গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
নির্বাহী প্রকৌশলীর কার্যালয়
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর
জরীপ অনুসন্ধান ও গবেষণা বিভাগ
১৪, শহীদ ক্যাপ্টেন মনসুর আলী সরণি, কাকরাইল, ঢাকা-১০০০।

স্মারক নং-৪৬.০৩.২৬০০.০৭৪.১৪.১৪১৮.২২- ৮০৩

তারিখঃ ২২/০২/২০২৫

বিষয় ঃ অনুমোদিত Terms of Reference (ToR) প্রেরণ প্রসঙ্গে।

সূত্র ঃ প্রধান প্রকৌশলীর কার্যালয়ের স্মারক নং-৪৬.০৩.০০০০.০০১.৪.০০১.২৪-৪৪২৭, তারিখঃ ১০/০২/২০২৫ খ্রিঃ।

উপর্যুক্ত বিষয় ও সূত্রের প্রেক্ষিতে জানানো যাচ্ছে যে, জনস্বাস্থ্য প্রকৌশল অধিদপ্তর কর্তৃক বাস্তবায়নাধীন "বাংলাদেশের ২৫টি শহরে অন্তর্ভুক্তিমূলক স্যানিটেশন (জিওবি-এআইআইবি)" শীর্ষক প্রকল্পের আওতায় প্যাকেজ নং-(CIS-SER-01) "IMIS web platform, Digital Inclusive Financing System and Service Monitoring" এর অধীন পরামর্শক প্রতিষ্ঠান নিয়োগের লক্ষ্যে অনুমোদিত সংযুক্ত Terms of Reference (ToR) পরবর্তী প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য এতদসংগে প্রেরণ করা হলো।

সংযুক্তিঃ অনুমোদিত ToR ০১ (এক) টি।

(শিশির কুমার বিশ্বাস)
নির্বাহী প্রকৌশলী
ও
সদস্য সচিব, ToR কমিটি,
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর, ঢাকা।

প্রকল্প পরিচালক
বাংলাদেশের ২৫টি শহরে অন্তর্ভুক্তিমূলক
স্যানিটেশন (জিওবি-এআইআইবি) প্রকল্প
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স্মারক নং-৪৬.০৩.২৬০০.০৭৪.১৪.১৪১৮.২২- ৮০৩/১(২)

তারিখঃ ২২/০২/২০২৫

সদয় অবগতির জন্য অনুলিপি প্রেরণ করা হলঃ
০১। প্রধান প্রকৌশলী, জনস্বাস্থ্য প্রকৌশল অধিদপ্তর, বাংলাদেশ সরকার, ঢাকা।
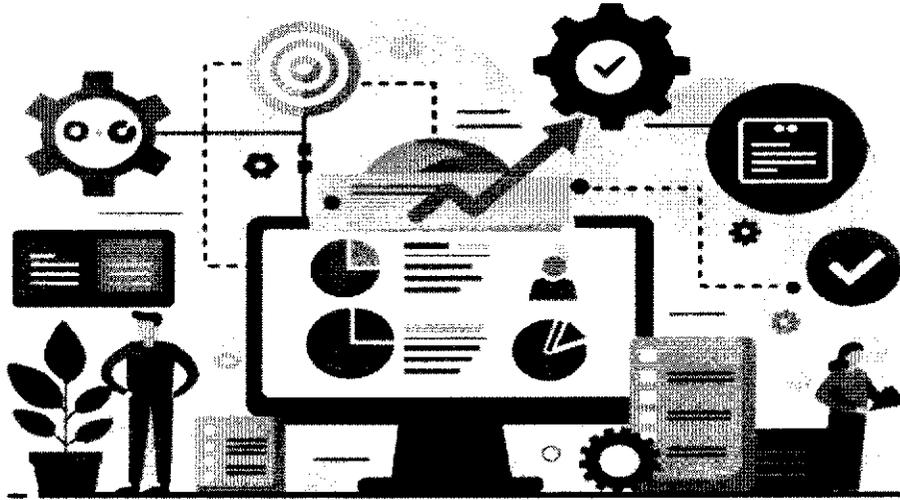০২। অফিস কপি, অত্র দপ্তর।

(শিশির কুমার বিশ্বাস)
নির্বাহী প্রকৌশলী
ও
সদস্য সচিব, ToR কমিটি,
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর, ঢাকা।

Government of the People's Republic of Bangladesh

Local Government Division

Department of Public Health Engineering

Teams of Reference

For

Integrated Municipal Information System (IMIS)

(Package No.: CIS-SER-01)

Under

Bangladesh City Inclusive Sanitation Project (BCISP)

In 25 Towns (GOB-AIIB)

January 2025

AIIB | ASIAN INFRASTRUCTURE INVESTMENT BANK

Contents

Consultancy Services for IMIS web platform, Digital Inclusive Financing System and Service Monitoring

1. PROJECT BACKGROUND

1.1 Sanitation in Bangladesh

Bangladesh has a high population density and has experienced rapid urbanization. The percentage of the population living in slums has increased, leading to poor sanitation conditions and a higher risk of water-borne diseases. While access to basic drinking water facilities is relatively good, the quality of drinking water is often poor due to contamination.

