TERMS OF REFERENCE (TOR):

e-License and Food Friendly Program Management System

Prepared By:

Directorate General of Food

16 Abdul Goni Road , Dhaka -1000

Prepared For:

Access to Information (a2i) Program

Prime Minister's office

Table of Contents

1. Background

The Government of Sheikh Hasina has set a mission to turn the country into "Digital Bangladesh", an e-state where all activities of governance would be based on IT and public services would be made online leading desired development and ensuring transparency and accountability. Digital Bangladesh is an integral part of Vision 2021, a pledge for an equitable middle income Bangladesh with peace, prosperity and dignity by its golden jubilee of independence.

Directorate of Food as an attached Department of Ministry of Food is already on the track to replace its traditional manual system of works into digitized system. In order to digitized the operational part of food management specially the existing processes involved in procurement of food grains from growers, movement of the stock from one place to another and delivery to different channel through Public Food Distribution System (PFDS) are being analyzed for IT intervention by an international consultant PWC under the caption of 'Food Stock and Market Monitoring System', a component of Modern Food Storage Facilities Project financed by World Bank.

The Control of Essential Commodities Act 1956 and the SROs made under this act authorizes the Directorate of Food to issue licenses to traders involved in food grain business for regulating storage, movement, transport, supply, distribution, and disposal etc of any essential commodities. All food grain traders including importer, wholesaler, and retailer are legally required to take license from the department and to furnish fortnightly report regularly stating transactions and stocks.

To provide a hassle free window for registration Directorate General of Food wants to make license issuing and renewal system online to attract traders and also contemplates to transform the manual stock reporting system by the licensee into e-reporting and subsequent nationwide auto compilation of stocks. Once the system is put in place, all traders will voluntarily register into license network increasing annual revenue for the government and providing real scenario of food grain transactions in private sectors that would be a great step forward for better food management decisions.

The government has introduced Food Friendly Program (FFP) in 2016 to supply food grain at a very low price to 50 lac poorest families living in the rural areas. The beneficiaries of the program after being enlisted are getting 30 kg rice per month (five months per year) through dealers scattered over almost all Unions at the rate of TK.10 per kg. Directorate of Food wants to make database of the beneficiaries and dealers. It also wishes to have an apps created to monitor lifting of food grain by the dealer and distributions to the consumers.

2. Review of Existing Service

2.1 About the Organization

The present Directorate of Food has its origin in the then "Bengal Civil Supply Department" created in 1943 during the 2nd world war to withstand the Great Bengal Famine. After partition, the department continued as East Pakistan Civil Supply Department and later as Department of Food till 1971 and ultimately culminated in and reorganized as Directorate of Food in 1982. The department is headed by the Director General of Food and deals with the distribution aspects of food grain. The mandate of the department is to ensure food security and safety to all. Food security is about availability, affordability, accessibility and nutrition and the food safety relates to availability and consumption of safe food free from contaminations.

The Directorate of Food distributes food grains at subsidize rate to the uniform personnel and other class of employee to provide them income support and operates open market sale to make food grain available to urban poor at affordable price under monetize channel. Government supplies direct food assistance to safety net program under non-monetized channel which includes VGD, VGF and GR. Directorate use to run and deliver food grains to FFW and TR to mitigate joblessness in lean season and to improve infrastructure.

Focus and Objectives

- To ensure food security.
- To procures food grain from the grower at incentive price during harvesting season
- To maintain a floor price during marketing seasons to ensure growers get minimum price.
- To sustain and maintain a market price affordable by all.
- To import food grain to feed channels and meet the deficiencies between demands and productions.
- To distribute food grains in safety net program including VGD, GR.
- To supply food grains to different channels of PFDS including EP, OP and FFP.
- To operate OMS (Open Market Sale) to intervene markets.
- To build and maintain a satisfactory stock for meeting emergency and natural calamities.

Allocation of Functions

- Management and operation of country's overall food system.
- Implementation of national food policy strategies.
- Establishment of dependable national food security system
- Maintaining uninterrupted supply of food rains
- Watching over food supply position in the Country.
- Procurement and distribution of food grains.
- Supplying food grains through rationing and another channel.
- Ensuring stability in market prices of food grain.
- Preservation of the adequate food reserve and quality of the stock.
- Making food grain available for the ultra-poor and low-income people.
- Maintaining database of the food grain license including rice mill and flower mill.
- Keeping data of the dealers, contactors and the beneficiaries under different program.

