICT/mobile app projects in Bangladesh
- ✓ Experience working with government organizations / development partners will be an advantage

- **UI/UX Designer (2):**

Responsibilities:

- ✓ Design user-friendly interfaces considering local users (field officers, farmers)
- ✓ Ensure usability in Bangla and low-literacy environments

Qualifications:

- ✓ Bachelor's degree in Design/ICT/related field
- ✓ Minimum 3 years of experience in mobile UI/UX design
- ✓ Experience designing Bangla-enabled applications will be an advantage

- **Mobile Developers (2):**

Responsibilities:

- ✓ Develop and maintain the mobile application (CAPI-based)
- ✓ Implement offline functionality and synchronization
- ✓ Ensure compatibility with commonly used Android devices in Bangladesh

Qualifications:

- ✓ Bachelor's degree in CSE/Software Engineering/ICT





- ✓ Minimum 4 years of experience in Android app development
- ✓ Experience in data collection applications (CAPI) will be highly preferred
- ✓ Knowledge of Bangla language interface implementation

• **Backend Developers (2):**

Responsibilities:

- ✓ Design and develop backend system, APIs, and database
- ✓ Ensure secure and scalable system architecture
- ✓ Integration with web/dashboard systems if required

Qualifications:

- ✓ Bachelor's degree in CSE/ICT/Engineering
- ✓ Minimum 5 years of relevant experience
- ✓ Strong knowledge of API development, database management, and cloud/local server deployment
- ✓ Experience in handling government data systems is preferred

• **QA/Testers (2):**

Responsibilities:

- ✓ Conduct system testing (functional, field testing, UAT support)
- ✓ Ensure application stability in real field conditions

Qualifications:

- ✓ Bachelor's degree in CSE/IT or related field
- ✓ Minimum 3 years of experience in software testing
- ✓ Experience in testing mobile apps in rural/field environments preferred

• **Trainer (1):**

Responsibilities:

- ✓ Conduct training for BRB officials and field-level staff
- ✓ Prepare training manuals (Bangla and English)
- ✓ Provide user support during rollout
- ✓ Conduct training sessions for BANGLADESH RUBBER BOARD staff.

Qualifications:

- ✓ Bachelor's degree in any discipline (ICT background preferred)
- ✓ Minimum 3 years of experience in training delivery
- ✓ Experience working with government field staff or farmers preferred
- ✓ Fluency in Bangla (mandatory)

• **Support Engineer (1):**

Responsibilities:

- ✓ Responsible for any technical support.



- ✓ Responsible for implementing the applications and to provide necessary supports to run the applications smoothly

Qualifications:

- ✓ Bachelor's degree in any discipline (ICT background preferred)
- ✓ Minimum 3 years of experience in relevant field
- ✓ Experience working with government field staff or farmers preferred
- ✓ Fluency in Bangla (mandatory)

7. Payment Terms

- Full Payments will be made upon completion of project: Certification after successful testing of the app is required from the authority after final delivery of the app, backend system and training. No advance payment will be made.

8. Intellectual Property Rights

All intellectual property, including source code, design, and documentation, developed during this project will be the sole property of Bangladesh Rubber Board.

9. Support and Maintenance

The service provider should offer support and maintenance services for 06 months after the app is launched, covering bug fixes, minor updates, and technical support.

10. Qualification and Experience:

The qualification and experience for the above services are as follows:

1. The service provider must have Minimum 10 years' experience in ICT business as a registered company as Prime Contractor or Subcontractor or Management Contractor.
2. Must have legal entity (Updated Copy of valid company Trade License, TIN & VAT Registration certificate with Company Profile.) for working in Bangladesh for at least 05 years
3. Delivering Similar Work (at least 02) Software/Apps/Website development experience documents with Government, NGOs, and Multinational Organizations.
4. Must Have minimum 01 (One) Completion Certificate of Software/Apps/Website of Govt. Sector at least 03 years with minimum Value of 30 (Thirty) Lacs.
5. Must have Minimum 02 (Two) Software/Apps/Website development Software Quality Testing Certificate (SQTIC) from Bangladesh Computer Council.
6. Must have Minimum 05 (Five) Software/Apps/Website development work completion certificate.
7. Last Three years Audit report, Company profile, Trade License, TIN, VAT and BASIS Membership certificates.

11. Submission of Proposal



11. Submission of Proposal

Interested Consulting Firm must submit the original copy of both technical and financial proposal in following address.

Secretary (Procuring Entity)
BANGLADESH RUBBER BOARD
10-13, MAK Khalil Road West Hill, BFRI Campus Sholashahar, Chattogram,
Bangladesh.

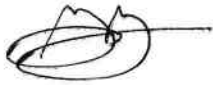
12. Evaluation Criteria

Proposals will be evaluated based on:

- Technical Proposal (50%): Understanding of the project, approach, and methodology, Staffing, Resource Plan, Security Plan, Training methodology.
- Experience (35%): Relevant previous work and qualifications of the team.
- Financial Proposal (15%): Cost-effectiveness and justification of the proposed budget.

13. Conclusion

Rubber Garden Management Guidelines is designed to simplify access to rubber gardens data for a wide range of stakeholders. The chosen service provider will be instrumental in achieving this goal by delivering a robust, user-friendly app that meets the needs of Bangladesh's citizens and institutions.



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পরিবেশ, বন ও জলবায়ু পরিবর্তন মন্ত্রণালয়



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