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Department of Public Health Engineering  
Host and Rohingya Enhancement of Lives Project (HELP)  
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## TERMS OF REFERENCE (ToR)

For

Review and Update of existing ICT-based Monitoring and billing software of DPHE including O&M and related ICT equipment  
Package Number: SD-19

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## 1. Background

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The Department of Public Health Engineering (DPHE) is the national lead agency responsible for safe drinking water supply and sanitation services throughout Bangladesh, except in areas served by WASAs. DPHE's mandate includes safe water supply, sustainable sanitation, solid waste and sewage management, and strengthening institutional and community capacity for sustainable service delivery.

Since 2017, Bangladesh has hosted nearly one million Displaced Rohingya Population (DRP), primarily in Cox's Bazar, placing significant pressure on basic services, infrastructure, natural resources, and surrounding host communities. The prolonged crisis, compounded by declining humanitarian assistance and increasing climate risks, has created significant challenges related to WASH services, waste management, sustainable Operations and Maintenance (O&M), and institutional capacity. The Government has also relocated approximately 32,000 DRP to Bhasan Char, where sustainable operation and management of essential infrastructure remain important.

The Government of Bangladesh, with support from the World Bank, is implementing the Host and Rohingya Enhancement of Lives Project (HELP). The DPHE component of HELP aims to improve access to basic services, strengthen climate and disaster resilience, and enhance institutional capacity for sustainable service delivery to DRP and host communities. HELP builds on the experience and investments of the Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) and its Additional Financing.

Under EMCRP and other DPHE projects and initiatives, several ICT-based systems have been developed for project monitoring, billing, O&M, procurement, human resources, budgeting, planning, asset and vehicle management, municipal information management, and reporting. A recent departmental assessment identified approximately 30 digital systems across 16 DPHE offices and projects. As many of these systems were developed independently, DPHE currently faces fragmented databases and technology platforms, duplicate data entry, separate authentication mechanisms, limited interoperability, fragmented reporting, scattered hosting arrangements, and difficulties in accessing information from obsolete or retired systems.

To address the monitoring, billing, O&M, reporting, and institutional requirements of HELP in a sustainable manner, the Project intends to review, update, integrate, and strengthen relevant existing ICT systems and establish an Integrated Digital Management and Information System (IDMIS). Rather than creating another stand-alone project-specific system, the proposed IDMIS will provide a secure, scalable, and interoperable digital environment that supports HELP while integrating with DPHE's broader institutional ICT architecture.

The assignment will follow an "integrate rather than replace" approach. Existing systems will be assessed based on their technical condition, operational relevance, interoperability, data quality, and sustainability and, as appropriate, integrated through APIs or middleware, modernized, migrated, consolidated, or archived. The IDMIS will support integrated data management, centralized identity and access management, project monitoring, billing and O&M, asset management, dashboards and reporting, analytics, and appropriate AI-supported decision-making.

While the system architecture will consider DPHE's broader institutional requirements to ensure interoperability, scalability, and long-term sustainability, activities financed under this assignment will remain directly linked to the operational, monitoring, O&M, reporting, and institutional capacity requirements of HELP, while enabling DPHE to progressively scale the platform for wider departmental use.

## 2. Objectives of the Assignment

### 2.1 Overall Objective

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The primary objective of this assignment is to review, update, strengthen, and integrate the existing ICT-based Monitoring, Billing, and Operations & Maintenance (O&M) System to support the effective implementation, monitoring, management, and sustainability of interventions under DPHE.

Recognizing that HELP interventions are implemented within the broader institutional and operational framework of the Department of Public Health Engineering (DPHE), the assignment shall adopt an integrated institutional approach rather than developing or maintaining a stand-alone project-specific ICT platform.

Accordingly, the Consultant shall review the existing relevant ICT systems, applications, databases, digital platforms, and associated infrastructure of DPHE and identify the functional, technical, and institutional requirements necessary for effective integration related monitoring, billing, O&M, asset management, reporting, and decision-support functions.

Based on the assessment, the Consultant shall update, enhance, configure, and integrate the relevant system components necessary to meet the requirements of HELP while ensuring interoperability with DPHE's existing ICT architecture, databases, and operational systems. Where modification or enhancement of common DPHE system components is technically necessary for effective integration, operation, sustainability, or institutionalization of HELP functionalities, such improvements shall be undertaken within the agreed scope of the assignment.

The updated system shall be designed as a scalable, interoperable, secure, and sustainable institutional solution so that the functionalities developed or strengthened under HELP can be maintained by DPHE and, where appropriate, subsequently scaled up or adopted for broader departmental use without requiring the establishment of parallel project-specific systems.

The assignment shall therefore contribute to both the immediate operational requirements of HELP and the longer-term institutional strengthening and digital transformation of DPHE, while ensuring that all activities financed under the assignment remain directly relevant to and justified by the objectives and implementation requirements of HELP.

## 2.2 Specific Objectives

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The specific objectives are to:

1. Review and update the existing web-based monitoring Dashboard developed by EMCRP and projects under DPHE and link relevant data to the newly established dashboard.
2. Prepare a GAP analysis of the existing system.
3. Establish a unified enterprise platform for DPHE's institutional, administrative and development functions, organized around the seven modules defined in Section 3.2: Administrative Management, Asset Management, Planning & Research, Revenue Operation, Development Operation, Reporting, and Miscellaneous/Citizen Services.
4. **Integrate approximately 30–40 existing DPHE information systems** through appropriate APIs, middleware and integration services. Where an existing system is obsolete, unsupported or no longer sustainable, its historical data and records shall be preserved through a secure, searchable and read-only legacy archive. No new standalone application shall be developed outside the IDMIS platform during the assignment and without the approval of the Chief Engineer.
5. **Establish centralized Identity and Access Management (IAM)** with Single Sign-On (SSO), a common user identity, and role-based access control centrally administered by the DPHE MIS Unit.
6. **Establish an enterprise data warehouse and business intelligence environment** to consolidate information from integrated systems and provide reliable dashboards, analytics and reports for management (Ministry, Chief Engineer, Addl. Chief Engineer etc.), Project Directors and field offices.

7. **Strengthen project financial and procurement monitoring** through online bill submission, integration with BoQ and Schedule of Rates, automated identification of potential front-loading or other payment anomalies, and a time-extension and penalty management module.
8. **Standardize and automate recurring institutional processes and outputs**, including a common Project Completion Report (PCR) format and automated generation of approved standard office letters and reports.
9. **Provide a configurable dynamic project/form builder and offline-capable mobile data-collection facility** with GPS-based location capture to support field surveys, tubewell and latrine monitoring, asset inspection and other field-level data collection.
10. **Establish a comprehensive GIS-based asset registry** covering DPHE land, buildings, infrastructure and vehicles, while enabling integration with existing groundwater, water-resource and laboratory information.
11. **Ensure interoperability with relevant national and Government platforms**, including e-GP, e-CMS, iBAS++, AMS, SDPP of the Planning Commission, GEMS of the Ministry of Public Administration and relevant Local Government Division platforms, through approved interfaces and APIs to minimize duplicate data entry.
12. Preserve and improve access to historical information by securely archiving the records of completed projects and systems before decommissioning their original applications. This will also include field-level of field survey and data collection.
13. **Introduce practical, human-supervised AI and advanced analytics capabilities** for functions such as document search, drafting assistance, information retrieval, anomaly detection and project delay identification, while ensuring that statutory decision-making and approval authority remain with authorized DPHE officials.
14. **Establish a unified citizen service and complaint/grievance management portal**, with appropriate web and mobile access and integration with relevant DPHE services.
15. **Ensure enterprise-level security, privacy, auditability, scalability, interoperability, availability and business continuity** across the IDMISS platform.
16. **Strengthen departmental accounts management** and support timely internal and external (C&AG) audit compliance, including a structured audit-objection/para register and settlement workflow, consistent with Sub-system A8 (Section 3.2).
17. **Strengthen DPHE's institutional capacity** through structured training, knowledge transfer, technical documentation, source-code handover and capacity building for relevant personnel.
18. **Provide post-implementation maintenance and technical support** for a defined period to ensure stable operation, hosting management, timely resolution of issues, system security, performance monitoring and continuous improvement of the IDMISS.

