

TERMS OF REFERENCE (TOR)

For

e-Beneficiaries Management System of BRDB



Prepared By

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1. Background

Vision 2021 and Digital Bangladesh action plans is to transform Bangladesh into a fast developing middle income country by 2021 with the aim to develop Bangladesh into a digital country. Digital Bangladesh has emerged not only as a vision but also as a unique development approach to leverage ICT in delivering the social goods for the underserved a promise that no other than the honorable Prime Minister made. Digital Bangladesh is one of the nation's dreams and the special emphasis is given on the application of digital technologies to realize Vision 2021 which we commonly call Digital Bangladesh. By 2021, our goal is to be a middle-income country with peace, prosperity and dignity after 50 years of independence. Bangladesh Rural Development Board (BRDB) also sets up its goal to materialize Vision 2021 through socio-economic development of the rural people.

To fulfill the goal several e-Service initiatives such as Management Information System (MIS), Personal Data Sheet (PDS) for employees, Beneficiaries Database System, Micro-Finance Information (MFI) System, e-Filing, Smart Office Management System etc. have been started in BRDB. But due to lack of major digital public services the specified goal was not fulfilled successfully. BRDB has been working to uplift socio-economic development of the rural people through organizing rural mass people into primary cooperative societies/rural development groups, capital and loan management for its beneficiaries, providing training for beneficiaries etc. To deliver these services effectively we need an ICT based system to assess socio-economic conditions of rural people, to manage the societies/group members as well as societies/groups, to manage training for beneficiaries and to manage capital formation and loan management for its beneficiaries.

The reasons for choosing those services to ensure transparency and accountability to provide prompt response and quick delivery of the desired services for socio-economic development of the rural people.

2. Review of Existing Services

2.1 About the Organization

BRDB is the prime public sector organization under Rural Development and Cooperative Division of the Ministry of Local Government, Rural Development & Cooperative of the government of the People's Republic of Bangladesh. After the liberation of Bangladesh in 1971, two-tier cooperative systems of **Comilla Model** were adopted and started Integrated Rural Development Program (IRDP) as a national development program in Bangladesh. In 1972, IRDP was expanded nationwide to make happy face of farmers in command of father of the nation Banggabandhu Sheikh Mujibur Rahman. In 1980, according to a recommendation of an evaluation program jointly carried out by the Government of Bangladesh and World Bank IRDP was upgraded into BRDB.

The principal component of BRDB activities is to implement, exercise and nurture the nationwide two-tier cooperative system. Among the activities of BRDB organizing rural people training, awareness raising, mobilization and management of local resources, micro-credit operation as capital support etc. are the foremost. BRDB links the rural people with the outside stakeholders such as service providing NBDs. Along with the mainstream activities, BRDB formulate and implements various projects following the national and international plans and policies. BRDB also implementing honorable Prime Minister promised 3 projects in some relatively poor districts located northern and southern regions of the country. As well as, BRDB is working as a ‘Leading Agency’ in implementing honorable Prime Minister Brainchild ‘One House One Farm’ project. BRDB is on way to build happy and prosper ‘Sonar Bangla’ through self-reliance of the rural people.

The services of BRDB are being gone under continuous evaluation and research to improve its quality and quantity as well. The maneuver of BRDB brought noteworthy positive changes to the rural community through livelihood development, community capacity development, socio-economic development, leadership development and building social capital. Besides, it is encouraging that BRDB is promoting innovative ideas to introduce its strategies for sustainable rural development. BRDB is engaged diligently to continue the trend of socio-economic development of the country and to ensure the sustainable development through implementation of policies adopted by the government for rural development to achieve middle income status of the nation as per development goal 2021.

2.2 Existing Services

- To create organizational structure by organizing rural mass people in to primary cooperative societies/rural development groups;
- To assist primary cooperative societies/rural development groups & UCCAs to be establish as autonomous and financially sustained body in a view to increase production and create employment opportunity to ensure rural development;
- To encourage primary cooperative societies/rural development groups to increase income and employment opportunity for rural poor people;
- To improve intensive agriculture depending on skill management of underground and surface water for irrigation through primary cooperative societies/rural development groups;
- To assist rural people to pursue institutional credit and use of credit money in income generating activities and accumulate capital through primary cooperative societies/rural development groups;
- To encourage to transform UCCAs and rural development groups as a service providing platform specially for agriculture input supply and marketing of agriculture and non-agriculture products;

- To manage training for members of cooperative societies and UCCAs as well as ideal farmers in agriculture activities and rural development initiatives;
- To maintain a bridge among cooperative societies/UCCAs, concern ministries/divisions and organizations to provide service, supply and cooperation;
- To submit projects/programmes to the government according to objectives of the board and implementation of projects approved by the government;
- To deploy evaluation team and research institutions to evaluate the activities and to find out hindrance to achieve the objectives of the projects/programmes implemented by BRDB;

The actual beneficiaries are rural poor people who need socio-economic development. Current service operational status is:

- Number of yearly Service Delivery(Average) : 25,00,000 People
- Number of Service Delivery Offices : Upazila-482, District-64 and HQ-1
- Service Delivery Office Names : BRDB and its subordinate offices
- Current Fee : No user fees
- Number of Days Required : 365 days
- Number of Visit Required : According to number of visitors