Most urban households in Bangladesh have access to toilets, but the functionality of on-site sanitation systems is a concern. Without proper management of fecal sludge, there have been cases of sludge management crises, impacting human and environmental health. Women and children in slums and informal settlements are particularly vulnerable to water-borne diseases caused by unsafe drinking water and poor sanitation and hygiene conditions.

To address these challenges, the Government of Bangladesh has prioritized urban sanitation and approved an Institutional and Regulatory Framework (IRF) for Fecal Sludge Management (FSM). A National Action Plan has been developed to implement the IRF and ensure effective FSM by 2030. The establishment of a Citywide Inclusive Sanitation (CWIS)-FSM support Cell aims to facilitate integrated sanitation management.

To tackle these issues at the city level, the Government of Bangladesh conducted a feasibility study project for implementing solid waste and fecal sludge management systems in 53 district-level Pourashavas and 8 city Corporations. The project received technical and financial support from the Bill and Melinda Gates Foundation. The study provided a comprehensive analysis of the existing waste and fecal sludge management situation, including demand, viable technological solutions, and environmental considerations. The findings of the study are available on the open web link www.sanboard.gov.bd and serve as a basis for future development projects and sustainable plans.

1.2 Bangladesh City Inclusive Sanitation Project (BCISP)

The GoB through its letter dated August 2, 2021, requested AIIB's financing of USD200 million for the underlying Project. The Project was cleared by the Bank's Screening Committee on August 26, 2021, for inclusion in its project pipeline. The Project aims to improve access to inclusive urban sanitation services in selected 25 cities. The project objectives include:

(i) improving the coverage of safely managed sanitation through the use of safe sustainable sanitation technology; (ii) improving the life and livelihood of the people in the project area through establishing household, community, public toilets, and containment system; (iii) implementing modern and innovative technology of integrated sanitation & bio-waste management system, including enhancement of the capacity of the Municipalities and the overall environment; and (iv) strengthening governance accountability through development of municipal level CWIS framework and guidelines.

The Project is structured under three components:

Component 1 (Sanitation and Hygiene Improvement) will improve integrated total sanitation infrastructure and services in 25 towns, providing the complete improved sanitation service chain (i.e., containment, emptying, conveyance, treatment, and disposal);

Component 2 (Institutional Strengthening and Capacity Building) will support the institutional capacity building of ULBs and other stakeholders to enable them to efficiently implement and sustainably operate the sanitation infrastructure and service delivery systems; and

Component 3 (Project Management Support) will provide support for Project implementation, management, and coordination.

1.3 Project Preparation Special Fund (PPSF) For BCISP

To support the preparation of BCISP and ensure the readiness of year-one investments, AIIB provided the Government of Bangladesh with a Project Preparation Special Fund (PPSF) grant. The grant agreement which provides support amounting to USD3.3 million was signed on March 8, 2023, between AIIB and GoB.

The PPSF will be implemented by the Department of Public Health Engineering (DPHE), Ministry of Local Government Rural Development & Co-operatives. DPHE has constituted a Project Management Unit (PMU) to implement the PPSF grand activities and eventually BCISP. The DPHE/PMU will be responsible for various project preparation activities including implementing those to be funded through the proposed PPSF. Activities that will be conducted during the project preparation phase funded by PPSF include the following contracts:

 i. Consulting services for Enhanced Feasibility Study and Detailed Design for 25 Towns

 ii. Consulting services for Institutional Capacity Building

 iii. Consulting service for awareness-raising

 iv. Consulting services for IMIS web platform, Digital Inclusive Financing System, and Service Monitoring.

Preparatory activities include the procurement, implementation, and results monitoring and reporting of the abovementioned activities. Preparatory activities will also include coordination and reporting within the PMU.

1.4 Objective of the assignment

The main objective of the assignment is to develop a web-based platform of Integrated Information Management System which shall consist of a real time data collection, mobile app, web admin portal, dynamic and interactive dashboard system, Designing capacity development programme on IMIS and CWIS SAP tools targeting the relevant municipal staff, Strengthening the capacity of the municipal staff on the integration of IMIS and CWIS SAP tools through hands-on trainings, and regular consultation support, including system upgrading, Establishing complete service and financial monitoring and evaluation for sustainability. The consultancy is crucial in creating dynamic links in between field data forms, GIS/GPS data including captured photos of the program outputs and creation of a cloud-based database.

