



Terms of Reference (ToR) for Integrated GPF Management System for Dhaka WASA.



Terms of Reference (ToR)
For
Development of Integrated GPF (I-GPF) Management System for Dhaka WASA.

ওয়াসা

Prepared By:
MIS & Billing Department, Dhaka WASA.

Handwritten signature

Handwritten mark

Handwritten signature

Handwritten mark

Handwritten signature



Table of Contents

1. Purpose and Objectives.....	4
1.1 Purpose.....	4
1.2 Objectives	4
2. Scope of Work	5
2.1 Operational Activities.....	5
2.2 Schedule and Financial Operations.....	6
2.3 Reports and Financial Statements.....	7
2.4 Administration Module.....	7
User Management	7
Role & Permission Management	7
System Configuration.....	7
Data Management	8
Audit & Reporting	8
Security & Compliance.....	8
Notifications & Alerts.....	8
Maintenance & Support Tools	8
3. Tools and Technologies:	9
4. Project Implementation Plan:.....	12
4.1 Requirement Analysis & Feasibility Study.....	12
4.2 System Design & Architecture (high Level and Detailed)	12
4.3 Database & Application Development & Integration.....	12
4.4 Testing & Quality Assurance (QA)	13
4.5 UAT and Piloting.....	13
4.6 VAPT Testing:	14
4.7 Training.....	14
4.8 Deployment.....	15
4.9 Go-Live	15
4.10 Maintenance & Support Phase.....	16
5. Expected Deliverables	16
6. TimeLine.....	16
6.1 Development Phase.....	17
6.2 Maintenance & Support Phase.....	17



or







Terms of Reference (ToR) for Integrated GPF Management System for Dhaka WASA.

Training	17
7. Non-Disclosure and Confidentiality Clause.....	17
8. Staffing Requirements:	18
8.1 Development Phase.....	18
8.2 Maintenance & Support Phase.....	19
9. Hardware and SSL Requirements	19
10. Language Support	19
11. Payment Procedure	19
12. Client Services and Facilities:.....	20
13. Deployment Process.....	20
14. UAT and Live System Environment Preparation	20
15. Copyright:	21
16. Professional Staff Qualification.....	21
16.1 Project Manager	21
16.2 Senior Software Engineer:	22
16.3 Domain Expert.....	22
16.4 Business Analyst:.....	23
16.5 Software Engineer —	23
16.6 UI/UX Designer —	24
16.7 DevOps Engineer:	24
16.8 QA Engineer:	25
16.9 Database Administrator (DBA)	25
16.10 Support Engineer —	26
16.11 Technical Document Writer —	26
17. Conclusion	27



1. Purpose and Objectives

1.1 Purpose

The purpose of developing the Integrated **General Provident Fund (GPF)** Management System for Dhaka WASA is to establish a digital, efficient, and transparent platform for managing the provident fund operations of all permanent employees. The system will replace manual processes with a secure, automated solution that ensures accuracy, accountability, and real-time access to information for all stakeholders.

The initiative supports Dhaka WASA's ongoing efforts to modernize its administrative and financial operations in line with the Government of Bangladesh.

1.2 Objectives

The key objectives of the Integrated GPF Management System development are as follows:

- 1. Automation of Provident Fund Management**
To automate all PF-related processes including contribution tracking, interest calculation, PF loan Application & adjustments, Final Settlement & Final Payment Application, Fund Receipts & Bank Payment, Bank Reconciliations Etc..
- 2. Accurate and Timely Record keeping**
To ensure precise calculation and up-to-date maintenance of employee-wise PF ledgers and balances.
- 3. Enhanced Transparency and Accessibility**
To provide online access for employees to view their individual PF accounts, transaction histories, and statements securely.
- 4. Efficient Reporting and Auditing**
To enable the generation of detailed analytical and summary reports for management, auditing, and decision-making purposes.
- 5. Integration with HR, Payroll and Accounting Systems**
To ensure seamless data exchange between the PF system and existing HR, payroll, SSO and other financial modules of Dhaka WASA.
- 6. Improved Service Delivery**
To reduce processing time, minimize errors, and improve employee satisfaction through digital access and faster services.







2. Scope of Work

The scope of work for the **Dhaka WASA General Provident Fund (DWASA GPF) Software** includes the design, development, implementation, and support of a complete digital system to manage all financial and operational activities related to the GPF of permanent employees. The system will ensure accuracy, transparency, and compliance with accounting and audit standards.

2.1 Operational Activities

The system will automate all operational functions related to GPF fund management, including:

1. **GPF Number Generation**
 - Automatic generation of unique GPF account numbers for each employee.
 - Validation with employee master data and HR records.
2. **Contribution Management (Scope to Contribute dynamic Contribution percentage)**
 - Recording and calculation of both employee and employer contributions.
 - Configurable contribution rates as per DWASA policy.
3. **Nominee Information Management**
 - Entry and maintenance of employee nominee details with relationship and share percentages.
 - Proper Approval needed to change/ modification in Nominee information management.
4. **Variable GPF Rate Configuration**
 - System-based setup to change contribution or profit rates as per management approval or circulars.
5. **Fund Receipt Process**
 - Automatic recording of monthly fund receipts from payroll Software and other sources.
 - Automatic Posting into the GPF ledger and updating balances.
6. **Online Payment Application**
 - Employees can apply for GPF loans, advances, or final withdrawals through an online portal.
 - Workflow-based Dynamic multilayer approval tracking.
7. **Fund Payment Approval Process**
 - Multi-level dynamic approval workflow.
 - Digital authorization and audit logs.
8. **Bank Payment Integration**
 - Integration with DWASA's bank accounts for disbursement and reconciliation.
 - Automated voucher and payment advice generation.
9. **Profit Distribution Process**
 - Annual or periodic profit calculation and distribution based on available surplus.
 - Automatic Posting of interest/profit to individual member accounts.
 - Percentage or total profit Amount will be given for Distribution. In case of total profit amount given the weightage, average/any other distribution method of Dhaka wasa will be followed.
10. **Customized Dashboard**