2.3 Problems and Challenges

- **Beneficiary's harassments** : Beneficiaries do not get the desired services in their required time as per need. They do not get individual loan
- **Delay in file management** : Manual file processing makes unnecessary delay
- **Lack of manpower** : Manpower shortage hinders smooth service to people
- **Physical access to office** : Beneficiaries have to come long distance offices physically to get services
- **Document** : Beneficiaries have to submit huge documents for every time of loan receive
- **Connectivity** : Rural people has very limited access to internet to avail the e-services
- **Motivation** : Employees' attitude is to hinder with traditional systems
- **Beneficiaries expectations** :

3. Proposed e-Service

3.1 e-Service Objectives

- **Service recipient**
 - Beneficiaries will get the desired services in time as per need
 - Unemployment problem of the rural area will be reduced
 - Skill development for rural people will be ensured by training
 - Financial capability will be increased at optimum level
 - Socio-economic condition of the rural people will be uplifted
 - TCV will be reduced for beneficiaries
 - Quick delivery of services
- **e- Service operators(service provider)**
 - Easy documentation by operating officials
 - Transparency and accountability in service delivery will be increased
 - Quick and transparent delivery of service to next higher and lower levels
 - Tracking will be easier for smooth operations
 - Operating cost will be reduced
- **e- Service observers (service performance monitoring authorities)**
 - Prompt monitoring and quick decision making approach
 - Direct feedback to any level of officials

3.2 e-Service Scope

- **Service recipient**
 - Beneficiaries can apply through online for all type of services provided by BRDB without harassment and unnecessary delay
 - e- Service will notify for services to the Beneficiaries
 - Beneficiaries can track their application through e-services
 - Beneficiaries will get information about their share & savings, loan status, training etc.
- **e- Service operators(service provider)**
 - e-Documentation will be kept as backup in real time
 - Hassle-free file movement to the staffs for smooth e-service operations
 - Spontaneous Beneficiaries feedback in 24/7 days

- **e- Service observers (service performance monitoring authorities)**
 - Decision makers can monitor day to day operations and guide them if any unnecessary delays
 - End user commitment through e-services

4. e-Service Functional Requirements

4.1 Solution Architecture

Solution architecture is expected to define and describe an architecture of the proposed e-Service Solution in the context of the mentioned prevailing service delivery process i.e. e-Beneficiaries Management System of BRDB. The solution architecture should assist in the translation of the service to e-Service transformation requirements into a solution vision, high-level operations and/or ICT application specifications and a portfolio of implementation scope. The expected architecture of a solution, where the solution is a e-Service system that should offers a coherent set of functionalities to its environment. As such, it should concerns those properties of a solution that are necessary and should be sufficient to meet its essential requirements. The vendor shall propose a comprehensivesolution architecture on e-Beneficiaries Management System of BRDBwhich may cover the following items in their descriptive and diagrammatic presentation

- Goals/Results
- Service Recipients
- e-Service Operators/User (Service Providers)
- e-Service Observers (Service Administration and Performance Monitor)
- Database application components
- Entity application component:
- Utility component
- System federation (Systems to be integrated)
- Process application component
- Interaction application component
- Application
- Accessible Points
- Networks
- Types or Layers of Service Delivery Points
- Hosting Site

4.2e-Service Functions and Features

A. Information Service

| System features | Description |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Push pull SMS or USSD based information service | <ul style="list-style-type: none"> Beneficiaries should be able to collect basic necessary information such as service list, required documents list for service and his capital & loan status through mobile phone. |
| IVR based information service | <ul style="list-style-type: none"> Beneficiaries should be able to collect basic necessary information such as service list, required documents list for service and his capital & loan status through mobile phone |
| Web portal for information service | <ul style="list-style-type: none"> Beneficiaries should be able to collect necessary information such as ongoing projects, services list, required documents list, application form, application procedure, download necessary documents, rules and regulations, application form, his capital and loan status etc. through desktop/mobile phone |
| Mobile apps for information service | <ul style="list-style-type: none"> Beneficiaries should be able to collect necessary information such as rules and regulation, service list, required documents list for service, application form, application procedure, download laws, rules and regulation, application form, his capital and loan status etc. through tab/mobile phone |

B. Pre-Membership Assessment System

| System Features | Description |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Online Pre-Membership Assessment form submission | <ul style="list-style-type: none"> Rural People/Field officials should be able to submit prescribe Pre-Membership Assessment form through database http://database.brdb.gov.bd/localoffice/beneficiarydata which will link/verify NID from Election Commission Database and integrate to UDC Rural People/Field officials should be able to verify application related information System will generate ApplicationID and notify Beneficiaries/Field officials via SMS/Email with printing option |
| Pre-Membership Assessment | <ul style="list-style-type: none"> Service provider will be able to process assessment form through online Priority list will be generated Notify Primarily selected Rural People via SMS Membership consent will be taken |
| Application Tracking | <ul style="list-style-type: none"> Rural People/Field officials should be able to know the current status of Membership Assessment with unique application ID through online/SMS |
| Dashboard/Reports | <ul style="list-style-type: none"> Competent Authority should be able to monitor application |

| | |
|--|--------------------------------------------------------------|
| | processing, time, schedule etc. on display/printable report. |
|--|--------------------------------------------------------------|

C. Society/Group Formation System

| System Features | Descriptions |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Society Formation | <ul style="list-style-type: none"> After consent society will form by the members Society Mobilization (Group meeting notification meeting attendance, time and schedule, resolution preparation) Society/Group approval by competent authority with integration to www.nothi.gov.bd Society/Group approval information will be given to both members and group manager |
| Dashboard/Reports | <ul style="list-style-type: none"> Competent authority should be able to monitor society mobilization, time and schedule etc. display/printable report Beneficiaries/officials will be able to see different types of reports/printable report |