### 3. Scope of Services

The firm shall provide all professional services, software, licenses (where applicable), source code, configuration, interfaces, data migration, infrastructure support, installation, security hardening, testing, training, documentation, domain/cloud, web-based storage, warranty, support and knowledge transfer required to establish IDMIS as a production enterprise platform. The scope covers discovery and process assessment, solution architecture, iterative configuration and development, integration, data migration, phased rollout, and transition to DPHE operations.

#### 3.1 Inception, Inventory and Assessment of Existing Systems

During inception, the Consultant shall validate and complete DPHE's preliminary inventory of the existing software, applications and web-based systems identified across DPHE offices and projects, using the template in Appendix A. The Consultant shall consult relevant system owners and, where necessary, original developers to understand architecture, source-code availability, interfaces, data structures, licensing, hosting and operational status. Where an original developer is unavailable or cooperation cannot reasonably be obtained, the Consultant shall document the limitation and proceed, subject to DPHE approval, using available documentation, database access, exports and other technically appropriate methods.

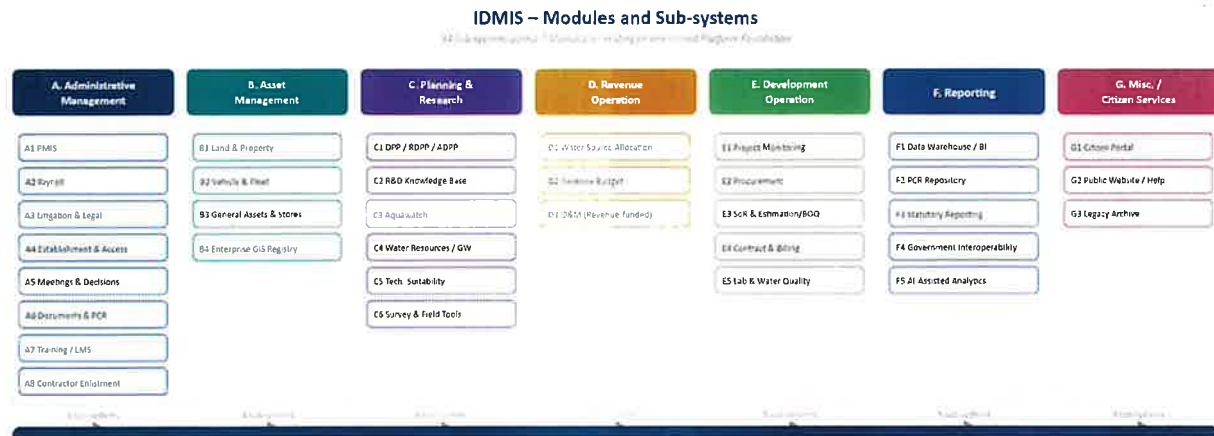
For each system in the inventory, the firm shall recommend and agree with DPHE on one of three treatments, assessed against the same three criteria set out in Section 1 – technical condition, operational relevance and future sustainability:

- Direct integration – the system is technically sound and shall be connected to IDMIS via API or middleware, retaining its own database of record;
- Migration – the system's functionality is absorbed into an IDMIS module and its data is migrated, after which the legacy system is abandoned; or
- Legacy archive – the system is obsolete, unsupported, or belongs to a completed project; its data and documents are extracted into the secure, read-only Legacy Software Archive (Sub-system G3) before the original system is decommissioned.

The inventory and assessment report shall specifically resolve all data-reconciliation issues already known to DPHE and shall document, with a proposed remediation approach, any further data-quality or duplication issue the inventory uncovers across the remaining systems.

#### 3.2 Functional Modules

The IDMIS shall be organized into a limited number of top-level modules reflecting DPHE's major institutional and operational functions: Administrative Management, Asset Management, Planning & Research, Revenue Operation, Development Operation, Reporting, and Miscellaneous/Citizen Services. These modules shall serve as the principal functional and navigation groupings of the platform. Existing DPHE applications shall be integrated by collecting data from various project including field office, modernized, migrated or archived under the relevant module based on the approved inception assessment, while genuinely required new sub-systems may be developed within the common IDMIS architecture.



Every Module and Sub-system shall operate on a shared Platform Foundation and comprising:

- Single Sign-On (SSO) with one common user ID and password per employee, and role/office-based access control administered centrally by DPHE's MIS Unit – explicitly requested by field-level Executive Engineers;
- A configurable workflow engine, shared master data (geography, fiscal year, organization, designation), and a centralized notification service (in-app, email, SMS);
- Central document storage, permission-aware full-text search, complete bilingual (Bangla/English) interface and reporting, and an immutable audit trail for every create/update/approval/export event.

Taken together, the seven Modules as shown above contain 35 Sub-systems – close to the 30+ existing systems DPHE's own survey identified, with the difference made up of a handful of genuinely new capabilities (Litigation Management, Audit and Accounts Management, a proper enterprise GIS registry, standardized statutory reporting) that do not exist today but are necessary for DPHE to run fully online. During inception, the firm shall convert every Sub-system into a traceable product backlog without reducing scope, subject to formal change control.

## A. Administrative Management

### A1. Personnel Information Management System (PMIS)

The authoritative personnel record for DPHE's workforce.

- Digital service book: appointment, posting, transfer, promotion, leave, disciplinary and retirement records with supporting orders;
- Sanctioned-post and vacancy tracking, employee self-service, and retirement/workforce forecasting;
- Reference exchange with GEMS (Ministry of Public Administration) to avoid duplicate entry of the mandatory national civil-service dataset.

### A2. Payroll Management

Salary computation and disbursement, kept as its own sub-system because of its distinct approval and audit requirements.

- Salary computation, allowances, statutory deductions and payroll-approval workflow;

- Disbursement records and audit trail, with field-level access.

### A3. Litigation and Legal Case Management

A dedicated register for court and tribunal cases involving DPHE – explicitly named by DPHE as a required Administrative sub-system, and not present in either candidate draft or the existing 30+ system inventory.

- Case register: forum, parties, case number, hearing dates, lawyer, orders, stay status and current exposure;
- Cross-linked to the underlying land dispute (Sub-system B1) or contract claim (Sub-system E4) that gave rise to the case, so a single file shows the full history;
- Document management for case files, legal opinions, and a dashboard of active exposure by office and case type.