Samal

CR

Mgf

Q

AM



- Employee-Specific Interactive Dashboard
- 11. PRL Dashboard**
 - PRL Forecasting Analytics.
 - Date range-wise PRL employee list for easier decision-making.
- 12. Flexible Searching Criteria**
 - The System will support Advanced Multi-Criteria Search Functionality.
- 13. Chart of Accounts (CoA)**
 - The system shall include a comprehensive **Chart of Accounts (CoA)** module to define, categorize, and manage all **financial account heads** used within the Provident Fund system.

2.2 Schedule and Financial Operations

The system will manage and generate schedules related to GPF fund utilization: Loan, Settlement, Payment and Collection will support dynamic multi-level approval system.

1. **FDR Schedule** – FDR Purchase, Renew, Encashment, interest forecasting analytics and Recording and maturity tracking of fixed deposits.
2. **Loan to Members Fund (75%) Refundable** – Loan management module covering upto 75% fund loans. This Loan Amount, Eligibility will be configurable.
3. **80% Payment Non Refundable** – Processing of advance withdrawals as per eligible amount, This Loan Eligibility Criteria will be configurable.
4. **Final Payment** – Settlement of accounts at retirement/resignation.
5. **Final Settlement** – Generation of closure statements and fund disbursement tracking.
6. **GPF Opening Balance** - To initialize the system with accurate employee-wise provident fund balances at the time of implementation.
7. **GPF Collection:** To manage the collection and reconciliation of provident fund contributions from employees and employer sources.
8. **Loan / Advance Management:** To manage all types of loans and advances issued from the PF fund, ensuring transparency and accuracy.
9. **GPF Payment Details:** To manage and record all outgoing provident fund payments, including advances, withdrawals, and final settlements.
10. **GPF Register:** To maintain a consolidated register of all provident fund members, transactions, and balances for management and audit purposes.
11. Facility to process multiple times upto 75% loans, Loan Collection, final payments, and final settlements for eligible employees.
12. Auto journal creation in every transaction.
13. Facility to generate advice notes, approval notes, payment slip, and other necessary documents with digital signatures directly from the software.
14. In software, there must be a defined process through which approved loans, payments, settlements, and advance payments are submitted to the Trusty Board for final approval.

The software shall be developed to fully comply with standard accounting principles and practices, ensuring end-to-end support for all core financial operations and statutory requirements.

Shamul

ab

Mgf

Q

KLN



2.3 Reports and Financial Statements

The system will generate real-time accounting and financial reports with export options (PDF, Excel):

1. GPF Certificate (Total , Employee-wise)
2. Loan Certificate, Loan Statement
3. Individual Employee Statement
4. All Employee Summary Report
5. Date wise Journal
6. Sub-Ledger (Account-wise)
7. Group Ledger (Department-wise / Category-wise/ As per Demand etc.)
8. Cash Flow Statement
9. Income & Expenditure Statement
10. Trial Balance
11. Balance Sheet
12. GPF Schedule
13. Bank Reconciliation Statement
14. Fiscal Year /Calendar Year / date range wise Various Report Generation Facility.

All reports shall support full drill-down functionality.

The **Report Entry Module** shall support multiple parameterized input forms to facilitate dynamic report generation. Additional reports shall be developed and integrated **as per the specific requirements of Dhaka WASA.**

2.4 Administration Module

User Management

- Add, edit, or remove users.
- Assign roles and permissions.
- Self Reset passwords and manage user access.
- Track user activity and login history.
- User-friendly interface with intuitive navigation
- Maintain Proper Authentication.

Role & Permission Management

- Define different user roles (e.g., admin, Read-only user, Approver, Operation User).
- Control access to different parts of the software based on roles.
- Set granular permissions (view, edit, delete, export, etc.).

System Configuration

Shamul

MSJ

SKM



- Set up Centralized, Dynamic system-wide Configuration Setup (Parameter Values, email configurations, notification settings, Configuration Files etc.).
- Manage integration with other software (e.g HRMS, Payroll software).
- Configure workflows or automation rules.

Data Management

- Import or export data.
- Manage backups and restore points.
- Archive or purge old data.
- Data validation and integrity checks.

Audit & Reporting

- Monitor logs for changes made in the system.
- Generate reports for compliance, usage, or performance.
- Track system errors or exceptions.

Security & Compliance

- Manage password policies, two-factor authentication.
- Monitor suspicious activity or access violations.
- Ensure regulatory compliance.

Notifications & Alerts

- Configure system notifications and alerts.
- Send automatic Notification in Software, emails or SMS alerts for events.
- Context-based operational and alert messages.
- Monitor SLA or system thresholds.

Maintenance & Support Tools

- Schedule tasks (e.g., backups, system cleanup).
- Monitor server health or database status.
- Provide support tools like logs or error tracking for troubleshooting.