D. Capital Formation (Savings & Share) System

| System Features | Description |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capital Formation | Beneficiaries will <ul style="list-style-type: none"> Capital deposit Interest calculation Withdrawal Integrate with government payment gateway View Reporting |
| Dashboard/Reports | <ul style="list-style-type: none"> Competent authority should be able to monitor capital formation, time and schedule etc. on display/printable report Beneficiaries will be able to see different types of individual reports/ printable report |

E. Training Management System

| System Features | Description |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Training Management | Beneficiaries will <ul style="list-style-type: none"> Online application form for Beneficiaries Prepare training e-Calendar e-Approval by authority with integration to www.nothi.gov.bd Beneficiary will receive SMS notification regarding training Conduct training |
| Dashboard/Reports | <ul style="list-style-type: none"> Competent authority should be able to monitor training formation, time and schedule etc. on display/printable report Beneficiaries will be able to see different types of training formation, time, schedule etc. on display/printable report |

F. Loan Management System

| System Features | Description |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loan Disbursement | <p>Beneficiaries will</p> <ul style="list-style-type: none"> • Online application form for Beneficiaries • Online recommendation by group managing committee • e-Recommendation by ARDO • e-Approval by authority with integration to www.nothi.gov.bd • Payment integration with e-KPAY (national payment gateway) • Beneficiary will receive notification regarding loan disbursement by SMS • Disbursement through bank |
| Loan Recovery | <ul style="list-style-type: none"> • Beneficiary will receive notification regarding loan installment payment by SMS • Loan installment deposit by mobile/bank/UDC etc. • Notify to defaulters |
| Dashboard/Reports | <ul style="list-style-type: none"> • Competent authority should be able to monitor loan disbursement and recovery, time and schedule etc. on display/printable report • Beneficiaries will be able to see individual reports/ printable report |

4.3 Users and User Roles

| Type of Users | User Title | Number of Users | Location | Major Role |
|--------------------------|------------|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| e-service operator | FO | 8000 | 482 upazila | <ul style="list-style-type: none"> Check pre-assessment information, Primary member selection, Group mobilization information, Savings and credit collection, Credit disbursement and recovery information etc. Check Training info Check application information and documents list |
| e-Service Administration | Accountant | 482 | 482 upazila | <ul style="list-style-type: none"> Check Group mobilization information, Savings and credit collection, Credit disbursement and recovery information, Check Bill and vouchers Check application information and documents list Check statement of previous collections |
| | ARDO | 482 | 482 upazila | <ul style="list-style-type: none"> Check pre-assessment information, Primary member selection, Group mobilization information, Savings and credit collection, Credit disbursement and recovery information Check Training info, Check Bill and vouchers Check application information and documents list Verify the files and forward to upper desk Recommendation for approval of the groups Recommendation in loan files Ensure loan disbursement Recommendation in capital withdrawn files Comments on the files and upward or down the file |
| | URDO | 482 | 482 upazila | <ul style="list-style-type: none"> Check pre-assessment information, Primary member selection, Group mobilization information, Savings and credit collection, Credit disbursement and recovery information |

| Type of Users | User Title | Number of Users | Location | Major Role |
|---------------|----------------------------|-----------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | <ul style="list-style-type: none"> • Check Training info • Check Bill and vouchers • Check application information and documents list • Conflict solution • Verify the files and forward to DD (If applicable) • Recommendation for approval of the society (Cooperative society) • Approval of groups (Non-formal society) • Approval in loan files (As per loan committee decision) • Ensure loan disbursement • Approval of capital withdrawn files • Approval in the others files • Forward file to downward |
| | AD | 30 | 01 offices | <ul style="list-style-type: none"> • Report collection and monitoring • Prepare list for loan Fund transfer (primary selection) • Prepare list for Training fund allocation (primary selection), Prepare training module, Training reports collection |
| | Deputy Director (District) | 64 | 64 offices | <ul style="list-style-type: none"> • Check Group mobilization information, Society and group list view, Savings and credit collection and withdrawn, Credit disbursement and recovery information • Check Training info • Check Bill and vouchers • Monitoring • Initiatives for conflict solution • Approval in loan files • Forwarding proposals of upazilas to HQ • Recommendation on all activities of upazila to higher authority of HQ |

| Type of Users | User Title | Number of Users | Location | Major Role |
|---------------|----------------------|-----------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Deputy Director (HQ) | 15 | 01 offices | <ul style="list-style-type: none"> Group mobilization information, Savings and share collection& withdrawn, Society and group list view, Credit disbursement and recovery information Check Training info, Scrutiny training module, Prepare Training fund allocation list upazila wise, Training report collection Conflict solution Forward of the files to joint director (If applicable)forprimary selection of upazila for Fund transfer Forward approved Fund allocation (upazila wise) |
| | Project Director | | | <ul style="list-style-type: none"> Check pre-assessment information, Primary member selection, Group mobilization information, Savings and credit collection, Credit disbursement and recovery information Check Training info Check Bill and vouchers Check application information and documents list Conflict solution Verify the files and forward to DD (If applicable) Recommendation for approval of the society (Cooperative society) Approval of groups (Non-formal society) Approval in loan files (As per loan committee decision) Ensure loan disbursement Approval of capital withdrawn files Approval in the others files Forward file to downward Group mobilization information, Savings and share collection & withdrawn, Society |