The system will aid the program with real time data collection, Data separation, required data visualization, required reports generation, and progress indicators as defined by the project and allow management for easier access to information with the help of the dashboard system, so that they can take informative managerial decisions to achieve the project goals. The system should be replicable for the future activities.

1.5 Duration of the Assignment

The Duration of the assignment will be 7 (Seven) months starting from the date of contract signing to end of grant (PPSF) fund period, unless otherwise happens. A warranty period of 18 (Eighteen) months beyond contract period (7 months) will be in the name "system support" (Without Pay). The consultant must ensure the "system Support" period in written.

2. Rational of hiring consulting firm

In the course of planning for BCISP, it has been identified that web-based platform of Integrated Information Management System including real time data collection, mobile app, web admin portal, dynamic and interactive dashboard system and institutional strengthening are key for Developing information management as well as to supervise WASH & Waste management activities within the public authorities, local stakeholders (particularly women and youth), sanitation workers' cooperatives, private sector, consultants in the 25 cities and securing strong sustainability in information management services, archives through technological improvement and engagement to operationalize a sustainable improved CWIS-based IMIS system.

3. Scope of work

The hired IT Firm will carry out the following activities under the guidance of PD & EE OF PMU.

3.1 Database development

A complete database containing all the necessary data of all components of the program as outlined in project program will be designed, developed and deployed to accommodate all the application modules and features that will be implemented in this project. User management, role management, and access control is some of the components that will be designed in a generic style. The database must be made to be compatible with Power BI dynamic dashboard platform and data collection applications.

The following tasks need to be accomplished for the database development.

    a) Domain registration & purchase.

    b) Requirement analysis for the generic application modules.

    c) Identify the necessary entities to support the generic modules.

    d) Develop the data dictionary.

    e) Design and implement the database schema.

    f) Implement all the necessary relationship among the database entities.

    g) Implement the data management screens in the web application.

3.2 Web Application Development

3.2.1 Web based admin module The web-based admin module will have all the necessary parts of the application that will be used by the administrator (herein after PD of PMU and his office DPHE) of the application. Some part of the admin module will also be available for organization admins (Chief Engineer, DPHE and PIU's & 25 Municipality officials). The web application should be browser and operating system friendly and independent. It should be compatible with major web browsers of all resolutions as well as being responsive, so that the design is not broken in mobile phones, tablets, or different browsers. It should contain all necessary components to meet management requirements such as but not Limited to:

- Site Information details & Relevant Documents (i.e. Feasibility report, Land, Soil investigation and others).

- A comprehensive survey activity (five Town) to capture comprehensive census level attribute data for geo-spatial data housing key geographic features such as building footprints and containment systems (type, capacity, connection, accessibility, etc.), road network (type width, length, etc.), water bodies, land use, low-income settlement areas, etc.

- Design-Drawings.

- Contract Information

- Monitoring and Supervision tools.

- Report containing program progress.

- All report generation format & process (Ministry, Planning, P&C, ERD etc.)

- Modules on Procurement, Finance, Environmental and Social Safeguard HRD and training, Monitoring and evaluation and overall monitoring for PMU.

- As built Drawings.

Users should be able to perform the following tasks through the web portal:

a) Organization management: This module will manage basic organization information. i.e, user id of concerned EE, AE, SAE, Supervision Consultant & PD PMU of DPHE & 25 Municipality officials.

b) User management: This module will allow us to manage all the user information and their access controls. Organization admin i.e., PD of PMU. will be able to manage their own users. Platform will also allow creating accounts for web, mobile so that they can start accessing the system instantly.

c) Role management: The application will allow setting roles to the users. Each user will have its access in the application based on the assignment of permission.

d) API key management: The system will need to ensure secure API system for uploading beneficiary data by the partner organizations. There should be a proper way for generating and managing the API keys that will be used by other MIS applications to push the data.

e) Permission management: All the application modules and sub-modules with action items will be controlled by the role-based permission. The system should have an easy way to manage the permissions for each role.

f) Multilayer Activity: The activities of projects shall be multilayer. There should be proper options for managing the hierarchy of the activities for all views and management.

g) Two Way Communication: This system will be a two-way communication process with admin to field level officials of DPHE.

h) Reporting, data export /import capabilities.

3..2.2 Here is the scope of the Municipality Information Management System:

A. Secretariat Department:

1. **Dispute Resolution:** The software will facilitate the management of disputes brought to the Secretariat Department's attention. It will track the status of each dispute, assign responsible parties, schedule hearings or mediation sessions, and document resolutions.

2. **Divorce Proceedings:** This module will streamline the process of initiating and processing divorce proceedings within the municipality. It will include the submission of necessary documents, scheduling hearings, and generating documentation related to divorce.