This system will support two types of login options: 1. The login mechanism of this software(), and 2. Dhaka WASA's SSO system.

Although not specified in the ToR, if any additional features are required during the project execution, the vendor shall implement such features in the software. However, the total effort for these additional features shall not exceed 15–20% of the overall scope of work defined in the ToR.



The entire software system shall be fully mobile-responsive, ensuring optimal rendering and usability across all mobile devices and screen resolutions.

All types of requirement analysis, meetings, Support service and related coordination activities shall be conducted **on-site at Dhaka WASA premises.**

3. Tools and Technologies:

Particular	Technology	Version
Frontend	React.js / Next.js / TypeScript , Tailwind CSS	Latest Stable
Backend	Spring Boot , JPA, Hibernate	Latest Stable
Database	Oracle 19C	As Mentioned
Cache	Redis	Latest Stable
Auth & Security	JWT + OAuth2 + Spring Security + BCrypt	Latest Stable
Web Server	Nginx	Latest Stable
Containerization	Docker	Latest Stable
Report	Jasper	Latest Stable
Operating System	Linux Based OS	Latest Stable

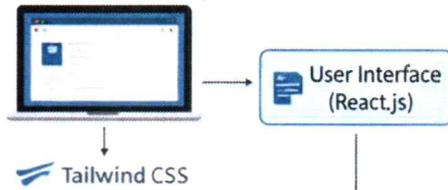
Shamal

Mof

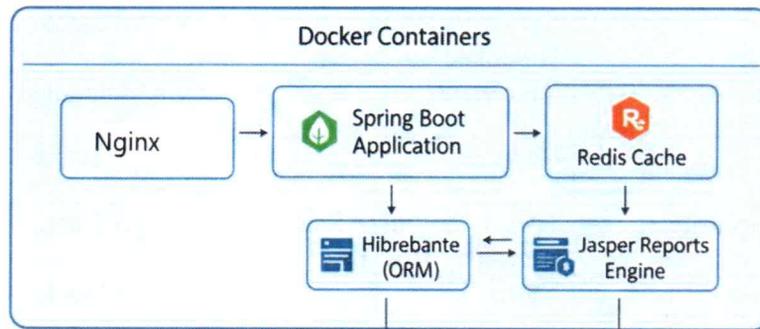
Klu



Presentation Tier



Application Tier



Data Tier



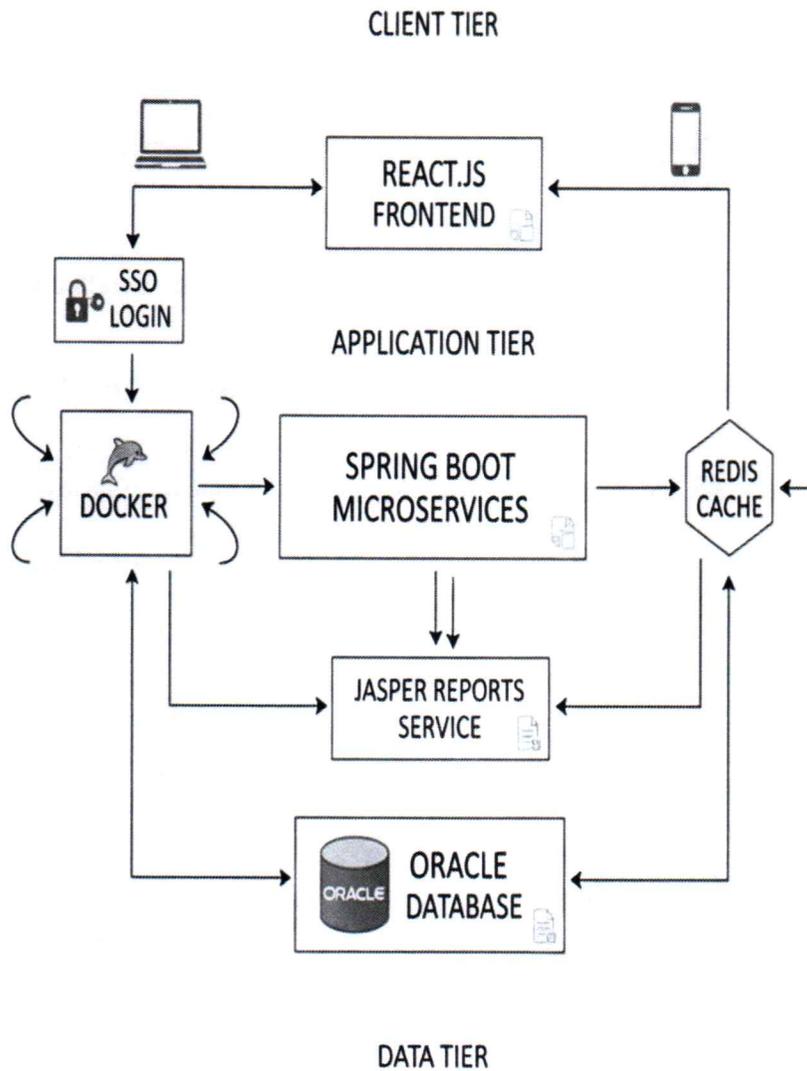
Oracle 19C Database

API Response (JSON/Report File)

Samal

Mgf

[Signature]



The proposed architecture integrates **React.js** for the frontend, **Spring Boot** for the backend, **Oracle Database** for data management, **Jasper Reports** for reporting, **Redis** for caching, **Docker** for containerization, Spring Security-JWT for authentication and authorization and **SSO (Single Sign-On) and in-build software login** for secure authentication. However, this architecture remains flexible and can be optimized or restructured to ensure the best possible performance, scalability, and maintainability for the project.