| Type of Users | User Title | Number of Users | Location | Major Role |
|---------------|---------------------|-----------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | <p>and group list view, Credit disbursement and recovery information</p> <ul style="list-style-type: none"> • Check Training info, Scrutiny training module, Prepare Training fund allocation list upazila wise, Training report collection • Conflict solution • Forward of the files to joint director (If applicable) for primary selection of upazila for Fund transfer • Forward approved Fund allocation (upazila wise) |
| | Joint Director (HQ) | 5 | 01 offices | <p>02 Check Group mobilization information, Society and group list view, Check Savings and share collection & withdrawn, Check Credit disbursement and recovery information,</p> <p>03 Conflict solution</p> <p>04 Forward of the files to director (If applicable) for Primary selection of upazila for Fund transfer</p> <p>05 Forward Prepared Fund allocation proposal to director (upazila wise)</p> <p>06 Approval of files as per power delegation</p> <p>07 Forward file to downward</p> |
| | Director (HQ) | 5 | 01 offices | <ul style="list-style-type: none"> • Check Group mobilization information, Check Savings and share collection & withdrawn, Check Credit disbursement and recovery information, • Conflict solution • Forward of the files to DG to select upazila for Fund transfer • Forward of the files to DG to approve upazila wise Fund allocation • Check Training info, Recommendation in Training fund allocation (upazila wise), Training report finalization, Recommendation for final approval for DG to release training fund, Finalize training module • Approved the files and letter send to Field |

| Type of Users | User Title | Number of Users | Location | Major Role |
|--------------------|------------|-----------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | offices <ul style="list-style-type: none"> Comments in the files and upward or down the file Forward file to downward |
| e-Service Observer | DG | 01 | 01 offices | <ul style="list-style-type: none"> Give the final approval/comments Monitoring all activities |

Vendor should submit a comprehensive plan and approach covering different types of users and their roles providing accessibility, privacy, confidentiality and transparency based on the given statics. Also have to mention the user friendliness login system.

Special note: Who has the e-Filing integration option:

If the proposed e-Service application needs to integrate and interoperable with government prescribed e-Filing system (a2i e-Filing) then vendor should have design the seamless, smooth and user friendly single login system.

4.4 Security and Privacy Requirements

The vendor should submit an extensive and complete security and privacy plan for this e-Service application considering the following issues

- Project technical scope
- Functional and nonfunctional requirements and ultimate objectives
- Concerned service provider organization's operational environments and capacity
- User roles – Accessibility, Authorization and Accountability
- Importance of data management
- Technologies to be used for development & run
- Hosting
- Client and service side
- Overall standard application security requirements.

Apart from these, the vendor should keep in account the following considerations also as well as vendor should provide a checklist based on system and hosting security plan (i.e. fraud, hacking, money laundering etc.) & have to provide the test report of that checklist.

4.5 Integration Requirements

As a government system or e-Service application, integration with the required and other prescribed national system is very important and essential. Only by proper integration making interoperable, an e-Service application can drive the ultimate citizen benefits with the

optimum use of technology from service to e-Service transformation. Here vendor should come up with an integration plan in their technical proposal considering and understanding the scope of the e-Service application as per this TOR. The possible integration scopes of this e-Service application are mentioned below as reference for the vendor.

1. Integration with election commission for NID
2. Integration with <http://database.brdb.gov.bd> and <http://mis.brdb.gov.bd/>

4.6 Hosting Requirements

Bangladesh Government is providing an extensive and standard hosting facility for all types of government organization applications and software that is named as National Data Center under Bangladesh computer council (BCC). It may be mentioned here that the vendor developed application will be hosted in government provided data center i.e. National data center (NDC) or BRDBown data center. Therefore, at this stage, vendor is requested to submit a preliminary hosting plan for this e-Service application considering the issues mentioned below-

- Hosting requirement /environment (hardware, servers, network, security, storage, traffic, firewall, bandwidth etc.)
- Hosting architecture
- Data growth and scalability plan
- User handling/load balancing mechanism
- Licensing issues
- Scheduled backup & restore requirements
- Disaster recovery requirements
- Monitoring tools requirements

5. e-Service Non-Functional Requirements

5.1 Application Compliance Requirements

5.1.1 Web Application

- The application which is a web based solution, has to be hosted in a centralized Web-server
- The application should be developed following Service Oriented Architecture (SOA)
- Application should support MVC framework.
- Considering the operating/client environment at different level of this application, it should be developed in such a way so that it requires low bandwidth to run.
- The web-based application should support cross browser platforms (popular web-browsers such Mozilla Firefox, Opera, Chrome, Internet

- Explorer, Safari etc.)
- Should have ability to seamless integration with future module/components/applications
- Application should be lightweight and rich client-side scripting
- UI should be developed based on the analysis of UX.
- Any web interface of this application should be fully responsive

5.1.2 Mobile Application Requirements

- The mobile application version of the system should be developed for Android and Ios.
- The mobile app should have capability of displaying system notifications
- Functionality for registration options for service recipients
- App should enable compact view of services for service recipients.
- There should be an option to auto synchronization with the central database with apps local database on the availability of the Internet connectivity.