### A4. Establishment, Organogram and Access Administration

The organizational backbone that the Platform Foundation's SSO and workflow engine run against.

- Ministry/wing/circle/division/district/upazila/office registry with effective dates;
- Sanctioned-post structure, delegation of authority, and centrally administered access reviews.

### A5. Meeting, Committee and Decision Management

Standardizes committee governance across DPHE.

- Committee registry, agenda preparation, bilingual invitations, attendance/quorum tracking;
- Minutes drafting with decision-and-action tracking through to closure;
- Automatic generation of standard office letters from approved templates.

### A6. Document, Correspondence and Records Management

Controlled institutional content and correspondence, including the standardized reporting format DPHE asked for.

- Inward/outward correspondence tracking with optional e-Nothi/D-Nothi linkage;
- A single, standardized Project Completion Report (PCR) template used by every project office;
- Document classification, version control and retention management.

### A7. Training Division and Learning Management

Supports the DPHE Training Division's planning, delivery and certification functions.

- Training-needs assessment, annual plan/budget and course catalogue;
- Batch scheduling, e-learning delivery, and QR-verifiable certification linked back to the employee's PMIS record.

### A8. Contractor Enlistment Management

This sub-system should cover the enlistment and renewal of enlistment of new and existing contractors of DPHE.

- Digital platform to apply for new enlistment, renewal of existing enlistment of contractors willing to work in DPHE;
- Record keeping and data management for further operation.

## **B. Asset Management**

### **B1. Land and Property Management**

A legally traceable, map-based register for every DPHE land and building.

- Particulars, ownership/possession status, boundary survey data, and mandatory GIS mapping of every land/building;
- Lease/license records, encroachment tracking, and cross-linkage to Sub-system A3 whenever a dispute becomes a legal case.

### **B2. Vehicle and Fleet Management**

Department-wide control of owned, leased and hired vehicles.

- Registration, driver linkage, trip and fuel management;
- Compliance-validity alerts (fitness, tax token, insurance) and maintenance history.

### **B3. General Asset, Store and Inventory Management**

Everything that is not land, property or a vehicle – equipment, furniture, IT assets and store/warehouse inventory.

- Asset register with condition, custody and lifecycle/disposal tracking;
- Store/warehouse inventory linked to procurement (Sub-system E2) and maintenance work orders.

### **B4. Enterprise GIS and Spatial Asset Registry**

The shared spatial backbone underneath every physical asset, water source and scheme DPHE holds – built once and consumed by Modules B, C and E alike.

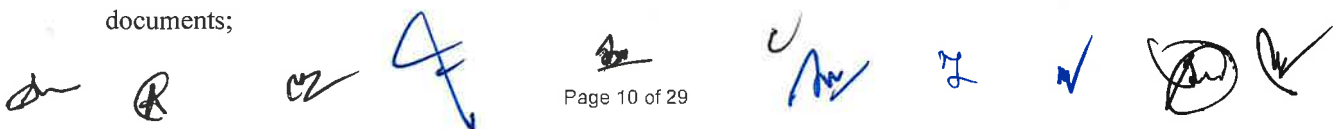
- Enterprise geodatabase mapping water points, schemes, treatment plants, offices, laboratories and land;
- Offline-capable field GIS data capture, role-based web editing, and standardized, approval-controlled map production;
- Clear separation between internal technical layers and any publicly published, generalized map content (Sub-system G2).

## **C. Planning and Research**

### **C1. DPP / RDPP / ADPP Management**

Preparation and approval workflow for development project documents, and the entry point when a new project starts.

- Templates, workflow-based review, approval routing and version control for DPP, RDPP and ADPP documents;



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- Reference exchange with the Planning Commission's SDPP portal to avoid duplicate DPP entry;

## **C2. Research and Development Knowledge Base**

A structured record of DPHE's own innovations, studies and publications – the kind of content currently being organized for the R&D Division's public webpage.

- Ongoing and completed research, innovations, publications and conference/collaboration records;
- Structured inputs for statutory and international reporting (Sub-system F3).

## **C3. AquaWatch (Tubewell/Water Source Survey and Data Management)**

DPHE's existing tubewell survey platform, integrated rather than duplicated.

- Tubewell survey data collection and management, consistent with the platform's existing scope;
- Feeds the Enterprise GIS registry (Sub-system B4) and the groundwater knowledge base (Sub-system C4).

## **C4. Water Resources, Groundwater and Potential Mapping**

DPHE's existing groundwater and water-resource knowledge base, including the Water Resources Potential Map / PICMAC platform and the Safe Aquifer Assessment and Ranking Tool.

- Bore-log, aquifer and water-level records, integrated – not duplicated – from the existing WRPM/PICMAC platform;
- Safe drilling-depth prediction and groundwater potential/risk mapping, published through the Enterprise GIS registry (Sub-system B4).

## **C5. Technology Suitability and Engineering Decision Support**

Transparent, expert-reviewed matching of water-supply and sanitation technology to local conditions.

- Combines geology, water quality, flooding and demand data to shortlist appropriate technologies;
- Recommendations always require expert engineering review before becoming official.

## **C6. Survey, Feasibility Study and Field Investigation Tools**

A configurable survey and inspection tool for field-level data collection.

- Dynamic form builder for feasibility studies, tubewell/latrines and asset-condition surveys;
- Record keeping of data of ongoing/completed survey, feasibility components.

## **D. Revenue Operation**

### **D1. Allocation of Water Sources (Need-Based)**

Enable applicants to apply for new water sources at household/community level.

- Collect application for new water sources;
- Check duplications and prepare a priority list for administrative decision making;

### **D2. Revenue Budget Planning and Expenditure Monitoring**

Tracks DPHE's own revenue-budget allocation and spend, distinct from development-project financial monitoring (Sub-system E1).

- Annual revenue-budget preparation, allocation and revision;
- Expenditure and fund-utilization tracking against the revenue budget, with approval workflow.

### **D3. Operation and Maintenance of Revenue-funded Schemes**

Day-to-day upkeep of already-commissioned schemes, funded through the revenue budget rather than a development project.

- Preventive and corrective maintenance work orders for commissioned assets (linked to Sub-system B3);
- O&M cost tracking distinct from development-budget contract payments (Module E).

## **E. Development Operation**

### **E1. Project and Program Monitoring**

Physical and financial progress tracking for every development-budget project, opened directly from the approved DPP (Sub-system C1).

- One project one dashboard with separate project details and log in. MIS unit of DPHE will create such new projects based on respective project's DPP.
- Milestone tracking, physical- and financial-progress recording with geo-tagged field evidence;
- Donor-funded project monitoring, risk/issue register, and construction-supervision findings recorded through to commissioning, at which point the completed asset is handed to Sub-system B3;
- Portfolio dashboards by geography, sector and funding source for Project Directors and DPHE senior management.

### **E2. Procurement Management**

Planning and management-level visibility over procurement, while e-GP remains the statutory system of record.

- Annual and project-wise procurement planning by package, method and estimated cost;
- Approved, permission-limited interoperability with e-GP for package and status data;

### **E3. Schedule of Rates (SoR) and Estimation / BOQ**

A controlled, versioned rate book and standardized estimate preparation, used across every development-budget project.