3. **Provision of Financial Assistance:** The software will manage applications for financial assistance from residents or businesses within the municipality. It will track application status, eligibility criteria, disbursement of funds, and related financial reporting.

4. **Certificate of Citizenship Issuance:** This module will handle requests for citizenship certificates by residents. It will capture necessary information, verify eligibility, and generate certificates upon approval.

5. **Succession Certificate Issuance:** The software will manage requests for succession certificates, which are legal documents required to transfer property or assets after the death of an individual. It will process applications, verify legal heirs, and issue certificates accordingly.

6. **Miscellaneous Certificate Issuance:** This module will cater to various other certificate issuance needs not covered by specific modules, such as residency certificates, income certificates, etc.

7. **Rent Management for City Corporation Premises:** This feature will handle the management of rental properties owned by the City Corporation. It will track lease agreements, rental payments, property inspections, and maintenance requests.

B. Engineering Department:

1. **Contractor Licensing/Enrollment:** The software will manage the licensing and enrollment process for contractors wishing to undertake construction projects within the municipality. It will verify qualifications, track license expiration dates, and issue/renew licenses.

2. **Vehicle/Equipment Rental Management:** This module will facilitate the rental of vehicles and equipment owned by the municipality for various purposes, such as construction projects, events, etc. It will handle reservations, scheduling, billing, and maintenance tracking.

3. **Water supply management Services:** The software will manage different utility & water management supply-chain like requests for new water and gas connections within the municipality, maintenance of defects and leakages etc. It will handle application processing, inspections, approvals, and connection installations.

4. **Application Processing for Land Use No Objection Clearance:** This module will streamline the process of obtaining clearance for land use from the municipality. It will manage applications, review proposed land use plans, and issue clearances based on compliance with zoning regulations.

5. **Application Processing for approval of Drawings:** This module will align the process of approval of drawings with obtaining clearance for land use from the municipality. And will approve accordingly providing the appropriate justifications.

C. Revenue Department:

1. **Water Supply Service:** The software will manage water billing within the municipality. It will handle tariff collection and revenue generation.

2. **Waste management Service:** The software will manage management supply-chain within the municipality. It will handle tariff collection and revenue generation.

3. **New Trade License Issuance:** This feature will handle applications for new trade licenses by businesses operating within the municipality. It will verify business details, assess fees, and issue licenses upon approval.

4. **Trade License Renewal:** The software will manage the renewal process for existing trade licenses. It will track renewal deadlines, send reminders to the owner and process renewal applications.

5. **Nomenclature Application (Holding):** This module will handle requests for assigning or changing holding numbers for properties within the municipality. It will maintain a centralized registry of property holdings and manage requests for nomenclature changes.

6. **Application Processing for New Holding:** This feature will manage applications for new property holdings within the municipality. It will handle documentation submission, verification, and assignment of holding numbers.

7. **Holding Tax Review:** The software will facilitate the review and assessment of holding taxes levied on properties within the municipality. It will generate tax bills, process payments, and handle tax-related inquiries.

8. **Registration of Private Educational Institutions:** This module will manage the registration process for private educational institutions operating within the municipality. It will verify compliance with educational standards, issue registration certificates, and maintain a registry of registered institutions.

9. **Renovation of Private Educational Institutions:** This feature will handle applications for renovation or construction permits for private educational institutions. It will review renovation plans, assess compliance with building codes, and issue permits accordingly.

10. **Advertisement Application Processing:** The software will manage applications for advertising permits within the municipality. It will assess the impact of proposed advertisements on public spaces, issue permits, and collect advertising fees.

11. **Allotment of New Shops Application Processing:** This module will handle applications for the allotment of new shop spaces within municipal-owned premises. It will manage the allocation process, assess eligibility criteria, and issue allotment letters.

D. Health Department:

1. **Registration of Premises:** This feature will manage the registration of premises used for commercial purposes within the municipality. It will verify compliance with health and safety regulations, issue registration certificates, and conduct periodic inspections.

2. **Medical Registration:** The software will manage the registration of medical practitioners and healthcare facilities within the municipality. It will verify qualifications, issue medical licenses, and maintain a registry of registered practitioners and facilities.

3. **Environmental Pollution Complaint Management:** This module will facilitate the submission and tracking of complaints related to environmental pollution within the municipality. It will assign complaints to relevant departments for investigation and resolution.

4. **Resolution of Environmental Pollution Complaints:** This feature will facilitate the resolution of environmental pollution complaints received by the municipality. It will track the status of complaints, document investigation findings, and take necessary enforcement actions.

5. **Pet License Issuance:** The software will manage the issuance of licenses for pet ownership within the municipality. It will handle application processing and issue licenses upon approval.