5.2 Sizing, Performance and Scalability Requirements

- The system shall be capable of handling online functionalities for a database of at least 25,00,000/year service recipients and in terms of service provide 550 Offices and 1000 System Users.
- The system processing shall be scalable to support the volume estimates for a period of 10 years at a 20% annual growth rate.
- The system shall be designed to handle estimated 10,000 simultaneous connection (online users) when it is ultimately rolled out.
- The vendor must conduct an extensive load testing task taking above factors into consideration and submit a load testing results.
- The database architecture should be such that the system is available to user 24x7x365 days a year without any unapproved downtime.
- Page load time, login response-time, on-click load time for the web application should be less than 3 seconds while this is accessed over the intranet.
- Average transaction response time, on-submit response-time, or any other database access/ search time should be less than 5 seconds when the system solution is accessed over the intranet.
- Considering the network infrastructure challenges in Bangladesh, the solution must support low bandwidth conditions for the services defined in the functional requirements.

- In case of mobile application also, this should support very low bandwidth even in 2G network provided internet bandwidth.
- The proposed solution should be highly scalable to accommodate current and future requirements within the scope of the scope mentioned in the TOR
- Analyze the requirements whether both horizontal scaling (scale-up) and vertical scaling (scale-up) will be required for this e-Service application or not?
- The e-Service application should be provided with appropriate caching mechanism to handle very high-traffic scalability
- The vendor may propose here other relevant measures for the e-Service application scalability.

5.3 Business Continuity

Business Continuity plan will play a very important role by creating the systems of prevention and recovery to deal with potential threats and risk of the e-Service operation. Vendor is requested to propose a Business Continuity Plan for this e-Service application. Regarding business continuity you may take in account the followings issues if applicable or suitable for this e-Service Application

- All standard backup facilities should be supported by the system which can be started with disk based backup facility, gradually moving to Storage Area Network (SAN) based backup system.
- Data and the Operating system core component will be separated. A ghost image of the Operating system will always be available in case of rebuilding the server. All data can be restored in the data drive once the Operating System is restored.
- System can also have an automated Backup mechanism by which users can schedule the backups and the system will take the backups without manual intervention.
- System must check for the media and generate a report on backup with date time and details of backup.
- If a restoration fails for any reason, the system should prompt with proper error messages and suggest what has to be done to rectify the situation via on-screen, logs, email and text messages.
- System should maintain an automated recovery system and all versions of backup will be maintained. At any given point in time, the versions and incremental backup details can be retrieved from the system.
- The system may be hosted in virtual servers or containers. A restore of a virtual server/container is much easier and faster compared to a single host server.

5.4 Interoperability and Data Exchange

The selected vendor must develop this e-Service system following all the standards and protocols of interoperability, integration and data exchange with other systems. It is expected that the system will be based on open architecture and will be fully interoperable with the current and future systems.

The following are the key expectations on interoperability requirements:

1. The system should be designed for interoperability using industry standard protocols.
2. System must expose data by Advanced Message Queuing Protocol and REST via TLS
3. All imported data must undergo data validation to ensure full integrity.
4. Data exchange within the system at different levels via the internet shall be encrypted.
5. The system should have functionality to exchange data with other own systems or external institute systems.
6. The system shall have functionality to export/import files based on the standard template defined through web services and/or API

Full API documentation must be provided so that third party integrators can integrate their system with this system.

5.5 System Audit

This e-Service system will maintain an audit trail of any changes or updates made in any information that are considered as vital and should maintain the audit log with information such as

- Log the users who are accessing the system
- Log the parts of the application that are being accessed
- Log the fields that are being modified
- Log the results of these modifications
- Log attempted breaches of access
- Log attempted breaches of modification rights

- Timestamp.

Ensure an audit trail is kept for all transactions and all audit transactions logged are kept on the trail file or trail database from where system can generate different audit reports as and when required.

5.6UI/UX.

The vendor must propose a UI/ UX plan containing UI designing method and tools, prototype or Mockup design (if applicable) , UI review method , process for study and analyze UX , collaboration of basic web and mobile UX issues and expected result and outcome of UX, finalizing the UI/UX design. Apart from this, the vendor should consider the following issues as requirement at the time of UI/UX plan.

- The system interfaces should be highly user friendly, easy to navigate and ensure fast loading.
- The UI shall design by using well-established, supported and lightweight UI framework so that it follows widely used industry flow patterns
- UI shall be easily configurable if any changes are needed
- Menu, content and navigation shall be based on the user entitlements, roles and permissions.

5.7Language Support

The e-Service system should support multilingual option i.e. Bangla and English for both the Web version and Mobile Apps. All the user interfaces will be able to display and input controls can take input both in Bangla and English. System/App users can choose and set his/her preferred language in profile setting for the system interfaces. The system should support Unicode for the Bangla Language.

5.8Accessibility

Vendor must develop this e-Service application ensuring access for the citizen (Service Recipients) with disabilities in different standard accessible formats. e-Service application should be developed in “universal design” and “assistive technologies”. Accepting and facilitating the use of sign languages, augmentative and alternative inputs and all other accessible means, modes and formats for inputs and outputs as per their choice by “Service Recipients” with disabilities; All e-service features (Web application or Mobile Application) should be usable with the help of screen reading software by the service recipients with disability

5.9 Coding Conventions

The vendor must follow the standard coding styles to produce high-quality code for further uses of the code in terms of reusability, refactoring, task automation, language factors etc. The vendor should submit a standard coding convention approach, which may include different conventions like commenting, indent style, naming etc. following the best coding practices.