- Structured rate book with effective dates and full version history – no approved estimate loses its rate basis when the schedule is later revised;
- Market-price comparison against the approved schedule;
- BOQ authoring from approved rate items, linked directly to procurement (Sub-system E2) and, later, to contract variation (Sub-system E4).

### **E4. Contract, Billing and Time-Extension Management**

Full contract lifecycle management with the specific financial-control features.

- Digitized bill submission and processing, linked directly to the BoQ and the current approved Schedule of Rates;

- Automatic front-loading detection – flagging bill items priced disproportionately early in the work program – to protect DPHE from overpayment exposure, as specifically requested by the Committee Chair;
- Time-extension and penalty calculation modeled on the PEDP-4 TIMS system; variation, claim and final-account tracking with full audit trail; claims disputed in court are cross-linked to Sub-system A3.

## **E5. Laboratory and Water-Quality Monitoring and Surveillance**

End-to-end sample, testing and reporting workflow, integrating the existing Lab Circle software – and the sub-system with a confirmed funding source (see the funding note below).

- Sample registration, chain of custody, and quality-assurance workflow with instrument calibration records;
- Bilingual, QR-verifiable test certificates and exceedance alerts linked to the relevant water source or scheme;

## **F. Reporting**

### **F1. Enterprise Data Warehouse and Business Intelligence**

A trusted, consolidated analytical layer drawing from every other Module.

- Central data warehouse consolidating project, financial, HR, asset, land, vehicle and citizen-service data;
- Executive, divisional, district and project-level dashboards –IMED's existing web-based platform as a useful reference point.

### **F2. Project Completion Report (PCR) Repository and Analytics**

The analytical counterpart to the standardized PCR template in Sub-system A6.

- Searchable repository of completed PCRs across all projects, in the single standard format;
- Cross-project analytics (delay patterns, cost variance, common closeout issues).

### **F3. Statutory and International Reporting**

Recurring reporting obligations that currently require manual compilation

- Structured inputs and templates for SDG 6, GLAAS and similar recurring international reporting;
- Draws on Sub-system C2 (Research and Development Knowledge Base) and the data warehouse (Sub-system F1).

### **F4. Government Interoperability Reporting**

The reporting-facing side of every external-system connection described in Section 3.4 (e-GP, e-CMS, iBAS++, AMS, SDPP, GEMS, LGD).

- Consolidated view of what is required to be sent to, and received from, each external government system;
- Reconciliation dashboard to catch duplicate or missing entries before they propagate.

### **F5. AI-Assisted Analytics and Drafting Support**

Practical, human-supervised AI assistance – intentionally scoped as advisory rather than autonomous, given the sensitivity of the underlying data. Governed under Section 9.

- Bangla/English natural-language search and summarization across approved DPHE documents and records, with source citation;
- Drafting assistance for reports, letters and briefing notes, always presented as a draft requiring human review;

- Anomaly and delay detection across project, billing and fleet data.

## **G. Miscellaneous and Citizen Services**

### **G1. Citizen Service Portal and Complaint/Grievance Management**

A unified citizen-facing service channel across every DPHE function that touches the public.

- Multi-channel complaint intake (web, mobile, office desk) with classification, routing and resolution tracking;
- Service-request management and citizen notification; only aggregated, de-identified information is published externally.

### **G2. Public Website, Notices and Open Data**

DPHE's public presence, including a dedicated internal Help and Support section.

- Bilingual public website with approved, generalized service, asset and water-resource information, published from Sub-system B4;
- Internal Help and Support section for DPHE staff, and a publishing workflow requiring content-owner and reviewer approval before anything reaches the public site.

### **G3. Legacy Software Archive**

The core concern that the data disappears when a project and its server budget end.

- Secure, indexed, read-only extraction of data and documents from systems being retired, with full audit trail;
- Applied to every completed-project system identified in the Section 3.1 inventory before decommissioning.

## **3.3 Cross-Module Traceability**

The platform shall preserve traceable relationships across the full institutional lifecycle, following the Sub-system references used above. At minimum, an authorized user shall be able to navigate, subject to permission:

- approved plan (C1) → estimate/BOQ (E3) → procurement package (E2) → award → contract (E4);
- contract (E4) → measurement/bill → payment status → completion → commissioned asset (B3);
- land/property (B1) → GIS geometry (B4) → lease/allocation → dispute (A3);
- water source (C4) → laboratory result (E5) → potential map (B4);
- meeting (A5) → approved decision → assigned action → related project or document

## **3.4 Interoperability with External Government Systems**

All integrations are subject to DPHE approval, the availability of the source system's interface, and the data-sharing authority governing that system. No external system shall be assumed available until confirmed during inception. In every case, the external, statutorily mandated system remains the authoritative record; IDMIS consumes or exchanges only the data DPHE is authorized to share.

| System                                                                            | Purpose / authority                                                                                  | Nature of integration                                                                                                                                           |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| e-GP                                                                              | National e-Government Procurement system (BPPA/CPTU)                                                 | Package and status exchange only; e-GP remains authoritative for legally mandated procurement steps.                                                            |
| e-CMS                                                                             | Government e-Contract Management System – DPHE is a government priority department for e-CMS rollout | Contract data exchange; avoid duplicate entry between IDMIS and e-CMS.                                                                                          |
| iBAS++                                                                            | Government integrated budget and accounting system                                                   | Approved budget/expenditure/payment reference exchange; IDMIS does not replace government accounting.                                                           |
| AMS                                                                               | Audit Management System                                                                              | Reference exchange to avoid duplicate asset registers.                                                                                                          |
| SDPP                                                                              | Planning Commission's project-document portal (DPP upload requirement)                               | Avoid duplicate DPP entry between IDMIS and SDPP.                                                                                                               |
| GEMS                                                                              | Ministry of Public Administration's mandatory civil-service employee database                        | Reference exchange for the mandatory national employee dataset; avoid duplicate PMIS entry.                                                                     |
| Local Government Division platforms                                               | LGD digital reporting systems                                                                        | Approved reporting data exchange, scope to be confirmed at inception.                                                                                           |
| Project-specific IMIS (e.g., the 25-City Inclusive Sanitation Project's own IMIS) | Project-level monitoring systems that must retain their own municipality-level reporting function    | API-based data exchange rather than replacement, per the Project Director's explicit request at the 2nd meeting, to avoid conflicting or duplicated monitoring. |

### 3.5 Data Migration and Legacy Data Digitization

Migration shall follow a controlled, auditable sequence:

- Inventory source systems, spreadsheets, paper registers and geospatial datasets, and assign an owner and sensitivity classification to each;
- Profile data structure, volume, quality, duplication and historical coverage, and specifically screen for the “invalid, duplicate or poor-quality data” already known to exist in DPHE's central databases;
- Map source fields to the approved enterprise data model and document every transformation rule;
- Clean, standardize and deduplicate records, with DPHE data-owner approval for correction rules;
- Perform trial migrations in a controlled environment, producing error, reject and reconciliation reports;
- Validate counts, totals, samples and spatial positions with the relevant business owner before cutover;
- Execute cutover with a documented rollback plan, and retain the original source data in an approved, readable archival form.