Shamul

[Signature]

[Signature]

[Signature]



4. Project Implementation Plan:

4.1 Requirement Analysis & Feasibility Study

Under this scope of work, the selected vendor shall conduct a detailed analysis of the **Provident Fund (PF) processes**, including related functions, workflows, documents, user roles, service delivery points, Integration and existing ICT infrastructure of Dhaka WASA.

The main objective of this phase is to **finalize and document the detailed system requirements**

- identify and analyze user, business, and technical requirements through consultation with relevant stakeholders.
- Prepare and finalize the Functional and Technical Requirements Specification.
- Conduct feasibility and system integration analysis with existing applications (including SSO ,HRMS, Payroll and related systems).

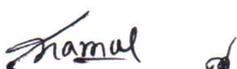
4.2 System Design & Architecture (high Level and Detailed)

- System Architecture Document
- SRS Document
- Database Design (ERD)
- UI/UX Mockups(Figma and Other Tools)
- API Specifications
- Define architecture (modular, secure, scalable).
- Design database schema for member data, contributions, and transactions.
- Define interfaces and APIs.
- Design PF computation logic and audit trail mechanisms.

4.3 Database & Application Development & Integration

In this phase, the selected vendor shall develop the approved software components, database structures, and system interfaces based on the finalized Software Requirement Specification (SRS) and system design documents. Activities include:

- Designing and developing normalized, secure, and scalable databases.
- Implementing all functional modules such as PF Opening, PF Transactions, PF Collection, -PF Schedule Implementation, Loan/Advance, PF Ledger, PF Payment, and PF Register, PF Application, Approval and other Development needed for the fulfillment of the project.
- Developing APIs and integration mechanisms with external systems (e.g., Payroll, HR, SSO, Finance, or Bank systems).









- Configuring business rules for interest calculation, eligibility checks, and payment workflows.
- Applying proper coding standards, documentation, and version control (e.g., Git).
- Developing Reports.
- Develop a process to insert Opening Balance Data and other data needed for the new software.
- Development of Data migration Process.
- Data Interoperability Mechanism.

4.4 Testing & Quality Assurance (QA)

Comprehensive testing shall be conducted to ensure that all components meet functional and non-functional requirements.

The vendor shall perform:

- **Unit Testing:** Validate individual modules and components.
- **Integration Testing:** Verify data and process flow among modules and external systems.
- **System Testing:** Test end-to-end workflows and ensure performance, reliability, and security compliance.
- **Security & Performance Testing:** Validate access control, data protection, response time, and concurrent user handling.
- The firm shall submit a detailed **Quality Assurance (QA) Report** outlining testing activities, results, and compliance with system requirements.

4.5 UAT and Piloting

UAT will be conducted with designated users from the client organization to verify that the system operates according to the approved business processes. A pilot run will be executed using actual data and real scenarios to validate end-to-end operations before full rollout.

Activities:

- UAT planning and scenario design with the client.
- Execution of test cases under real operational conditions.
- Collection of user feedback and final corrections.
- Pilot operation in a limited environment before full production deployment.

4.6 VAPT Testing:

The developed software shall undergo Vulnerability Assessment and Penetration Testing (VAPT) by a reputed and recognized third-party security organization to ensure compliance with industry-standard security requirements. This process shall ensure that all

Samul

06

Mof

[Signature]

[Signature]



identified vulnerabilities are resolved and verified prior to deployment in the production environment, thereby preventing any exposure of sensitive data. The cost of conducting the VAPT shall be borne by the vendor, and the final VAPT report shall be submitted to DWASA for review and approval before Go-Live.

4.7 Training

Comprehensive training shall be provided to both **End Users** and **Technical Users** to ensure full operational readiness and self-sufficiency in managing and operating the developed system.

Activities:

- Develop detailed training materials, including user manuals, technical guides, and quick reference sheets.
- Conduct hands-on training sessions for end users, system administrators, and support personnel.
- Facilitate post-training evaluations and Q&A sessions to assess knowledge retention and address user queries.

Training Scope:

- **User-Level Training** - 120 Nos : **Total 120 training sessions.**
- **Technical-Level Training** - 80 Nos: **Total 80 training sessions.**
- **Management Level Training** - 24 Nos: **Total 24 training sessions.**

Clarification: 5 trainee's X 2 day's training = 10 training sessions.

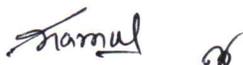
Financial Responsibilities:

The training honorarium shall be paid by the vendor in accordance with government policy. All training materials, food, and other associated expenses shall also be borne by the vendor. DWASA will provide the **training venue only**. Management Level Training honorarium, **venue** and others cost will be different form User level and Technical level training users.

4.8 Deployment

This phase involves final installation, configuration, and migration of the system to the production environment. All necessary environments (Development, Testing, and Production) must be properly configured and tested before deployment.

Activities:









- Final migration of verified data.
- Configuration of servers, databases, and network settings.
- Implementation of security and access control policies.
- Final review with IT and business stakeholders.

4.9 Go-Live

After successful UAT, piloting, VAPT and deployment activities, the system will formally Go-Live. Vendor shall provide on-site support during the initial operation period to ensure smooth transition.