5.10 Documentation

Detail and proper documentation of such ICT based project like e-service application development and implementation for Government is very vital and essential. Documentation is required for any such project as reference, knowledge transfer, analysis of development and implementation history, baseline information for any modification or change, guidance etc. In this issue, Vendor should show highest level of professionalism for delivering the standard documentation approach at each phase of e-Service development and implementation project. Vendor should include an extensive documentation plan of this project in their technical proposal, which may cover the followings

- Documents titles phase or activity wise
- Purpose of document
- About the format of documents (if possible only index or fields)
- Type of expert and skilled resource will be used for documentation
- Document priority and dependency
- Time requirement for preparation (If applicable)

5.11 Tools and Technologies to be used

Vendor is recommended to choose the appropriate tools and technologies to be used for the development and implementation of the e-Service application. The selected vendor has to consult with a2i and BRDB to finalize the tools, technologies, framework and platform with the approval of same authorities consent.

The main components of the software will be web based application. It should be run in Windows/Linux/Osx operating system at user end and should be compatible to all major browsers such as – Internet Explorer, Firefox, Google Chrome, Opera etc.

The System UI should be compatible with Tab & Smart Phone browsers and in case of Mobile Apps should be support both Android and IOS

Understanding the details scope of this project, vendor is requested to submit a comprehensive plan in their technical proposal following the table format mentioned below

| Issues/Phases/Purpose | Used Technology/ Tools | Justification for use | Alternative Tool/ Technology |
|--------------------------------|---------------------------|--------------------------|---------------------------------|
| Project Management | | | |
| Version Control | | | |
| System Requirement Analysis | | | |
| System Design | | | |
| Development (Client end) | | | |
| Development (Server end) | | | |
| API/Web services | | | |
| Apps | | | |
| Testing | | | |
| Integration | | | |
| Hosting & Deployment | | | |
| Documentation | | | |
| QA | | | |
| Helpdesk/Support | | | |
| Reporting | | | |
| Communication | | | |

5.12 Quality Attributes and Assurance

The Quality attributes and Assurance plan will describe the standards, processes and procedures in this e-Service application development life cycle which will be used to support the consistent delivery of high-quality, professional standard e-Service application and services provided in the support of an automated environment. The quality assurance process will be concerned with establishing the authority of the QA function, quality assurance standards, procedures, policies, and monitoring, and evaluation processes to determine quality in relation to established standards. Quality assurance activities will concentrate on the prevention of problems through the continuous improvement of processes.

In order to provide high quality products and services, each support team will adhere to processes, procedures and standards. Quality Assurance (QA) is a process used to monitor

and evaluate the adherence to processes, procedures, and standards to determine potential product and service quality. It will involve reviewing and auditing the products and activities to verify that they comply with the applicable procedures and standards, and will assure the appropriate visibility for the results of the reviews and audits.

The vendor is requested to provide an extensive Quality Assurance plan with measurable attributes for each phases of this e-Services development life cycle in their technical proposal.

5.13 Copyright

BRDB shall be entitled to all proprietary rights including but not limited to patents, copyrights and trademarks, with regard to many Vendor.

All kinds of source code including code documentation and other approved documents (all versions trail, products , developed applications, documents and all kinds of deliverables which bear a direct relation to or is made in consequence of the services provided by the vendor under this scope of this TOR.

At the request of the BRDB the vendor shall assist in securing such property rights and transferring them in compliance with the requirement of the applicable law. After the completion of the project such rights will be handed over to the BRDB that will be produced at the time of entire system development and implementation life cycle under the scope of this TOR will be owned by BRDB

The vendor should properly deliver all the entire approved source codes and other deliverables to the BRDB. The vendor cannot claim any royalty or authority of any sort in case of replicating the source code or database or any other deliverables under this TOR for any future use that BRDB and the Government of Bangladesh may see fit.

Any studies, documents, reports, graphics or other material prepared by the vendor for this project under this TOR shall belong to and remain the property of BRDB.

6. Scope of Work

6.1 Development and Implementation Methodology

Development methodology i.e. SDLC plays a very important role to clear the ultimate project objectives precisely, to stable the project requirements, to monitor the progress with measurable deliverables and managing the entire project efficiently. Here the vendor is requested to propose and submit a best possible suited SDLC approach for this project considering the project scopes, requirements of e-Service, objectives, organizational environmental factors and behavior, project timeline, ultimate deliverables and various resources to be used.

6.2 System Requirement Analysis

Requirements finalization will be a very important milestone of vendor's proposed

development methodology. It is expected that, the selected vendor will carry out detailed requirement study and analysis on the each and every scope of e-Service that mentioned in the TOR. Under this scope of work, the selected vendor has to analyze the detail functions, processes, documents, actors, sites and infrastructure of the relevant prevailing system precisely of the concerned organization. At this phase, vendor's ultimate objective will be finalization of the e-Service requirements in details under the scope of TOR and approval of the concern organizational authority. Here vendor is requested to propose and submit a system requirement analysis plan which should cover the scope of work at this phase, relevant activities to be performed, timeline, deliverables to be produced, dependencies and resources to be used.

6.3 System Design

At this phase, the detail functional scope defining and designing as per the standard of software engineering approach for the proposed e-Service system tasks are being performed. This is very vital and important phase of any SDLC. Considering the ultimate development and implementation scope, the proposed system design should be robust, scalable, user friendly and interoperable enough.

At this system-designing phase, vendor may performs following designing related task and will produce various standard System Designing Documents (SDD):

- Identifying module, components, tasks, I/O and functional features
- Specifying technical and functional requirements
- User Interface design
- Description of UI and requirements
- Preparing the use cases
- Defining Integration and interoperability scope
- Designing system architecture
- Determine process and data flow
- Database design
- API design
- Finalizing tools, technologies and frameworks to be used etc.