Because DPHE lacks systematic digital records for many completed and ongoing field activities, the firm's proposal shall separately cost a field-level data collection and upload service, consistent with the budget provision. Where a consulting or data-entry firm is engaged for this purpose; the firm shall in that case define the data templates, quality checks and acceptance criteria that the data-entry service must follow.

#### 4. Guiding Principles

These principles were established by the Integration Committee across its three meetings and shall govern every design and implementation decision made under this assignment.

| Principle                                       | Details                                                                                                                                                                                                                 |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Integrate, do not replace                       | Existing, functioning DPHE systems are connected through APIs or middleware wherever practicable. Replacement is used only where a system is technically unsustainable, and only after Committee agreement.             |
| Needs-based and modular                         | Modules are added under the platform as genuinely required, not built speculatively; the roadmap is need-based and may be phased.                                                                                       |
| Central governance, common access               | DPHE's MIS Unit holds central administrative control of the platform; field-level users use one common login rather than separate credentials per module.                                                               |
| Field-usability first                           | Interfaces must be genuinely usable by field-level Executive Engineers, Assistant Engineers and Sub-Assistant Engineers, not only headquarters staff; low-bandwidth and offline operation is a first-class requirement. |
| Data as an institutional asset                  | Master data is cleaned of duplication and "invalid, duplicate or poor-quality data" before/during migration; historical data from completed projects is preserved even after the originating system is non-functional.  |
| Security, auditability and human accountability | Every module maintains a complete audit trail; AI outputs are advisory and reviewable, never a substitute for statutory approval.                                                                                       |
| Sustainability                                  | The platform is built and handed over in a way DPHE can operate, extend and maintain after the firm's contract ends, avoiding technical or commercial lock-in.                                                          |

#### 5. Technical Architecture and Technology Standards

The platform shall use a modular, API-first architecture (microservices or an equivalent well-structured modular design) built on open standards. The following table provides indicative technology references for planning purposes. Consultants may propose equivalent or better tools, provided they meet the same functional and non-functional requirements.

| Layer              | Indicative technology reference                                                                              |
|--------------------|--------------------------------------------------------------------------------------------------------------|
| Architecture style | Microservices / API-first / event-driven, independently deployable domain services                           |
| Frontend web       | Modern component-based framework (e.g., React/Next.js) for the unified portal, dashboards and citizen portal |
| Mobile             | Cross-platform or native framework supporting offline-capable field data collection                          |

| Layer                              | Indicative technology reference                                                                                   |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Backend                            | Enterprise-grade backend framework(s) consistent with the firm's proposed architecture                            |
| API gateway / integration          | API gateway with authentication, routing, rate limiting; middleware/ESB-class tool for legacy-system connectors   |
| Identity and access                | OAuth 2.0 / OpenID Connect-based IAM with SSO, RBAC, and Active Directory/LDAP synchronization where applicable   |
| Workflow engine                    | Configurable business-process/workflow engine for approvals, escalation and service-level timers                  |
| Relational and spatial database    | Enterprise relational database with a spatial extension (e.g., PostgreSQL/PostGIS) for transactional and GIS data |
| Data warehouse / BI                | Dedicated data-warehouse architecture with a business-intelligence and dashboard layer                            |
| Document/object storage            | Encrypted document and object storage with version control                                                        |
| Search                             | Enterprise search platform supporting full-text and permission-aware document search                              |
| Containerization and orchestration | Container packaging with an orchestration platform for scaling and high availability                              |
| CI/CD                              | Automated build, test and deployment pipeline with version-controlled source repository                           |
| Monitoring and logging             | Centralized monitoring, alerting and log-management platform                                                      |
| Hosting environment                | Government (DPHE) -approved data center or cloud                                                                  |

## 6. Hosting, Infrastructure and Data-Centre Requirements

The platform shall separate production, disaster-recovery, staging, test and development environments. The firm shall size infrastructure from a measured workload assessment (users, data growth, concurrency, availability and recovery targets) and submit a detailed Bill of Quantities for DPHE approval before procurement of hardware or hosting capacity. Based on the assessment and applicable Government requirements, DPHE shall approve the hosting arrangement, including Government data-centre, local or other approved hosting options.

The architecture shall ensure that shared infrastructure does not create a performance bottleneck across all modules. The firm shall be required to propose a scalable architecture (whether through separate services, containers, or logically separated database instances) that achieves this without necessarily requiring physically separate servers per module and shall justify its proposed approach against the workload assessment.

| Requirement                    | Minimum target                                                                                          |
|--------------------------------|---------------------------------------------------------------------------------------------------------|
| Availability                   | Minimum 99.5% monthly availability for core production services, excluding approved maintenance windows |
| Recovery point objective (RPO) | Not greater than 30 minutes for critical transactional data, unless DPHE approves a different tier      |
| Recovery time objective (RTO)  | Not greater than 4 hours for critical production services, unless DPHE approves a different tier        |

| Requirement        | Minimum target                                                                                                |
|--------------------|---------------------------------------------------------------------------------------------------------------|
| Scalability        | Horizontal or vertical scaling without redesign, with at least 30% sizing headroom at go-live                 |
| Offline continuity | Field/mobile applications continue assigned work during network interruption and synchronize safely afterward |
| Backup             | Encrypted, tested, access-controlled backup with at least one isolated/offline or immutable copy              |

## 7. Non-Functional Requirements

- **Performance:** interactive pages should normally respond within three seconds under agreed load; report, map and AI response targets shall be benchmarked and approved by use case;
- **Usability:** role-focused, low-bandwidth-optimized interfaces that are genuinely usable by field-level Executive Engineers, not only headquarters staff;
- **Bilingual:** complete Bangla and English interface, data, reports and notifications, in Unicode, throughout;
- **Compatibility:** current major browsers and approved Android versions, with a documented compatibility matrix;
- **Maintainability:** readable, documented source code, automated tests and a dependency inventory handed over to DPHE;
- **Accessibility:** web interfaces and public content should meet applicable Government accessibility standards;
- **Printing:** approval documents and formal reports render cleanly on A4 in Word/PDF-ready form.

## 8. Cybersecurity, Privacy and Audit Requirements

- A documented system security plan, asset inventory, data classification and risk register, prepared during inception and kept current thereafter;
- Secure development practices: secure coding standards, dependency and secrets scanning, and a defined release-approval process;
- Centralized identity with multi-factor authentication for privileged and high-risk access, and least-privilege, role/office/field-level authorization enforced on every request;
- Encryption of data in transit and at rest, with keys and secrets held in an approved, access-controlled secret manager;
- Independent vulnerability assessment and penetration testing before pilot, before go-live, and before each major release, with critical/high findings resolved before acceptance;
- Centralized, tamper-evident audit logging covering login, view (where required), create, update, approval, export and configuration events, searchable by authorized auditors;
- A documented incident-response process covering detection, containment, evidence preservation, notification and recovery;

- Data privacy: minimize personal data collection, mask sensitive fields, and control export of personal, land-title, and financial data in line with applicable Bangladesh Government ICT and data-protection requirements.