2.2 Existing Services

a. **Food Grain License** is a formal and legal permission by the authority to the traders engaged in business relating to food grain which means rice, wheat and wheat based product, soya bin and palm oil, sugar and pulses. Those businessmen including importer wholesaler, retailer, miller and dealer, who trades, keeps and maintains under his possession minimum one ton of food grains are required to get license and renew it yearly according to SROs issued under the power of the

Control of Essential Commodity Act, 1956.

Service Delivery Point: District/Upazila office.
Statistics: Around 40 thousand.
TCV: Time (t): 9-15 days, Cost (c): 1000 Taka, Visit (v): 5-7 times

b. **Food Friendly Program (FFP)** is a recent poor friendly initiative for 50 lac family to provide 30 kg of rice per month per family five month a year at the rate of taka 10 per kg. There have been 10 thousand dealers selected to lift rice from the nearest Godown and to distribute it to the beneficiaries and maintain stock and sales registers.

Service Delivery Point: Upazilla level Office
Statistics: 50 lacs
TCV: TCV is not applicable, but improved quality service compared to VGD, VGF, and OMS etc.

2.3 Problem and Challenge:

a. Foodgrain License

Applicants' Perspective

- No information is available about how to get the license and how much time to have it.
- Encounters difficulties in getting document attested.
- Requires to physically visiting office to submit applications.
- Revisit for getting the treasury code and Challan passed from the office.
- Repeated visit and wasting of time in enquiring the progress of his case.
- No schedule of time to complete the enquiry of the applicant's shop/business house.
- No notification system to inform the status of the application to the applicant.

Traders' Perspective

- Lack of awareness to register license
- Lack of knowledge about relevant acts and laws
- Lack of knowledge about disadvantage of not having license
- Trader to visit concern office several times

Service providers' perspective

- No database of existing license to access and to verify.
- No database of food grain business houses and shops.

b. Food Friendly Program

- Preparing database of 50 lac beneficiaries with photo and other information is a difficult task.
- No database of the poor from which to select names in various safety net programs including FFP.
- No database available to reconcile and check with the enlisted beneficiary of FFP.
- Non-recording of NID number against the name of the beneficiary is a major impediment to cross check with Election Commission NID server.

3. Proposed e-Service

3.1 e-Service Objectives

a. <u>Service Recipient</u>

- Reduce TCV
- Inform status of the application
- Receive food grain License without any hassle

b. <u>e-Service Operators (service provider)</u>

- To increase non-tax revenue.
- To know stock position of food grain and transaction in private sector.
- To make lifting and distribution more transparent and accountable by the dealer under FFP.

c. <u>e-Service Observer (service performance monitoring authorities)</u>

- Can monitor food grain license status at any time
- Can easily monitor food distribution program under FFP.

3.2 e-Service Scope

a. <u>Service recipient</u>

- Can apply online and receive license
- Can submit license fee through online payment system
- License expiration reminder through SMS notification
- Knowing application status through SMS notification
- Getting food distribution schedule (time, venue) through mobile/ UDC

b. <u>e-Service operators (service provider)</u>

- Verify license fee/renewal fee payment status through online
- Check applicant's identity through NID
- Notify application status

c. <u>e-Service observer (service performance monitoring authorities)</u>

- Monitor food grain license status through dashboard at any time.
- Know nationwide stock of food grain and transactions in private sector.
- Watch off take and sales by the FFP dealer and the stock held with them.

4. e-Service Functional Requirements

4.1 Solution Architecture

Solution architecture is expected to define and describe architecture of the proposed e-Service Solution considering the context of the prevailing service delivery process i.e. e-License & Food Friendly Program stated in detail in concerned section. The solution architecture should assist translate the present service into e-Service. It should fulfill the requirement of transformation and accommodates high-level operations and/or ICT application specifications and have a scope of portfolio of implementation. The expected architecture of e- solution should offer a coherent set of functionalities to its environment. It should contain the properties of a solution that are necessary and sufficient to meet its essential requirements.