E. Conservancy Department:

1. **Construction Material Removal Truck Rental Management:** This module will manage the rental of trucks for the removal of construction materials within the municipality. It will handle reservations, scheduling, billing, and maintenance tracking for rental trucks.

2. **Inclusive Sanitation management Service:** The software will facilitate the scheduling and management of garbage removal, containment emptying, Treatment services and others within the municipality. It will track total sanitation value-chain routes, pickup schedule, and manage complaints or service requests related to Inclusive Sanitation.

PMU will monitor activity of 25 municipality which work belong to this project:

The PMU (Project Management Unit) will implement a monitoring system to track the ongoing activities across 25 municipalities involved in the project. This system will provide instantaneous updates on various aspects of municipal operations, enabling efficient oversight and decision-making. By harnessing data, the PMU aims to enhance transparency, streamline workflows, and ensure effective

resource allocation throughout the project. Through continuous monitoring, the PMU will proactively identify challenges and opportunities, facilitating prompt interventions to optimize project outcomes and promote sustainable development across the municipalities.

Each of these modules will be integrated into the PMU Management Software to provide a comprehensive solution for managing the various functions of the municipality efficiently and transparently.

3.4 Application Programing Interface (API) development

To ensure extended compatibility and linkage with database systems, the system will need to provide unified and secured APIs, which should allow XLS/CSV/PDF as reporting material/content. System must handle XLS/CSV and keep a track of the files including data. There should be provision for interconnectivity of the new software along with other software of Municipality

or PMU for effective information flow. The following different types of APIs need to be developed for this purpose.

API for User Data from upazila, Municipality

   a)   with role and permission setup

   b)   API for Activity Data Municipality /DPHE PMU related offices along with the location (GIS/GPS) data

   c)   API for service delivery data from Upazila

   d)   API for various reporting data that will be generated at PMU IMS system.

3.5 Report generation module

The system will be able to generate reports (monthly, quarterly, half- yearly and yearly) based on the real time data and download to the user's system. Types of reports available for each user will depend on the user rights set by admin users. Admin users should also be able to create and design new reporting templates dynamically, which is adaptable for all reporting needs.

3.5.1 Data migration module

There should be a module for the easiest import/export/retrieve of data in easily readable formats (csv, xls/pdf etc.). The application will use this data for reporting and other purposes.

3.5.2 Progress Monitoring

PMU will monitor project work progress on real time basis. Monitoring will help to access work progress by individual work basis to take decisions.

3.5.3 Site information

The 25 Municipality must be found as per work status in this software and work can be assigned based upon request. This module will show status of work in progress that are waiting for tender or construction on going or waiting for any kind of decision.

3.6 Mobile app for data collection

   a)   The mobile application app will allow the field data collectors to provide some basic information in a general structure for all the service delivery points along with the GPS/ GIS coordinates and pictures where applicable.

   b)   Mobile app must work offline during data capturing and needs to store data locally. Once a data connection is available, data should be uploaded to the server in an ad-hoc fashion.

   c)   The app will compress all pictures which exceed a file size or resolution limit. The app can resize the image and /or compress into JPEG/PNG/JPG format so that at least 75% of original photo quality is required as well as picture files will kept under the file size limit.

d) The mobile app will have a login facility. Based on the logged in user's permission, app components will be available to the user.

e) Map points should have suitable symbols for different type of items to have better visualization and understanding.

f) The initial target for the mobile app is for Android, but there should be proper design for usage/development and other mobile platforms also.

g) The application should be made easy to use i.e. convenient user interface/user friendly interface

h) The application will have a feedback input system, where the user can enter any feedback in real time (i.e., Contractions issues, constructions quality, monitoring, implementation progress etc) with supporting image files. Any submitted feedback will remain in the app and show as submitted status. The status will change to being resolved when the management has taken proper action to resolve the issue.

3.7 Dashboard system and Web map demographic visualization

The system shall consist of a web based dynamic dashboard system which will give a quick glance at the overall status of the reach, output level quantitative indicator progress, thematic reach, event calendar and others in graphs, chart and GIS Map form. Users should also be able to generate reports and download in a form of excel, pdf, maps and charts.