## 9. AI Governance

Given the sensitivity of the data involved (personnel, land title, financial and citizen records), the AI capabilities described in Sub-system F5 (AI-Assisted Analytics and Drafting Support) shall be governed as follows:

- AI outputs are advisory by default; any action that changes data, sends a communication, or carries financial or legal consequence requires a dedicated, human-approved workflow – the AI assistant itself shall not perform such actions;
- Every AI response that draws on DPHE records shall cite its source and be clearly marked as AI-generated until an authorized officer reviews and accepts it;
- Access control is enforced before content reaches the AI assistant, not by instructing the assistant to withhold information – a user shall never receive, via the assistant, data they could not otherwise access directly;
- A documented evaluation (accuracy, Bangla/English quality, and permission-leakage testing) shall be completed and approved by DPHE before any AI feature is used in production;
- DPHE data, prompts and outputs shall not be used to train or fine-tune any external/third-party model without explicit written authorization from the competent authority;
- If the AI service becomes unavailable, all core IDMIS workflows, dashboards and search functions shall continue to operate normally.

## 10. Implementation Methodology

The firm shall apply a stage-gated, iterative methodology combining structured project planning with incremental delivery, so that DPHE can review working software at each stage rather than only at the end of the contract.

| Phase                                                | Principal activities                                                                                                                                   |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Mobilization and inception                        | Confirm governance, scope, stakeholders, baseline, risk/quality/security plans and detailed schedule; validate the system inventory (Section 3.1).     |
| 2. Requirements, architecture and UI/UX design       | Business-process review, approved SRS, enterprise/solution/security/data architecture, wireframes, and prototype validation with representative users. |
| 3. Core platform and priority modules                | Identity, workflow, document, and GIS foundation; configuration/development of the highest-priority modules identified by DPHE.                        |
| 4. Remaining modules, integration, and data services | Remaining prioritized modules; API/middleware connectors to existing systems and external government platforms; legacy archive extraction.             |

| Phase                                           | Principal activities                                                                                                                   |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 5. Migration, testing and pilot                 | Trial data migration, integration testing, security/performance testing, and a pilot at representative headquarters and field offices. |
| 6. Deployment, training and go-live             | Production deployment, the training program (Section 15), help-desk setup, and phased go-live.                                         |
| 7. Finalization, handover, and warranty support | Final defect correction, documentation and source-code handover, and transition into the warranty/support period (Section 17).         |

Governance shall include a Steering/Central Committee for policy decisions, DPHE for functional sign-off, and a joint Technical Architecture and Security Group. The firm shall maintain a requirements traceability matrix and a formal change-control register; no scope or production-configuration change is effective without approval under the contract's delegated authority.

## 11. Data Governance, Migration Controls and Quality

- DPHE shall designate data owners and responsible authorities for each domain (personnel, land/property, financial, project, GIS, laboratory);
- An enterprise data dictionary, business glossary and code-list register shall be established and kept current;
- Quality rules and scorecards shall track completeness, validity, uniqueness, consistency and timeliness by domain;
- Retention, archival and disposal rules shall be defined by data class, consistent with applicable record-retention requirements;
- No production data shall be used in development or test environments without approved masking;
- All migration tools and scripts shall be source-controlled, repeatable, and handed over to DPHE, not retained solely by the firm.

## 12. Testing and Acceptance

- Every mandatory requirement traced to a design element, build/configuration item, test case and result;
- Automated unit, API and integration testing, including duplicate, timeout, retry and reconciliation cases for every external interface;
- Data-migration testing: counts, totals, uniqueness, relationships, spatial accuracy and formal owner sign-off;
- Performance testing (baseline, load, stress) against agreed workload and response-time targets;
- Independent security testing (vulnerability assessment and penetration testing) with critical/high findings resolved before acceptance;
- User acceptance testing executed by representative headquarters and field users, including at least one field-level Executive Engineer per pilot office;

- Backup and disaster-recovery restore/failover testing against the agreed RPO/RTO;
- AI evaluation (where Sub-system F5 features are in scope): citation accuracy, and permission-leakage testing before production use.

Production acceptance shall not occur while unresolved critical or high-severity defects remain, unless the competent authority grants a documented, time-bound exception with a mitigation plan.

### 13. Training, Change Management and Knowledge Transfer

The firm shall deliver a structured training and knowledge-transfer program covering executives, system administrators, technical/database staff, and functional end users, of at least 15 working days in total, indicatively structured as follows (to be finalized during inception against the agreed rollout plan):

| Day(s) | Audience                                   | Focus                                                                                                |
|--------|--------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1–2    | Senior management and decision-makers      | Platform overview, architecture, dashboards, KPIs and decision support                               |
| 3–5    | System administrators / DPHE IT / MIS Unit | System administration, IAM/SSO/RBAC, configuration, workflow, and monitoring                         |
| 6–9    | Technical team, DBAs, security personnel   | Database management, API/integration management, deployment, security, backup, and disaster recovery |
| 10–12  | Functional and administrative users        | HR/PMIS/payroll, budget/planning/DPP, project monitoring, asset/land/vehicle management              |
| 13     | Citizen-service and field users            | Citizen portal, dynamic forms, and mobile/offline data collection                                    |
| 14     | Reporting, GIS, and data users             | Dashboards, report generation, GIS, and analytics, including AI-supported features                   |
| 15     | All key users and technical team           | End-to-end practical exercise, competency assessment and evaluation                                  |

In addition to formal training, the firm shall provide bilingual manuals and job aids, a documented change-management/communication plan, and post-go-live floor-walking or remote support with targeted retraining for offices showing low adoption – given the explicit concern raised at the 3rd meeting that the system must be genuinely usable by field-level engineers, not only by headquarters staff.

### 14. Equipment Requirements

The Consultant shall assess the ICT infrastructure required for reliable operation of the IDMIS and recommend the equipment necessary to support implementation, hosting, connectivity, security, backup and business continuity. The indicative equipment requirements are provided in Appendix D and shall be validated during inception before procurement or deployment.

## 15. Warranty, Operations Support and Service Levels

The Consultant shall provide warranty and production support from go-live for the period specified in the contract, covering correction of defects in software, configuration, interfaces, migration scripts and supplied infrastructure at no additional cost. Support shall include service-desk operation, incident and problem management, monitoring, security patching and periodic system-health reviews. Service coverage and response/resolution targets shall support the required availability of critical services and shall be finalized in the contract.

| Priority      | Definition                                                            | Target response  | Target restoration/resolution                            |
|---------------|-----------------------------------------------------------------------|------------------|----------------------------------------------------------|
| P1 – Critical | Production unavailable, severe security incident, or data corruption  | 15 minutes, 24×7 | 4 hours target workaround/restoration; continuous effort |
| P2 – High     | Major function unavailable, substantial users affected, no workaround | 30 minutes, 24×7 | 8 hours target workaround                                |
| P3 – Medium   | Function impaired; workaround available                               | 4 business hours | 3 business days or an agreed release                     |
| P4 – Low      | Minor defect, question, or cosmetic issue                             | 1 business day   | Planned release or agreed date                           |

## 16. Documentation and Handover

- Approved requirements, process maps and requirements-traceability matrix;
- Enterprise, solution, security, data, integration and infrastructure architecture documents;
- Data dictionary, master-data rules, and migration/reconciliation records;
- Current source code, configuration, build/deploy pipelines and automated tests, held in a DPHE-controlled or jointly controlled repository from an early stage – not only at final handover;
- API specifications and interface data contracts for every integration;
- Administrator, operations, security, backup/recovery and user manuals in Bangla and English;
- Hardware/software inventory, licenses, subscriptions, certificates and an approved credential-transfer record;
- Training materials, attendance records and trainer handover;
- A final exit/transition report listing open defects, technical debt, risks and a capacity/roadmap forecast.