The Vendor shall propose comprehensive solution architecture on e-License & Food Friendly Program Management System which 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

4.2 e-Service Functions and Features

List of Modules

1. Information Service
2. Online Application for Food Grain License Registration
3. Food Grain License Registration Process
4. Food Stock Management
5. Food Friendly Program Management
6. User Management

Module 1: Information Service

Sl	System Features	Description	Actor	Media
01	Web based information service for Food Grain License	Provide food grain license related information regarding application procedure, application form, payment system, required documents, service receiving place etc.	Service Recipient	Web, Mobile app
02	Web based information service for Food Friendly Program	Provide food friendly program related information, policies, price, beneficiary eligibility, selection procedure, selected beneficiary and dealers list etc.	Service Recipient	Web, Mobile app

Module 2: Online Application for Food Grain License Registration

SL	System Features	Description	Actor	Media
01	Online Application for New License	Traders apply through online for new license with required attachment. Insert all existing licenses data into the system from soft copy.	Service Recipient	UDC, Web
02	Online Application for License Renewal	Traders apply through online for license renewal with required attachment.	Service Recipient	UDC, Web
03	Online Application for Duplicate License	Traders apply through online for duplicate license with required attachment.	Service Recipient	UDC, Web
04	Online License Fee Submission	Traders use e-Payment System to deposit fee for new or duplicate license or for renewal.	Service Recipient	Web, Mobile
05	e-Notification	Auto SMS notification send to trader after successful registration and get a tracking number for monitoring the status.	Service Recipient, System	Mobile, e-mail
06	Application status tracking	Trader can track application status by using tracking number	Service Recipient, System user	UDC, web, mobile
07	Application Sorting	Sorting of received applications according to the area	System user	Web

08	Application Search	Searching desire application from database	System user	Web
09	Dash Board	Real time monitoring and reporting system	System user	Web

Module 3: Food Grain License Registration Process

SL	System Features	Description	Actor	Media
01	Application processing for new license	• Verify application and attached documents (trade license, income tax certificate, applicant identification) by the authority. • Inspect trader's shop/centre and upload inspection report into the system • Process applications through e-Filing (নথি) for approval. • Auto update the approval tag from e-Filing system	System user	UDC, Web
02	Application processing for license renewal	• Verify application and attachment (Scan copy of license to be renewed). • Process applications through e-Filing (নথি) for approval. • Auto update the approval tag from e-Filing system	System user	UDC, Web
03	Application processing for duplicate license	• Verify application and attached documents (GD copy). • Process applications through e-Filing (নথি) for approval. • Auto update the approval tag from e-Filing system	System user	UDC, Web
04	Licensee Profile Management	• Maintain category wise licensee profile information. • Incorporate any changes in the profile of the licensee on his/her application changes	System user	UDC, web
05	License Sorting	Sorting area and category wise issuance of license	System user	Web
06	License Search	Searching desired license from database	System user	Web
07	Dash Board	Real Time Monitoring and Reporting system	System user	Web

Module 4: Food Stock Management

SL	System Features	Description	Actor	Media
01	Licensee Storage Space Management	• Licensee will provide input of their storage capacity information into the system through mobile app	Licensee	Smart Phone/ web
02	Trade Information Management	• Licensee will give input of food grain import information through mobile app • Provide input about fortnightly purchase, sales and unsold stock information • Dash board	Licensee	Smart Phone
05	Notification and Remainder Management	• System will send auto notification to Licensee for inputting fortnightly purchase, sale and unsold stock information into the system	System	Mobile SMS
08	Dashboard	• System will generate different monitoring report	System	Web
09	Archive management	• To store historical data for future use	System	web

Module 5: Food Friendly Program Management

SL	System Features	Description	Actor	Media
01	Beneficiaries data management (NID based)	• Insert exiting Beneficiaries Data into the system from soft copy. • Link beneficiary data with NID server. • Data validation and filtration required. • Provide Card printing facility on the basis of Beneficiaries profile information.	System User	UDC, Web
02	Dealer Information management	• Updating dealer's information and profile.	Dealer, system user	UDC, Web
03	Dealer Beneficiary Service Management	• Dealer wise attachment of beneficiary for distribution of food grain to them according to the policy. • Beneficiary will receive notification through UDC to which dealer s/he is tagged with. • Notify beneficiary in case issuance of new card or cancelation of any card. • Dealer will insert lifting and beneficiary wise sales information into the system through mobile apps. Dealer also can check profile, lifting, distribution and other information through web and app. • Beneficiary can check his/her profile, status, lifting and others information from the system through mobile app.	System user, dealer	UDC, Web, Mobile app
04	Dealer Requisition management (Mobile app, web)	• Dealer will send e-Requisition and deposit the Ex-Godown price of the food grain through e-Payment system and the authority will issue food grain Delivery Order (DO) for lifting from Godwon. • e-Delivery Order (DO) to be issued by the authority.	Dealer, system user	Mobile app, Web
05	Dealer lifting and distribution management (Mobile app)	• During distribution dealer will insert beneficiaries' wise daily sales information into the system	Dealer	Mobile app
06	e-Notification	• Prior to distribution beneficiary will get notifications stating the date of distribution. • After sales, the beneficiary will receive notification confirming actual sale made to him/her, s/he through SMS.	system	UDC, SMS
07	Dashboard	• Dealer wise beneficiary report. • Dealer wise lifting and distribution report • Beneficiary wise sales report • Area wise beneficiary report • Area wise dealer report	System user	Web