Activities:

- System switch-over and live operation commencement.
- Real-time monitoring and performance observation.
- Issue tracking and quick resolution support during stabilization period.

4.10 Maintenance & Support Phase

During the **Maintenance and Support Phase**, the selected vendor shall be responsible for ensuring the stable, secure, and efficient operation of the software solution. The key responsibilities include, but are not limited to, the following:

- 1. System Monitoring and Performance Management**
 - Continuously monitor application and database performance.
 - Identify and resolve performance bottlenecks or system slowdowns.
 - Ensure optimal uptime and system availability as per agreed SLA.
- 2. Bug Fixing and Error Resolution**
 - Diagnose and correct software defects or functional errors reported by end users.
 - Provide immediate temporary fixes (workarounds) where necessary, followed by permanent solutions.
 - Maintain a log of all reported issues and their resolutions.
- 3. Preventive and Corrective Maintenance**
 - Perform scheduled maintenance activities to ensure system stability.
 - Apply updates, security patches, and version upgrades as required.
 - Backup and restore data as per defined frequency and policy.
- 4. User Support**
 - Provide user support through email, phone, or ticketing system.
 - Offer remote and onsite support as per the severity of the issue.
 - Conduct refresher training sessions or user guidance when required.
- 5. Change and Enhancement Management**
 - Implement functional enhancements, Incorporation of new Requirements, New report Development, Existing Report modifications, and configuration changes approved by the client.
 - Ensure all changes are documented and version-controlled.

hamul

Mof

Keller



- Deploy changes in a controlled and tested manner to minimize downtime.
- 6. **Security and Compliance Management**
 - Ensure continued compliance with data security and access control policies.
 - Monitor unauthorized access attempts and take preventive actions.
 - Keep antivirus, firewall, and system configurations updated.
- 7. **Reporting and Documentation**
 - Submit periodic maintenance reports (monthly/quarterly) summarizing system status, issues, resolutions, and recommendations.
 - Maintain updated technical and user documentation throughout the support period.
 - Handover complete maintenance logs and change records to the client upon completion of the phase.

5. Expected Deliverables

The following documents shall be submitted prior to the Go-Live phase

- Application Architecture
- Software Requirement Specification (SRS)
- Tools and Technologies with versioning.
- Project build documentation.
- Training materials and user manuals
- Complete source code
- Complete database
- Deployment Process Document.
- Software Operation Manual
- Software Design Document.
- Data Backup Process. (In server level and also Cloud service based)
- Data Migration Process.
- Data Archiving Process.
- Server Environment Setup
- Docker Documentation (if any)
- System administration manual
- Infrastructure and storage related documentation
- Backup and Recovery Policies

6. TimeLine

The project shall be implemented in **two distinct phases** as described below:

6.1 Development Phase

- **Duration** : From **Month 1 to Month 12** of the project period.

Samul *ch*

raf *Q*

km



- **Description:** This phase covers all activities from **Requirement Analysis** up to the successful completion of the **Go-Live** stage, including design, development, integration, testing, training, and deployment.
- **Completion:** The Development Phase shall be considered complete upon successful **Go-Live** of the system and formal acceptance by DWASA.

6.2 Maintenance & Support Phase

- **Duration (1 Year):** From **Month 13 to Month 24 (if Go-Live phase properly ended)**, or commencing **immediately after completion of the Go-Live phase** and continuing for a period of **12 (twelve) months**.
- **Description:** During this phase, the vendor shall provide New feature implementation, post-implementation support, bug fixing, performance monitoring, small and large feature enhancements, and necessary technical assistance to ensure stable and uninterrupted system operation.

	Months->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Requirement Analysis & Feasibility Study	Yellow																							
2	System Design & Architecture		Green																						
3	Database, Application Development & Integration			Brown	Brown	Brown	Brown	Brown																	
4	Testing & Quality Assurance (QA)							Red																	
5	Data Migration								Red	Red															
6	UAT and Piloting										Blue														
7	Training											Green													
8	Go-Live												Green												
9	Maintenance & Support													Dark Purple											

7. Non-Disclosure and Confidentiality Clause

Confidential Information

During the Development and Maintenance of this project, the Software Company may have access to confidential or proprietary information belonging to the Dhaka WASA, including but not limited to employee data, financial records, system architecture, source code, reports, technical documentation, business processes, and any other information not publicly available.

Obligation of Confidentiality

The Service Provider shall treat all such information as strictly confidential and shall not, without the prior written consent of the Dhaka WASA, disclose, copy, reproduce, or use any part of such information for purposes other than those directly related to the execution of this project.

Handwritten signature

Handwritten mark

Handwritten signature

Handwritten signature



Data Protection and Handling

The Software Company must ensure appropriate administrative, physical, and technical safeguards are in place to protect confidential data from unauthorized access, disclosure, alteration, or destruction. All development, testing, and deployment activities must comply with the Client's data protection policies.

Return or Destruction of Information

Upon completion or termination of the contract, the Software Company shall return or securely destroy all confidential information, project documents, source codes, and related materials, and provide written confirmation of such destruction.

Employee Compliance

The Software Company shall ensure that all employees, consultants involved in this project are bound by similar confidentiality obligations through signed Non-Disclosure Agreements (NDAs).

Survival of Obligation

The obligations of confidentiality under this clause shall remain in effect for a period of **Three (3) years** after the completion or termination of the contract, or as otherwise agreed upon in writing.