Here vendor is requested to cover details system designing plan in their technical proposal, which may include relevant activities, approaches, methods, documentations and deliverables.

6.4 Development

At this stage, vendor must take prior acceptance or approval from the concerned authority on tools, technologies and framework that will be used for the development of the e-Service application. Based on approved SRS and SDD, vendor will prepare a comprehensive development plan for the e-Service Application which should include a schedule consisting development item wise start date, test date, review date, completion date etc. At the development stage, vendor must follow the standard code convention, code level documentations, header of each file, algorithms, interfaces, code compression and APIs should be supplied with proper description and documentations. All kinds of standard testing tasks that are required to be performed at the development phase, should be mentioned in the plan. Considering the scope mentioned in the TOR for this e-Service application, vendor is requested to include a preliminary development plan (standard approach) in their technical proposal.

6.5 Integration

Considering the above mentioned Integration requirements and scopes for this e-Service application, vendor must include a phase in their proposed development and implementation methodology approach. At this stage, the vendor will perform all necessary tasks regarding integration to make the e-Service application interoperable.

6.6 Testing

The vendor must propose a testing plan for this e-Service application starting from development to deployment. This testing plan should cover all the standard suitable testing approaches for this e-Service application which may include phase wise testing activities like test scripting, test cases, testing tools, testing process, test log, result and report formats i.e. expected test deliverables based on the application development requirements. The vendor should submit testing plan which may include standard test approaches. Some are mentioned below as examples for reference

- Unit Test
- Functional Test
- Installation testing
- Compatibility testing
- Smoke and sanity testing
- Regression testing
- Stress Testing

- Acceptance testing
- Alpha testing
- Beta testing
- Functional vs non-functional testing
- Continuous testing
- Destructive testing
- Software performance testing
- Usability testing
- Accessibility testing
- Security testing

6.7 Hosting

Vendor should submit primary hosting requirements for this application related to hardware, servers, network, security, storage, traffic, firewall, bandwidth etc. i.e. complete hosting infrastructure that will be required for their developed application hosting considering the implementation scope. Based on their submitted requirements, regarding hosting BRDB will provide detail hosting infrastructure, facility and environment.

6.8 User Acceptance Test (UAT)

User Acceptance Test (UAT) is a very vital and essential phase in the e-Service development lifecycle. At this phase, all types of users must test the developed e-Service application by themselves and have to provide a details feedback/ test report . Based on the UAT report, vendor has to update the application accordingly to ensure user satisfaction by making it more user friendly. Here, it is expected that, considering the type of users and their role in the e-Service application, the vendor must propose a comprehensive UAT plan in their technical proposal which may cover the followings:

- UAT activities to be performed (planning, designing test cases, selection of testing team, Executing test cases and documenting, Bug fixing, sign-off etc.)
- Types of user wise roles and test items distribution
- resource requirement,
- activity wise time requirement
- activity wise test case , test results/ deliverables
- detail user feedback / test reports
- System update plan

6.9 Management and Migration of Legacy Data

Under the process of service to e-Service transformation, during e-Service activation or deployment, it may be necessary to move the legacy data of prevailing services. In this case,

vendor may require to perform different relevant activities that may include data collection, softcopy conversion, data filter, data cleansing, data verification, data process, data entry, data migration and overall data management. Here, it is expected that, the vendor will propose their detail data management and data migration plan for this e-Service application considering the estimation of legacy data mentioned below which will be required to migrate into the developed application.

The plan may cover amount of data to be migrated, activities to be performed, amount of resources to be used, required time for different data migration phases for different activities (data collection, hardcopy to softcopy conversion, data entry, data transformation from soft copy, data filtration, data cleaning, data verification) etc.

6.10 Deployment and Implementation

This is the phase of SDLC , when the consent is being given to “GO LIVE” of the developed system after completed all kinds of development integration , testing and hosting. This is very crucial and sensitive stage for a Government application because at this stage the system becomes public and expose to access towards all levels of users. The Pilot or full scale implementation period starts formally in this stage only. Vendor is requested to propose their deployment and implementation plan covering the major activities to be performed , the deliverables to be provided etc.

6.11 Training and Knowledge Transfer

- The vendor must propose a detail training plan for the users of the e-service application.
- The vendor should include necessary training methodology , documentation and training materials support in their training plan
- The training materials may include user manual ,administration manual, quick start tutorial, online help, frequently asked questions
- The training plan must describe the sequencing, time, duration and resources involved in implementation of each of the consultant’s proposed training activities.
- The training plan should contain full course descriptions for all courses that to be carried out for respective users.

- The vendor should develop multimedia training materials for all users. These materials shall be available for viewing and reviewing for all users through a web portal.
- The training instructions should support both English and Bengali language.
- The training activities should cover the training feedback, evaluation and report also.
- The vendor also need to propose their smooth , efficient and effective knowledge transfer idea and plan here in this technical proposal with the training plan.

6.12 Maintenance and Support Service

The selected vendor has to provide a period of 03 years maintenance and support service. After the development and deployment phase when the implementation period starts the vendor has to provide maintenance and support service for the 03 years. Here it is expected that, the vendor must provide a detail maintenance and support service plan in the technical proposal, which may include the followings:

- Support service types and mode of services
- Service desk functionalities
- Configuration management
- Change management
- Service layers for support
- Tools will be used for Support service management
- Communication management and modality

- Release management
- Incident management
- Problem management
- SLA (Service Level Agreement)
- Maintenance and support service related reporting
- Support service types
- Service Log Management

Apart from the above mentioned issues, if vendor thinks any other issue to be included in their plan, it would be considered as added value addition.