The dashboard will be fully interactive so that the users can easily navigate through the system to see a detailed level if desired. Admin users can authorize users as to what information can be accessed by whom. The dashboard will need to have easy filtering system so that all information can be easily filtered by:

- Location: Division, district, upazila, 25 Municipality
- Components & relevant information
- Progress status
- Package ID/Tender ID
- Contractor

The dashboard should consist of the following components:

- Site/Work Information
  - All 25 Municipality, PMU DPHE office, PIU office & others
  - Requested site/work
  - Approved site/work
  - Rejected site/work
  - Offices/ Municipality
- Contract Information
  - Draft Contract
  - Ongoing Contract
  - Final Contract
- Accounts
  - Request/Requisition
  - Allocation/Transfer/Adjustment
  - Payments
  - Penalties (if any)
- Report
  - Monthly/ quarterly/semi-annually/annually municipality wise Progress report

- o Financial Progress report aligned with AIIB, P&C, ERD, Ministry & Planning.
- Miscellaneous
  - o All Contractors
  - o Package No
- Information on
  - o Procurement.
  - o HRD and Training.
  - o Environment & Social Safeguard.
  - o Finance.
  - o Monitoring and evaluation.

3.8 Information or data validation:

Develop the interface to validate the information and data entered the system with certain cross checks built into the system to eliminate the error. The data entry module should have an option of maker/checker where data entry by one staff member can be approved/ disapproved by assigned senior staff member.

3.9 Training on the use and operation

The software developer will arrange multiple training program (Physical / zoom/ google meet/ MS-teams any other platform whichever seems appropriate after through discussion and approved work plan by PD of PMU) at DPHE Head quarter (HQ), Circle offices and district offices to train up the DPHE officials (PD, Executive Engineers, Assistant / Sub – Assistant Engineers, Mechanics) and consultant engaged in program office, district and upazila offices. & relevant personnel of 25 Municipalities will be trained up by the software developer within 30 days & Costs of the firm and final deployment of the software in the web and mobile platform by completing the following tasks.

a) Video tutorial for users

b) Training for updating and handling of the application system.

3.10 Other services

a) Technical Support for databases (update, backup, restoration and maintenance) will be up to the "System Support" period, which will start from the date of final installation and delivery. System should have the provision for updating data in higher version of server with improved Environment.

b) System should be developed in English & Bangla.

c) Troubleshooting, tuning, data export-import, backup etc. for databases.

d) Technical Support for installation, configuration, and deployment of application servers.

e) Technical support for the Web Application (deployment of updates) will be up to the contract period, which will start from the date of final installation and delivery.

f) IT Firm will provide SSL Certificate for secured protocol of the Web Application.

g) IT Firm will provide the required Real IP.

h) Technical support for mobile applications (deployment of updates) will be up to the contract period, which will start from the date of final installation and delivery.

i) Bug fixing and upgrading of the Web Application and Mobile Application.

j) Ownership: Once the web and mobile application has been completed, tested and validated as per Govt ICT policy, handover and accepted by the DPHE, the software and apps with source code, Database and architecture become the property of DPHE.

4. Warranty

A warranty period of 18 (Eighteen) months beyond contract period (7 months) will be in the name "system support" (Without Pay).

4..1 Infrastructure Management

The vendor needs to arrange a proactive infrastructure team to handle all infrastructure-related issues continuously to ensure smooth service of this platform across the country as well as globally.

- Configure necessary Staging & Production server.
- Ensure Server redundancy with proper architecture and maximum uptime.
- Infrastructure could be an in-house solution or any cloud solution.
- Continues server monitoring sizing and tuning.
- Security: Protection & security of content, hosting environment, servers, network elements, access & network must be ensured.
- Ensure Instant Modular expandability of cloud computing resources using cloud resource control & configuration panel.
- Ensure System software backup.
- Ensure 24*7 Customer Care Support.

4.2 Technology Specification

The vendor will follow the industry accepted and widely used open source-based technologies, frameworks, platforms and guidelines. Following are some technical specifications which vendor should consider as reference but not as the ultimate method of implementing National Portal platform. Technology Specification may change in real-time based on the context of the project and future trends.

- Common data platform
- Open-Source Python/any updated version Framework.
- Rule-based authorization support for SSO
- PostgreSQL or any other open source.
- Must ensure load balancing for scalability and failover for high availability of service endpoints
- Proactive for Future technology change, iterative prototyping and agility in framework design are the generic expectation
- Source version control and deployment management.
- Use government approved payment gateway (if required.)

4.3 Security

The vendor should follow any of the industry standard secure development methodology such as (but not limited to) Comprehensive Lightweight Application Security Process (CLASP) by OW ASP etc.

- The IT Firm will be expected to ensure the firewall system is configured in such a way that data/information security and the security standards are maintained according to industry standards with proprietary firewall systems.
- The vendor should consider (but not limited to) common vulnerabilities such as SQL Injection, Cross Site Scripting (XSS) etc.
- Vendor will undertake responsibility for Input Validation Controls, Authorization/ Authentication Control and other security controls in place in both test and production

environment of Maintenance of the Platform:

Major responsibilities under maintenance will be as follows:

- The selected vendor has to provide proactive maintenance and support services that will cover the following (but not limited to) areas:

- Continuous monitoring of query execution in Database, tuning database and tuning codes & queries to minimize response time.