Breach and Remedies

Any breach of this confidentiality clause shall be considered a material breach of contract, entitling the Client to seek immediate legal and equitable remedies, including termination of the contract and recovery of damages.

8. Staffing Requirements:

8.1 Development Phase

SL No	Name of the Position	Number of Employees	Avg. Working Months	Total Man Months
1	Project Manager	1	6	6
2	Senior Software Engineer	1	4	4
3	Domain Expert	1	2	2
4	Business Analyst	1	3	3
5	Software Engineer	2	6	12
6	QA Engineer	1	1	1
7	UI/UX Designer	1	1.5	1.5
8	Devops Engineer	1	1	1
9	Database Administrator	1	1	1
10	Technical Document Writer	1	2	2

Shamul

Mgf

AM



8.2 Maintenance & Support Phase

SL No	Name of the Position	Number of Employees	Avg. Working Months	Total Man Months
1	Software Engineer	2	3	6
2	Devops Engineer	1	1	1
3	QA Engineer	1	1	1
4	Support Engineer	1	6	6

9. Hardware and SSL Requirements

The Vendor Will Provide a work station for UAT with the below specification

CPU: Clock Speed: 4.3GHz Up to 5.7GHz

Cores: 16; Threads: 32

RAM: 128 GB DDR5

Storage: SSD: 1 TB; R/W Speed: Up to 14,000/11,800MB/s

HDD: 2 TB ; 7200 RPM

Graphics: 12GB GDDR7 Graphics Card CUDA Supported

Power Backup: 1KVA Online UPS

Colling System: Liquid Cooling System

Operating System: Windows 11 Licensed.

Additional Equipment has needed to complete the workstation.

The vendor shall deliver and deploy an **Essential** Wildcard SSL Certificate **valid for three (3) years, ensuring secure HTTPS communication, which supports** one primary domain and multiple subdomains.

10. Language Support

The software shall be fully bilingual, supporting both **Bangla and English** languages.

11. Payment Procedure

Except for the first installment, each subsequent payment shall be released only after the vendor has submitted the latest live-aligned source code, along with all necessary build scripts, configuration files, and documentation, to DWASA for verification and archival purposes.

i) Ten (10%) Percent of the contract amount will be paid upon Successful Completion of the **Requirement Analysis & Feasibility Study & System Design & Architecture** (high Level and Detailed) Phase. Related Documents Must be approved by Dhaka WASA. This payment shall be released upon **sequential** successful completion of **Section 4.2 System Design & Architecture** under the project implementation Plan.

Samul

06

Mof

[Signature]



ii) **Fifteen (15%) percent** of the total contract value shall be disbursed upon **successful delivery, installation, and verification of the hardware components**, SSL Certificate, along with the **completion and formal acceptance of the Vulnerability Assessment and Penetration Testing (VAPT)** activities, as outlined in the Terms of Reference (ToR).

iii) **Thirty (30%) Percent** of the contract amount will be paid upon Successful Completion of the **Go-Live Phase**. Dhaka WASA approve related Documents Must. This payment shall be released upon **sequential** successful completion of **Section 4.9 Go-Live Phase** under the project implementation Plan.

iv) **Ten (10%) Percent** Upon successful completion of at least **one (1) Profit Distribution cycle** through the developed system and all the requirements successfully done in live system after the Go-Live phase.

v) **Twenty (20%) Percent**— Upon completion of **seven (7) months of the Maintenance & Support period**, subject to satisfactory performance.

vi) **Fifteen (15%) Percent (Final Payment)** — upon successful completion of the **entire project**, including all deliverables, documentation, and acceptance of the **Maintenance & Support Phase**.

12. Client Services and Facilities:

DWASA will provide following services and facilities when the project development completed.

- i) Domain , Hosting
- ii) Live Server
- iii) Networking infrastructure

13. Deployment Process

The software firm will submit all source code for deployment to the MIS & Billing Department of Dhaka WASA. Additionally, project build processes, deployment processes, and other related documents necessary for successful deployment shall also be submitted along with the source code. In some cases, the software firm will verbally instructed the project build and deployment process to the MIS & Billing Department personnel. Additionally, the software firm will be responsible for physically deploying projects in critical cases.

14. UAT and Live System Environment Preparation

The software firm will prepare both the live environment, and the UAT environment for this project at the Dhaka WASA premises.



15. Copyright:

All intellectual property rights, including the source code, documentation, and related materials of the developed software, shall remain the sole property of Dhaka WASA. The vendor shall provide the complete source code and associated technical documentation to Dhaka WASA upon request, without any **restriction or additional cost**.

16. Professional Staff Qualification

16.1 Project Manager

Educational Qualification:

- Bachelor's degree in **Computer Science, Information Technology, Engineering, Business Administration**, or a IT related discipline from a recognized university.
- Professional certifications such as **PMP (Project Management Professional), PRINCE2**, or **Agile/Scrum Master** certification are highly desirable.