6.13 Duration of the Project and Work Station

The selected vendor will need to work for the above-mentioned scope as per approved project management schedule. The selected vendor must complete e-Service application development and deployment i.e. development life cycle as per their proposed development methodology within 02 Years excluding the maintenance and support service period. .

Now here in their technical proposal vendor is requested to propose detailed timeframe plan which may include:

- Total duration of the e-Service application development i.e. e-Service development
- Total duration of the Maintenance and support service at implementation phase
- Proposed SDLC Phase wise and deliverable wise time distribution and duration

- The schedule may cover Activity, Deliverables, Time in Days, Dependencies etc.
- Can be present as table or Gantt chart

6.14 Work Distribution and Team Composition

The vendor is expected to provide work distribution and team composition plan as deemed suited based on this project requirements and milestones and as per their proposed development and implementation methodology approach. The interested applicant (Vendor) should provide a team composition plan in their proposal describing the position, roles, tasks to be assigned, expected man-days of involvement, expected deliverables and required skill and expertise.

However, for proper execution of the project i.e. e-Service application the vendor may include at least the following personnel as minimum requirement

| SL | Cost Center/ Phase | Skill set for individuals/Cost Item | Resource Unit Small | (Man Day) | Unit Cost | Total Cost |
|----|--------------------------------|----------------------------------------|---------------------------|--------------|--------------|------------|
| 1 | Recognition of need | | | | | |
| | | Chief Information Officer | | | | |
| | | Technical Assistant | | | | |
| 2 | Feasibility Study | | | | | |
| | | Business Analyst | | | | |
| | | System Analyst | | | | |
| | | Technical Assistant | | | | |
| 3 | System Analysis | | | | | |
| | | System Analyst | | | | |
| | | Software Architect/Sr. | | | | |

| | | | | | | |
|----|--------------------------------------------|------------------------------------------|--|--|--|--|
| | | Software Engineer | | | | |
| | | Technical Assistant | | | | |
| 4 | System Design | | | | | |
| | | Software Architect/Sr. Software Engineer | | | | |
| | | Programmer | | | | |
| | | Technical Assistant | | | | |
| | | | | | | |
| 5 | System Implementation | | | | | |
| | | Software Architect/Sr. Software Engineer | | | | |
| | | Programmer | | | | |
| | | Software Tester | | | | |
| | | Technical Assistant | | | | |
| 6 | Post implementation and maintenance | | | | | |
| | | Maintenance engineer | | | | |
| | | Support engineer | | | | |
| | | Technical Assistant | | | | |
| 7 | User Training & Deployment | | | | | |
| | | Software Trainer | | | | |
| | | Technical Assistant | | | | |
| 11 | Grand Total | | | | | |

6.15 Expected Deliverables

Considering the scope of service and scope of work of this project and based on the proposed project development & implementation methodology, the vendor has to submit here a complete list of all types of deliverables will be produced throughout the entire project timeline whether those are materials, services, applications, source codes, documents, plans, reports etc. in a table format mentioning the stages, activities and timelines.

Some examples of the deliverables are mentioned here under for your reference.

- Project inception and management report
- System requirement specification (SRS)
- System design document (SDD)
- Complete source code
- Detail source code documentation
- Test plan with test scripts and testing reports
- Technical documentation (system architecture, module integration points, workflow engine, data dictionary, user manual etc.)
- Training plan and reports
- Training materials and user manuals
- Integration plan and reports
- Audit log

- Mobile Application
- Web application
- UAT Report
- Maintenance , agreement & SLA
- Maintenance and support log
- Hosting requirement specification , plan and report
- Implementation plan and report
- HR activity plan and report
- Progress and review reports

7. Conclusion

The ultimate expectation is to automate business functions of BRDB to provide improved services to its beneficiaries without any harassment, to ensure transparency and accountability in service delivery as well as to create a scope of one stop service delivery system through online. Computerized application software along with associated computer network systems has to be designed, developed and implemented for this purpose. The vendor has to ensure that all technical difficulties

should address in professional and effective manner. Finally, vender has to obtain completion certificate from BRDB before handing over the system to BRDB. Following payment settlement, the authority (BRDB) will own the copyright on all of the work designed and developed.

Abbreviations:

| | | |
|--------|---|------------------------------------------|
| AD | : | Assistant Director |
| ARDO | : | Assistant Rural Development Officer |
| BRDB | : | Bangladesh Rural Development Board |
| DG | : | Director General |
| e-KPAY | : | National payment gateway |
| FO | : | Field Organizer |
| HQ | : | Head Quarter |
| ICT | : | Information and Communication Technology |
| ID | : | Identification |
| IRDP | : | Integrated Rural Development Program |
| IVR | : | Interactive voice response |
| NBDs | : | Nation Building Department |
| NID | : | National Identification |
| SMS | : | Short Message Service |
| TCV | : | Time, Cost & Visit |
| UCCA | : | Upazila Central Cooperative Association |
| UDC | : | |
| URDO | : | Upazila Rural Development Officer |
| USSD | : | |



Terms of Reference (TOR) for e-Beneficiaries Management System of BRDB