08	Archive management	• To store historical data for future use	System	web

Module 6: User management

SL	System Features	Description	Actor	Media
01	User registration	User registration is applicable for the Licensee.	Licensee	web
02	User creation	To create new user to use the system	System admin	web
03	User account management	User can update limited field of information defined by the system.	Licensee	web
04	User role management	• User role will be created by the system admin. • The system admin can change or amend the role privilege given to user.	System admin	web
05	Reports on User Activity	System can generate report on user activity. The system admin will monitor it when necessary.	System admin	web
06	User activity dashboard	To view real time user activity by the system admin	system admin	web

4.3 Users and User Roles

Vendor will submit a comprehensive plan stating types of users and their roles. The plan should provide user's accessibility, privacy, confidentiality and transparency. It should be user friendly login system for the following user:

Types of user	User Titles	Possible number of user	Desk office	User Role
e-Service operator	**License:** Office Assistant-cum-Computer Operator, Inspector,s UCF (Upazilla Controller of Food), ARO (Area Rationing Officer) DCF (District Controller of Food), CCDR (Chief Controller Dhaka Rationing)	1126	Office of the UCF, ARO, DCF and CCDR.	• Receiving applications • Verifying information • E-filling • Approving • Issuing License

Types of user	User Titles	Possible number of user	Desk office	User Role
	License Holder	10,00,000	License Holder	Fortnightly Report Submit
	Food Friendly Program: Computer operator, UCF and DCF	1000	Office of the UCF and DCF	• Verifying information • E-filling • Approving • etc
	Dealer	10,000	Dealers' place	Lifting & distribution information submit
e-Service Observer	UCF, ARO, DCF, RCF (Regional Controller of Food), CCDR, Additional Director, Director, ADG (Additional Director General), DG (Director General) and Secretary, Minister, MoF (Ministry of Food)	596	Office of the UCF, ARO, DCF, RCF (Regional Controller of Food), CCDR, Additional Director, Director, ADG (Additional Director General), DG (Director General) and Secretary, Minister, MoF	• Monitoring food grain license and FFP status
e-Service Beneficiary	Food grain traders (Importer, Wholesaler, Retailer), Dealer, Rice Miller, (Auto, Major, Husking), Flour Miller (Auto, Compact, Roller, and Atta Chakki), FFP Card Holder	51,00,000 (Approx)	Office of the UCF, ARO, DCF and CCDR, others	• Submitting Application • Tracking application status • Receiving License • FFP Card Holder • Traders/Dealers/Millers
e-Service admin	System Admin	5	Directorate of Food	• User account management

Special note:

a)The proposed e-Service application needs to be integrated and be interoperable with government prescribed e-Filing system (a2i e-Filing). The Vendor has to design seamless, smooth and user friendly single login system.

b)If there is any missing of business process or items which are not mentioned in this TOR must be included in this scope of work without any added value.

e) Enter all existing licenses and food friendly program beneficiaries' data into the system from soft copy.

g) All users transaction log management.

h) Mobile apps should be required if not mentioned in right place.

4.4 Security and Privacy Requirements

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

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

Vendor should provide a checklist for the system and hosting security plan (i.e. fraud, hacking, money laundering etc) and furnish the test report of the checklist. Apart from this, the Vendor should keep in mind the following consideration for integrations with the national system:

4.5 Integration Requirements

Integration of e-service application with the other prescribed national system is very essential. Proper integration and interoperability can guarantee government service to citizen. The Vendor is expected to come up with an integration plan in their technical proposal considering as well as understanding the scope of the e-Service application as per TOR. The possible integration scopes of this e-Service application are mentioned below as reference for the Vendor:

Name of the system	Purpose of Integration	Dependent Organization
NID System	Verification of beneficiary identity	Election Commission
e-Trade License System	Verification of trade license	DNCC, DSCC
TELCO	For notification (SMS, USSD)	Tele talk and other mobile operators
e-Filling	For approval	A2i
Payment Gateway	For electronic payment submission	A2i
National Web Portal	e-Service integration	A2i
BBS Database System	For collection population and consumption related information also to fetch data according to criteria of poor and living standard.	BBS
DAE Database System	For collection season wise production (rice, wheat) related information	DAE

4.6 Hosting Requirements

The government organization namely National Data Center (NDC), under Bangladesh Computer Council (BCC) is providing an extensive and standard hosting facility for all government organization's application and software. The application to be developed by the Vendor will be hosted in NDC or organization's own data center.