Professional Experience:

- Minimum **7–10 years** of overall experience in **IT project management**, including at least **3 years** managing **large-scale software development and implementation projects**.
- Proven track record of **planning, executing, and delivering software projects** within scope, timeline, and budget.
- Strong expertise in **project planning, resource allocation, risk management, and stakeholder communication**.
- Hands-on experience with **project management tools** (e.g., MS Project, Jira, Trello, Asana) for scheduling, task tracking, and progress monitoring.
- Familiarity with **Agile, Waterfall, or Hybrid project management methodologies**.
- Experience coordinating **cross-functional teams** including developers, QA, UI/UX designers, and system analysts.
- Ability to prepare and maintain **project documentation**, including project plans, SRS, test plans, deployment strategies, and progress reports.
- Strong understanding of **software development life cycle (SDLC), change management, and quality assurance processes**.
- Proven ability to **communicate effectively** with clients, vendors, and internal teams to ensure project alignment and smooth execution.

Additional Skills (Preferred):

- Knowledge of **financial systems or enterprise applications** such as HR, PF, or ERP solutions.
- Familiarity with **DevOps practices**.

Handwritten signature

Handwritten mark

Handwritten signature

Handwritten mark

Handwritten signature



- Strong **leadership, negotiation, and conflict-resolution** skills.
- Excellent **analytical thinking, reporting, and presentation** abilities.

16.2 Senior Software Engineer:

Qualification and Experience

- At least Bachelor's Degree in IT Related Subjects.
- Minimum **5–7 years** of progressive experience in **software development and system design**.
- Must have at least 5 years of Practical experience of working in Java and other related frameworks (Spring boot, React.js, Spring MVC, Spring security, Hibernate etc)
- Proficient with Software architecture design, Debugging, software customization etc.
- Strong knowledge of **database design, SQL/PLSQL, and performance optimization**.
- Experience in **requirement analysis and collaboration with Business Analysts and QA teams** during all phases of SDLC.

Having strong problem-solving skills and ability to work independently or in a team.

16.3 Domain Expert

Educational Qualification:

- Bachelor's degree in Accounting, Finance, Business Administration or a related field.
- Chartered Accountant (CA) is highly preferred.

Professional Experience:

- Minimum 5 years' professional experience in accounting / payroll / General provident fund/ CPF management software.
- The Domain Expert must be fully proficient in applicable accounting norms, financial reporting standards, public fund accounting principles, and regulatory compliance frameworks relevant to GPF and FDR management.
- Identify gaps in existing processes and recommend enhancements aligned with accounting norms.

Kamal *al*

MS

MS



16.4 Business Analyst:

Educational Qualification:

- Bachelor's degree in **Business Administration, Information Technology, Computer Science**, or a related field from a recognized university.
- Professional certification such as **CBAP, PMI-PBA, or Agile BA** is desirable.

Professional Experience:

- Minimum **3-4 years** of experience in **business analysis, requirement elicitation, and process documentation** for IT or e-Governance projects.
- Proven expertise in **gathering, analyzing, and translating business requirements** into technical specifications (e.g., SRS, BRD, Use Case Diagrams).
- Experience in **workflow analysis, process mapping, and gap analysis** for business process re-engineering.
- Sound understanding of **software development lifecycle (SDLC) and agile methodologies**.
- Ability to **coordinate between business users, developers, and QA teams** to ensure functional clarity and smooth project execution.
- Excellent skills in **communication, presentation, and stakeholder management**.

Additional Skills (Preferred):

- Familiarity with **project management tools** (e.g., JIRA, Trello, MS Project).

16.5 Software Engineer — Qualification and Experience

Educational Qualification:

- Bachelor's degree in **Computer Science, Software Engineering**, or IT related discipline from a recognized university.

Professional Experience:

- Minimum **3-5 years** of hands-on experience in **full-stack web application development** using **Java** (preferably **Spring Boot**) for backend and **React.js** for frontend.
- Strong understanding of **object-oriented programming, RESTful API design, and MVC architecture**.
- Experience integrating front-end and back-end components via **REST APIs**
- Familiar with **build tools** (Maven/Gradle), **version control systems** (Git).
- Experience working in **Agile/Scrum** environments and collaborating with cross-functional teams (BA, QA, UI/UX, DevOps).

Additional Skills (Preferred):

Hamul

CH

Mof

SW



- Strong **problem-solving, debugging, and analytical** skills.
- Ability to write **clean, maintainable, and reusable code** following industry best practices.

16.6 UI/UX Designer — Qualification and Experience

Educational Qualification:

- Bachelor's degree in **Design, Computer Science, Multimedia Technology, Human-Computer Interaction**, or IT related field from a recognized institution.

Professional Experience:

- Minimum **3–5 years** of experience in **user interface and user experience design** for **web and mobile applications**.
- Proven expertise in **designing intuitive, user-friendly, and responsive interfaces** aligned with modern design principles and accessibility standards.
- Proficiency in leading design tools such as **Figma, Adobe XD, Sketch, Illustrator**.
- Experience working closely with **Business Analysts, Developers, and QA teams** to translate business requirements into functional design solutions.

16.7 DevOps Engineer:

Educational Qualification:

- Bachelor's degree in **Computer Science, Software Engineering, Information Technology**, or a IT related discipline from a recognized university.
- Professional certification in **AWS Certified DevOps Engineer, Docker/Kubernetes Administration** will be an added advantage.

Professional Experience:

- Minimum **4–6 years** of experience in **DevOps practices, infrastructure automation, and continuous integration/continuous deployment (CI/CD)** pipelines.
- Strong hands-on experience with **Linux-based environments and scripting languages** such as **Bash, PowerShell**.
- Expertise in **CI/CD tools** such as **Jenkins, GitLab CI, GitHub Actions**.
- Proficient in using **containerization and orchestration tools** such as **Docker and Kubernetes**.
- Experience in managing **source code repositories (Git), branching strategies, and build automation**.
- Ability to ensure **system reliability, scalability, and security** through proper configuration management and performance tuning.