## 17. Ownership, Licensing, Confidentiality and Exit

All DPHE data, metadata, configurations, custom developments, documentation, and deliverables produced under the contract shall be owned by or licensed to DPHE, as specified in the procurement contract. The firm shall disclose all proprietary, open-source and third-party components, licenses, support terms and recurring costs; no restrictive license that would prevent Government use, modification, security review or transition shall be introduced without written approval. Production data shall not leave the approved hosting boundary, nor be

used to train an external model, without explicit legal and written authorization. The firm shall maintain an exit plan providing for data export, knowledge transfer and orderly account revocation at contract expiry or termination.

## 18. Responsibilities of DPHE

- Nominate a competent authority, product owners, technical reviewers and data owners;
- Provide reasonable access to users, sites, existing systems, records and policies, including facilitating the firm's consultations with the original developers of existing DPHE systems;
- Facilitate coordination with the owners of external government systems listed in Section 3.4;
- Provide or approve the required hosting location, connectivity and environmental readiness, following resolution of the policy question in Section 6;
- Review deliverables and conduct acceptance within the timelines stated in the contract;
- Ensure authorized users participate in workshops, testing and training;
- Approve data migration, publication, retention, security and AI-use policies.
- Provide reasonable office space and basic furniture for up to four (4) Consultant personnel for day-to-day coordination, subject to availability.

## 19. Responsibilities of the Firm

- Deliver the complete scope of services and coordinate all consortium/JV members, sub-consultants, subcontractors and specialists, as applicable;
- Verify assumptions and identify dependencies early, maintaining schedule, quality, risk and issue control throughout;
- Comply with DPHE's security, site-access and confidentiality requirements;
- Correct defects, protect data and maintain backups throughout delivery;
- Avoid disruption to existing DPHE operations, and obtain approval before any migration cutover, penetration test, or production change;
- Build genuine DPHE capability and avoid technical or commercial lock-in.

## 20. Language Requirements

All project communication, reports, technical documentation and training materials shall be provided in English, with the platform's user interface, data entry, reports and notifications available in both Bangla and English.

## 21. Deliverables and Indicative Timeline

The following table shows the deliverables, payment schedule and indicative timeline to complete the task. Each deliverable shall be reviewed by DPHE within a period stated in the contract, and may be accepted, accepted with minor comments, or returned for revision with a comment-response matrix. Deliverable acceptance does not waive later-discovered defects, security obligations or performance requirements.

| Deliverable |                                                                                              | Indicative timing                        | Payment                   |
|-------------|----------------------------------------------------------------------------------------------|------------------------------------------|---------------------------|
| D1          | Inception report, system inventory/assessment, analyze GAP and approved SRS                  | Months 1                                 | 10%                       |
| D2          | Collection data from various project including field office.                                 |                                          | 5%                        |
| D3          | Enterprise architecture, security architecture and UI/UX design                              | Months 2                                 | 10%                       |
| D4          | Core platform release: identity/SSO, workflow, document services, and first priority modules | Months 3-6                               | 20%                       |
| D5          | Remaining functional modules and integration with existing/external systems                  | Months 7-8                               | 20%                       |
| D6          | Data warehouse, BI dashboards, GIS services, and legacy archive                              | Months 9-10                              | 10%                       |
| D7          | Related ICT Equipment                                                                        | Months 9-10                              | Reimburse as per contract |
| D8          | Data migration, testing (functional, security, performance) and pilot                        | Months 11                                | 5%                        |
| D8          | Training, national rollout and production go-live acceptance                                 | Months 12                                | 5%                        |
| D9          | Warranty, operations support, and periodic health reports                                    | Go-live + 12 to 20 months                | 10%                       |
| D10         | Final documentation, source-code, and knowledge handover                                     | 7 days before expiration of the Contract | 5%                        |

## 22. Required Team Composition:

### Key Experts:

| Position                        | Indicative Qualification                                                                                                                                                                   | Core responsibility                                                                                                                                                                             |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Team Leader                     | <b>Master's degree in Computer Science</b> in Data Science/Information Technology/ Software Engineering.<br>15 years, including 10 years leading large-scale ICT/enterprise projects       | Lead and coordinate the overall assignment and implementation of IDMISS. Ensure timely delivery, quality control, stakeholder coordination, and compliance with the approved ToR                |
| Deputy Team Leader              | <b>Master's degree in Computer Science</b> in Data Science/Information Technology/ Software Engineering.<br>10 years, including 7 years managing complex system-integration projects       | Support the Team Leader in overall coordination and day-to-day implementation. Coordinate technical teams, monitor progress, and ensure timely completion of activities and deliverables.       |
| Enterprise / Solution Architect | <b>Master's degree in Computer Science</b> in Data Science/Information Technology/ Software Engineering.<br>10 years in enterprise architecture, microservices and interoperable platforms | Lead the design of the overall IDMISS architecture and solution framework. Ensure scalability, security, interoperability, and alignment of all modules with DPHE's institutional requirements. |

| Position                         | Indicative Qualification                                                                                                                                                                                   | Core responsibility                                                                                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Integration Architect            | <b>Master's degree in Computer Science in Data Science/Information Technology/ Software Engineering.</b><br><br>8 years in enterprise integration, APIs and middleware                                     | Design and oversee integration of existing DPHE and relevant government systems using APIs, middleware, and appropriate integration standards. Ensure reliable and secure data exchange between systems. |
| Data Architect / Governance Lead | <b>Master's in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>8 years in data modelling, master data, warehousing, and migration | Design the enterprise data architecture and data governance framework. Lead data standards, quality, migration, master-data management, and ensure secure and consistent use of data across IDMIS.       |