- Fixing all bugs in the system irrespective of its nature and complexities.

- Updating manual by adjusting the changes in the system.

- Adjust and update system in compliance with any security test, load test or IT audit conducted by the client.

4.4 Multi-Layered Support from vendor

The vendor will provide multi-layered user support which will cover the following activities (but not limited to):

Support from Vendor:

Layer 1

- Attain Phone Calls, checking emails
- List problems and initial troubleshooting
- Classify problems

Layer 2

- Investigate issues
- Update Issue Tracking Tool (CRM)
- Escalate issues to Layer 3

Layer 3

- Bug Fixing: Source Code Modification, DB structure Change
- Transactional Data Fixing
- Corrections of wrong activities
- System Monitoring
- Investigate third layer issues and resolve with necessary change Management.
- Regular System Maintenance

4.5 Minimum SLA Terms to be complied:

Vendor needs to comply with the minimum SLA Terms & Conditions (subject to further discussion) during Maintenance period which are given below:

- Deploying dedicated Support Engineers (without Holiday) to address complaint issues.

- A service failure or severe server degradation when users are unable to access any portal will be treated as **Critical Issue Level 1** and vendor should respond immediately which shall not exceed 12 hours.

- A partial service failure or mild degradation when a bug is creating a significant impact to existing portal or application integration will be treated as **Critical Issue Level 2** and the vendor should respond immediately which shall not exceed 24 hours (subject to the discussion).

- General Issues when users are able to access all portals but working in a certain part is disrupted will be treated as **Critical Issue Level 3 and** vendor should respond immediately, which shall not exceed 72 hours.

4.6 Guidelines for system development and design

a) The IT Firm shall adopt the design principles of Service Oriented Architecture (SOA) throughout the system.

b) It should have web services-based Architecture to ensure flexibility and scalability.

c) The system shall be designed in a simplified manner to avoid the need for specialized users and high maintenance overheads.

d) The system should be robust to cope with errors during execution and cope with erroneous input.

e) The proposed solution should be secured. The web applications will be hosted under the secure environment and could only be accessed through secured protocol.

f) The system should be designed in such a way that it can be extended for larger dataset and map points without changing the core architecture and implementation.

The web and mobile application should be easy to navigate, or in other words, to be able to find the expected data/information/section within the soonest possible time.

5.Deliverable and work schedule

Sl. No.	Activities	Deliverables
1	Inception report	Inception report within 7 days of signing the contract.
1	Development of Web Application and dashboard system	Development of the Web within 2nd month of signing the contract. IT Firm will develop and finalize in consultation with the concerned
2	Development of Mobile Application	Development of Mobile Application including full application, rolled out for field testing, piloting, data verification should be completed by 2nd month. IT Firm will provide: • Database • Web Application • Mobile Application • Dashboard Development of Web within 2nd month of signing the contract.
3	Survey	Comprehensive report on building footprints with the associated WASH assets [e.g. toilets, containment systems, connections to sewer network, water supply etc], road network, water bodies, land use, low-income settlement areas, etc. including findings and condensed responses and recommendations from household survey of five town (including all the responses) (Interim on 3rd month and final 5th month).
4	System Implementation and capacity building	Completed System installment to user mobiles of all respective Offices, provide training and report generated based on the data provided by the users by 6th Month. The IT firm will ensure that the system has been tested and validated as per Govt ICT policy. Additionally, the IT Firm will provide:

Sl. No.	Activities	Deliverables
		• Software (source code and installers) with Comprehensive report on city scale census level geo-spatial data and inferences captured through the survey activity, properly formatted and validated. • User Manual video
5	System maintenance and update	IT Firm will be responsible for System maintenance and update the system till warranty period.

6. Coordination

PD and Consultant of the PMU Project will provide necessary support to the IT Firm related program information and provide relevant documents. On the other hand, an assigned program manager needs to be made available by the IT Firm to present information and coordinate with DPHE. A reasonable number of meetings need to be organized to present the design and develop the solution by incorporating data and information.

7. Ownership after Project Completion Once the web and mobile application has been completed, Tested and validated as per Govt. ICT policy, deployed to the cloud and handover and accepted by the PMU DPHE officials, the software and mobile app with source code, database and architecture become the property of PMU DPHE. Since DPHE is working as the implementing agency, the software along with mobile app will be under the joint ownership of PMU and MIS division of DPHE as per MoU sighed in between PMU and DPHE.

8.Proposal and costs

The technical and financial proposal will include all relevant expenditures related to the IT services (including Tax, VAT and others as per Government rule). The cost will be expressed in Bangladeshi currency (BDT) and all payments will be made locally in the same currency. Tax, VAT and others (if any) will be deducted at source as per govt. rule.