Shamul

ad

Maf

⊗

Ⓜ



- Familiarity with **networking concepts, load balancing, firewall configuration, and SSL/TLS management.**

16.8 QA Engineer:

Educational Qualification:

- Bachelor's degree in **Computer Science, Software Engineering, Information Technology**, or a related field from a recognized university.

Professional Experience:

- Minimum **3–5 years** of hands-on experience in **software quality assurance and software testing** for web or enterprise applications.
- Strong knowledge of **software testing methodologies, SDLC, and STLC** processes.
- Experience in preparing and executing **test plans, test cases, and test scripts** based on functional and technical specifications.
- Skilled in performing **functional, regression, integration, system, and user acceptance testing (UAT).**
- Familiarity with **automation testing tools** such as **Selenium, JUnit, TestNG, or Postman** for API testing.
- Experience using **defect tracking and test management tools** (e.g., JIRA, Bugzilla, TestRail)..
- Experience in **cross-browser and cross-platform** testing for responsive web applications.

Additional Skills (Preferred):

- Knowledge of **performance testing tools** (e.g., JMeter, LoadRunner).
- Experience in **API and security testing.**
- Strong **analytical thinking, attention to detail, and problem-solving** skills.
- Excellent **communication and documentation** skills to clearly report issues and test outcomes.

16.9 Database Administrator (DBA)

Educational Qualification:

- Bachelor's degree in **Computer Science, Information Technology, Software Engineering**, or IT related field from a recognized university.
- Professional certifications such as **Oracle Certified Professional (OCP), Oracle Database 11g/12C/19c/21c Administrator Certified Professional**, or **Oracle Cloud Database certifications** are highly desirable.

Professional Experience:

Samul

cb

Maf

ELW



Terms of Reference (ToR) for Integrated GPF Management System for Dhaka WASA.

- Minimum **4–6 years** of hands-on experience in **Oracle database administration** in enterprise environments.
- Expertise in **installation, configuration, and maintenance** of Oracle databases (12c, 19c, 21c).
- Proficient in **backup and recovery strategies** using RMAN, Data Pump, Flashback Technology, and Recovery Manager scripts.
- Strong experience with **database performance tuning** (SQL tuning, indexing, optimizer statistics, memory management).
- Skilled in **high availability (HA)** configurations such as **Data Guard, RAC (Real Application Clusters)**, and **standby databases**.
- Ability to troubleshoot and resolve **database-related incidents**, provide root-cause analysis, and ensure high uptime.

16.10 Support Engineer — Qualification and Experience

Educational Qualification:

- Bachelor's degree in **Computer Science, Information Technology, Software Engineering**, or a IT related field from a recognized university.

Professional Experience:

- Minimum **2–4 years** of experience in **technical support, application support**.
- Experience in **troubleshooting hardware, software, and network issues** for enterprise environments.
- Familiarity with **operating systems** (Windows 10/11, Linux) and common enterprise applications.
- Experience in **incident management, ticketing systems, and service request resolution** using tools such as **ServiceNow, JIRA Service Desk**, or similar.
- Ability to monitor and respond to **system alerts**, perform **diagnostics**, and escalate critical issues appropriately.
- Strong **analytical and problem-solving skills** to identify root causes and implement effective solutions.
- Ability to provide **end-user support** for applications, including installation, configuration, and basic troubleshooting.

Additional Skills (Preferred):

- Excellent **communication and interpersonal skills** for coordinating with end-users, developers, and management.

16.11 Technical Document Writer – Qualifications and Experience

- **Educational Background:**
Bachelor's degree in Computer Science, Software Engineering, Information Technology, English, or a related discipline.



- **Professional Experience:**
Minimum of **3–5 years** of proven experience in technical documentation within software development projects.
- **Technical Competencies:**
 - Strong understanding of **Software Development Life Cycle (SDLC)**, **Agile/Scrum methodologies**, and **software engineering concepts**.
 - Proficiency in using documentation tools such as **MS Word, Confluence, Markdown, LaTeX, Adobe FrameMaker**, or similar.
 - Ability to create and manage **Technical Manuals, User Guides, SRS (Software Requirement Specification), Design Documents, API Documentation, and Training Materials**.
 - Basic understanding of **UI/UX documentation, database structures, and system architecture**.
- **Communication Skills:**
 - Excellent command of written and spoken English.
 - Strong ability to translate complex technical concepts into clear, concise, and user-friendly documentation.

17. Conclusion

This Terms of Reference (ToR) defines the comprehensive scope, objectives, deliverables, methodology, and responsibilities for the development, deployment, and maintenance of the Provident Fund software for Dhaka WASA.

The ToR ensures that the selected vendor will:

- Deliver a robust, secure, and scalable software solution in line with DWASA's operational and regulatory requirements.
- Provide complete documentation, training, and post-implementation support to ensure smooth adoption and operational readiness.
- Adhere to agreed timelines, quality standards, and compliance measures throughout the project lifecycle.

By following this ToR, DWASA and the vendor establish a clear framework for collaboration, accountability, and successful project delivery, ensuring that all functional, technical, and security requirements are fully met.

****The DWASA Authority reserves the right to modify, amend the Terms of Reference (ToR) at any stage of the project execution, if deemed necessary.****

-----END-----