Therefore, at this stage, the 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 data based 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 51,00,000 (approx.) service recipients and in terms of service provider 560 Offices and approximately 1126 System Users and license holder & Dealer users 1,10,000 (approx.).
- 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 5000 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 24 x 7 x 365 days a year without any unapproved down-time.
- 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 out) 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 propose a Business Continuity Plan for this e-Service application. Regarding business continuity you may take in account the followings issues:
- 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:

a. The system should be designed for interoperability using industry standard protocols.
b. System must expose data by Advanced Message Queuing Protocol and REST via TLS
c. All imported data must undergo data validation to ensure full integrity.
d. Data exchange within the system at different levels via the internet shall be encrypted.
e. The system should have functionality to exchange data with other own systems or external institute systems.
f. 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.

5.6 UI/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.

5.7 Language 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.

5.8 Accessibility

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, Vender is expected the highest-level professionalism for delivering the standard documentation approach at each phase of e-Service development and implementation project. Vendor is requested here to 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 Directorate General of Food 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			
Training			

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

Directorate General of Food 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 Directorate General of Food 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 Directorate General of Foods) 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 Directorate General of Food.

The Vendor should properly deliver all the entire approved source codes and other deliverables to the Directorate General of Food. 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 Directorate General of Food 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 Directorate General of Food like *Scope of the business, BRS, SRS, detail database design, interface design, use case design, activity diagram, relational diagram, QA testing methodology, Training module design etc.*

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

Basically, 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 perform different 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. Must have follow NEA (National Enterprise Architecture). 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 requires for their developed application hosting considering the implementation scope. Based on their submitted requirements, regarding hosting Directorate General of Food 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 details feedback/ test report. Based on the UAT report, Vendor has to update the application accordingly to ensure user satisfaction by making it more users 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 perform (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 performing 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.

Table: Estimation of Legacy Data to be migrated/data entry

Data About	Description	number of pages/fields	current status	amount of data	dependency
Exiting License holder's data	Data Entry should be needed from hard copy	1 page,15 fields and necessary scan copies	Soft copy	70,000	NID

		insert			
FF Beneficiary Data	Food Friendly Program beneficiaries' data migration from hard copies of issuing card	1page, 20 fields	soft copy	50,00,000	NID

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, video tutorial, 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 needs to propose their smooth, efficient and effective knowledge transfer idea and plan here in this technical proposal with the training plan.
- Vendor should arrange TOT course for three days of 70 persons, administrative users training for 5 persons and training for 560 operators. The vendor should also arrange a workshop for 100 persons to share knowledge about the software.

6.12 Maintenance and Support Service

The selected Vendor has to provide a period of 01 (one) year 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 01 (one) year. Here it is expected that, the Vendor must provide 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 08 (eight) months excluding the maintenance and support service period (Total period 20 months).

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

Based on the project requirements the Vendor is expected to provide suitable work distribution and team composition plan commensurate with 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

6.15 Expected Deliverables

Considering the scope of service and work, and basing on the proposed project development & implementation methodology, the Vendor has to submit here a complete list and types of deliverables that would be produced throughout the 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 for reference:

- Project inception and management report
- System requirement specification (SRS)
- System design document (SDD)
- RDBMS design
- 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

Digital Bangladesh being the target, the governments as well as private organizations are on run to get e-system put in place. Automation will surely bring dynamism and efficiency in the government organization and click ease of doing business leading better public services and development.

To ensure regular supply and to keep the market price stable the Government monitors the trading activities of the food grain business in private sector through license and its mandatory reporting system. Digitized system would facilitate better monitoring of market enabling the government to take fast and timely actions. Similarly, database of beneficiaries and related dealers and desired apps under FFP would be a huge achievement towards making a flawless mechanism from lifting to distributions of food grains among the beneficiaries.

The technical proposal should address the issues described in relevant sections properly and contain the solution. A technically sound solution and suitable architecture is very important to us. The Vendor is to come up with all the solutions.