9. DURATION OF WORK

planned to be implemented for seven (7) months. The consulting firm that will be engaged under that package has to complete all activities with quality engaging manpower stated above or whatever needed to come up within the estimated lump amount and time of PPSF unless otherwise happens. So, man-month not linked [1].

10. Source of funds and mode of payment

The source of funds for this consultancy service is PPSF of AIIB under Bangladesh City-wide Inclusive Sanitation Project in 25 Towns (GoB-AIIB) except the portion of VAT, IT, and other relevant taxes. Income tax and VAT will be deducted at source from the payment as per the latest rules of Bangladesh.

Payment shall be made to the firm(s) following the provision here to.

• All payments shall be made from the office of the Project Director, DPHE.

• No payment for disproportionate progress/achievement of the target.

• A proportionate penalty shall be imposed for delay in service delivery.

• Payment shall be output-based as follows: Mode of Payment with Milestone.

11. Mode of payment with milestone

Milestone	Percentage
1.Inception report submission and acceptance	5%
2. Submission and acceptance of web and dashboard development along with Development of Mobile Application.	20%
3.Comprehensive Survey report (Interim)	10%
4. Comprehensive Survey report (Final)	10%
4.System Implementation and capacity building	30%
5. Final Completion Report (accepted by DPHE) and submission of written "system support" warranty with BG (10%).	25%

13 Qualification of IT Firm

Must have valid and up-to-date Trade license/Register of joint stock & companies (RJSC) registration, VAT, TIN certificate, Basis certificate.

14. Consultancy professional (key staff), person month and qualification

Sl no	Position	Nos	Person month	Minimum qualification	experience
1	Team leader (TL)	1	9 7	Master's degree in computer science & engineering or relevant subject.	15 years total experience, including 10 years of specific experience in Software development in related assignment.
2	DTL	1	9 7	B. Sc in Civil Engineering/ master's degree in Environment/Sanitation/ Public Health/Wash or relevant subject.	Minimum 12 years total experience, including 8 years of specific experience in WASH related field.
3	Waste management Expert	1	9 7	B. Sc in Civil Engineering/master's degree in SWM or FSM relevant subject.	Minimum 10 years' experience in similar field or relevant field.
4	IT Expert	2	· 7	Bachelor's degree in computer science or relevant subject.	Minimum 10 years' experience in data management, Coding bug fixing, problem solving and relevant tasks.
5	GIS Survey expert	5	7	Master's degree or equivalent in Geography, Regional Planning, GIS management and other relevant subjects in the required field.	Minimum 10 years' experience in GIS data management, Survey, report preparation, understanding of mapping projection systems, coordinating transformations and related issues. Understanding of data collection techniques and related issues. knowledge of CAD software integration with GIS. Ability to produce rapid mapping products in both softcopy and hardcopy formats.

15. OWNERSHIP OF DOCUMENTS

- DPHE shall be the owner of all the web applications, mobile applications, system implementation and capacity building materials and other documents prepared for the project.
- After completion of the project, all documents/results should be handed over to DPHE before final payment.
- The consulting firm shall accommodate the latest version of all the application, system and computer software/programs and shall provide the latest version while transferring database/tools/software/application/system and other to DPHE.

Provisional Sum/Reimbursable: Support Staff and other items

a) Support Staffs (Assistant software engineer/programmer, Jr. IT expert, Office Assistant, etc.)
b) Travel expenses, Vehicle rent.
c) Per Diem Domestic.
d) Computer, laptop, printer and other equipment.
e) Photocopier, Scanner. Telephone, Internet Modem and other necessary office equipment, including accessories.
f) Project Completion Reports Pourashavas wise report, all deliverables in soft copy including master copy and Copies.
g) Office setup, including Furniture, Recurring cost, Maintenance etc.
h) Dissemination program, workshop and meeting arrangement.
i) Miscellaneous.

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(Dalila Afroze)
Executive Engineer, Arsenic Management
Division &
Member, ToR Committee, DPHE.

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(Md. Shafikul Alam)
Executive Engineer, Ground Water
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(Sharmistha Debnath)
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(Shishir Kumar Biswas)
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Member Secretary, ToR Committee,
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Superintending Engineer, Planning Circle &
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<td>

(Mahmud Kabir Chowdhury)
Project Director
Bangladesh City Inclusive Sanitation
Project in 25 Towns (GoB-AIIB) &
Member, ToR Committee, DPHE.

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Approved

Tusher Mohon Shadhu Khan
Chief Engineer
Department of Public Health Engineering
Govt. of Bangladesh, Dhaka.

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(Bidhan Chandra Dey)
Superintending Engineer, Ground Water
Circle, Project Director &
Convener, ToR Committee, DPHE.

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