**Non-Key Experts:**

| Position                  | Indicative Qualification                                                                                                                                                                                                                                                                 | Core responsibility                                                                                                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GIS Lead                  | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>7 years in enterprise GIS, spatial databases, and web mapping                                                                           | Lead the design and implementation of the GIS and spatial data components of IDMIS. Ensure integration of GIS data, asset locations, field data, and mapping functions with relevant IDMIS modules.                  |
| Cybersecurity Lead        | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>7 years in secure SDLC, identity, and security testing                                                                                  | Develop and oversee the cybersecurity framework for IDMIS. Ensure secure system architecture, access control, data protection, vulnerability management, audit logging, and compliance with applicable requirements. |
| Functional / Domain Leads | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>8 years each, covering project monitoring, procurement/contract, asset/fleet, estimation/SoR, laboratory and PMIS domains as applicable | Lead the analysis and configuration of assigned functional domains and business processes. Coordinate with DPHE users to define requirements and ensure that the system meets operational needs.                     |
| Data Migration Lead       | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>5 years in ETL, data cleansing and cutover management                                                                                   | Plan and manage migration of data from existing DPHE systems into IDMIS. Ensure data mapping, cleansing, validation, reconciliation, and secure migration with minimal data loss.                                    |

| Position                            | Indicative Qualification                                                                                                                                                                                                                 | Core responsibility                                                                                                                                                                                                                                                   |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QA / Test Manager                   | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>8 years in test strategy, automation, and defect management                             | Develop and implement the overall quality assurance and testing plan. Coordinate functional, integration, performance, security, and user-acceptance testing and ensure timely resolution of identified defects.                                                      |
| Change Management and Training Lead | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>7 years in stakeholder adoption and training delivery                                   | Lead user engagement, change-management, training, and knowledge-transfer activities. Develop training materials and support DPHE users during pilot, rollout, and post-implementation stages. Training program (describe in ToR) and post-go-live adoption support   |
| AI/ML Specialist                    | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>5 years in applied NLP/document intelligence, if Sub-system F5 is included in the award | Design and implement appropriate AI/ML-enabled analytics and decision-support features within the governance limits of the ToR. Ensure that AI outputs are reliable, explainable, secure, and subject to human review and approval.                                   |
| Data Engineer                       | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>2 years in Data engineer or Data management field.                                      | Coordinate field-level data collection and develop digital data-collection forms for surveys, inspections, asset verification, and monitoring. Ensure data validation, cleaning, quality checking, geo-referencing, and uploading into IDMIS.                         |
| Support Engineer                    | <b>Bachelor's degree in Computer Science, Data Science, Information Technology, Software Engineering, or a related quantitative field</b><br><br>1 years in providing technical support in IT related product.                           | Provide technical and operational support for IDMIS during deployment and post-implementation. Monitor system performance, troubleshoot hardware/software and connectivity issues, support users, and coordinate timely resolution of incidents and service requests. |

**Procurement Method:**

Consultant will be selected in accordance with the Fixed Budget Based Selection (FBS) method as set out in the Procurement Regulations.

## Appendix A – Inventory Template for Existing DPHE Applications

DPHE's survey of its revenue and project offices identified approximately 30 software/apps/web applications across 16 offices. The firm shall use the following template to complete and validate this inventory during inception; a partial illustrative extract based on systems already known is shown below, mapped to the Sub-system codes used in Section 3.2.

| Office / project                                        | System name                                                                     | Function                                                         | Recommended treatment                                                            |
|---------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Ground Water Circle / PICMAC (JICA)                     | Water Resources Potential Map (WRPM) and Safe Aquifer Assessment & Ranking Tool | Groundwater potential mapping and safe drilling-depth prediction | Direct integration – feeds Sub-system C4                                         |
| Aquawatch (Tiger Park)                                  | Tubewell survey and data-management platform                                    | Tubewell survey and data management                              | Direct integration – feeds Sub-system C3                                         |
| PEDP-4                                                  | TIMS                                                                            | Time-extension and penalty tracking                              | Reference model for Sub-system E4; migrate or integrate per inception assessment |
| Ground Water Circle (Nanosoft Center)                   | Urban Water Supply Management System                                            | Urban water-supply operations, hosted at BCC                     | To be assessed at inception – direct integration or migration into Sub-system D1 |
| Lab Circle                                              | Laboratory information software                                                 | Water-quality sample and test management                         | Direct integration – feeds Sub-system E5                                         |
| 25-City Inclusive Sanitation Project (GoB-AIIB)         | Project-specific IMIS                                                           | Municipality-level monitoring                                    | API-based integration only – not replacement (Section 3.4)                       |
| MIS Unit                                                | Sanitation Dashboard                                                            | Sanitation-sector indicators                                     | Direct integration – feeds Sub-systems E5 / F1                                   |
| Information will provide for other systems as requested |                                                                                 |                                                                  |                                                                                  |

**Appendix B – Minimum Reports and Dashboards**

| Dashboard family           | Minimum content                                                                                 |
|----------------------------|-------------------------------------------------------------------------------------------------|
| Executive                  | National status, delayed projects/contracts, financial vs. physical progress, overdue decisions |
| Personnel                  | Sanctioned/filled/vacant posts, posting tenure, retirements, leave, training coverage           |
| Procurement / contract     | Plan vs. actual, package delay, expiring securities, variations, payment status                 |
| Land / property / fleet    | Mapped vs. unmapped parcels, lease expiry, vehicle compliance and utilization                   |
| Laboratory / water quality | Samples, turnaround time, exceedances, parameter trends by geography                            |
| Billing / citizen service  | Billing, collection, arrears, complaint SLA performance                                         |
| Data quality               | Completeness, duplicates, timeliness and unresolved data-owner actions                          |
| Public                     | Approved, generalized coverage, asset and water-resource information                            |













## Appendix C – Indicative Data Classification

| Class               | Examples                                                                                            | Handling                                                                 |
|---------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Public              | Approved website content, generalized maps, published statistics                                    | Open after publisher approval; version-controlled                        |
| Official (internal) | Routine internal operational information                                                            | Authenticated DPHE access by role and office                             |
| Sensitive           | Personal data, cadastral/title/lease/dispute records, contract evaluation, laboratory location data | Need-to-know access, field-level controls, masked export, enhanced audit |
| Highly restricted   | Credentials, cryptographic keys, active-incident evidence                                           | Named access, MFA, isolated storage, strict monitoring                   |

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(মোহাম্মদ আব্দুল কাইউম)  
তত্ত্বাবধায়ক প্রকৌশলী  
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর  
পরিকল্পনা সার্কেল, ঢাকা।

*Shahar*  
15/9/26  
(বিধান চন্দ্র দে)  
তত্ত্বাবধায়ক প্রকৌশলী  
জনস্বাস্থ্য প্রকৌশলী অধিদপ্তর  
গাউন্ড ওয়াটার সার্কেল, ঢাকা

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Executive Engineer  
Dept. of Public Health Engineering  
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(মোঃ মামুনুর রশীদ)  
সহকারী প্রকৌশলী  
কেন্দ্রীয় ও স্থানীয় জনস্বাস্থ্যের জীবনমান উন্নয়ন প্রকল্প  
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর, ঢাকা।

*Shahar*  
15/09/2026  
মোঃ শাহিনুল হাসান  
প্রকল্প পরিচালক  
পার্বত্য চট্টগ্রামে সমন্বিত ও টেকসই  
পানীয় পানি সরবরাহ ও স্যানিটেশন প্রকল্প  
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর, ঢাকা।

*Amir*  
15.09.2026  
(এহতেশামুল রাসেল খান)  
অতিরিক্ত প্রধান প্রকৌশলী (পরিকল্পনা)  
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর  
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*Shahar*  
15.9.26  
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13/9/2026  
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প্রকল্প পরিচালক  
সমন্বিত সেবা ও জীবন-জীবিকা উন্নয়ন প্রকল্প  
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর, ঢাকা।

Approved

*Shahar*  
28/9/2026  
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Chief Engineer  
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Handwritten notes on the right side, possibly a date or reference number.

Handwritten notes in the lower middle section, possibly a date or reference number.

Handwritten notes in the bottom left corner, possibly a date or reference number.