

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Ministry of Social Welfare | Department of Social Services (DSS)

TERMS OF REFERENCE

Design, Development & Implementation of a
RSS Digital Financial System (RSS-DFS)
with Integrated Beneficiary Survey, Poverty Reduction Tracking
& Behavioral Change Identification Module

Transitioning from Manual Government Financial Systems to a Fully
Digitized, Mobile-First Platform

Ref: DSS/DFS/TOR/2026-01 | Version: 4.0 | May 2026 | World Bank Supported
Bangladesh Bank Compliant · NID/BIOMETRIC Integrated · ISO 27001 / PCI-DSS · QCBS Procurement

BASIC INFORMATION

Procuring Entity	Department of Social Services (DSS), Ministry of Social Welfare, Government of Bangladesh
Program	Rural Social Service (RSS) - DFS Digitization & Survey Module
Development Partner	World Bank (Technical Oversight & Quality Assurance)
Reference Number	DSS/DFS/TOR/2026-01
Version	1.0 June 2026
Contract Duration	18 Months
Geographic Scope	All 64 Districts
Target Beneficiaries	~8.5 Lakh active borrowers; 3.5 million surveyed rural households

BASIC INFORMATION	1
1. BACKGROUND AND CONTEXT	3
1.1 The Rural Social Service (RSS) Program	3
1.2 Critical Problems in the Current Delivery System	4
2. OBJECTIVES	5
2.1 Overall Objective	5
2.2 Specific Objectives	5
3. DFS PLATFORM ARCHITECTURAL FRAMEWORK.....	6
3.1 Architectural Layer Specifications	6
3.2 Automated Microcredit Lifecycle — End-to-End Digital Flow	7
3.3 Security Architecture.....	8
3.4 Non-Functional Requirements & Scalability	9
3.5 Development Methodology	9
4. SCOPE OF WORK — DFS CORE MODULES	10
4.1 Module A: Borrower Mobile Application	10
4.2 Module B: Field Officer Tablet Application	11
4.3 Module C: Government Stakeholder Dashboard & Command Application	11
4.4 Core DFS Engine — Eight Functional Modules	12
5. SCOPE OF WORK — POVERTY REDUCTION SURVEY MODULE.....	14
5.1 Survey Instrument Design	14
5.2 Digital Survey Platform Technical Requirements	14
5.3 Longitudinal Survey Design	15
6. SCOPE OF WORK — BEHAVIOURAL CHANGE IDENTIFICATION MODULE	16
6.1 Behavioral Survey Framework.....	16
6.2 Graduation Framework & Scorecard.....	17
7. TECHNOLOGY STACK & GOVERNMENT INTEGRATIONS	18
7.1 Technology Stack Requirements	18
7.2 Government API Integrations.....	19
8. IMPLEMENTATION PLAN & PHASES	20
9. DELIVERABLES & PAYMENT SCHEDULE	21
10. KEY EXPERT REQUIREMENTS	23
11. RISK MANAGEMENT	25
12. SUSTAINABILITY & GOVERNMENT OWNERSHIP	26

1. BACKGROUND AND CONTEXT

1.1 The Rural Social Service (RSS) Program

The Bangladesh Rural Social Service (RSS) Program, administered by DSS since the 1970s, manages an annual disbursement portfolio of approximately USD 3.8 billion, serves 8.5 million active borrowers across all 64 districts through a network of Union Social Worker (USWs), Upazila Social Service Officers (USSOs), and District Social Service Offices. Despite its remarkable scale and geographic reach, the Program continues to operate entirely on manual, paper-based processes generating severe systemic inefficiencies and fiduciary risks.

Governments across developing economies continue to rely on manual, paper-based financial management systems to administer social protection programs, public expenditure tracking, and beneficiary payment processes. These legacy systems are characterized by significant operational inefficiencies, including delayed payment processing, limited audit trails, high administrative overhead, susceptibility to fraud and data loss, and an inability to generate real-time financial intelligence for evidence-based decision-making.

The rapid proliferation of mobile technology across low- and middle-income countries has created an unprecedented opportunity to leapfrog traditional financial infrastructure. Mobile/Digital Financial Systems (DFS) offer a transformative pathway to digitize government financial operations, enabling secure, transparent, and cost-effective delivery of payments and services - particularly to vulnerable and hard-to-reach populations.

Beyond the digitization of financial transactions, there is a growing recognition among governments and development partners that social protection programs must move beyond simple cash transfer delivery toward a more holistic model of human capital development. This requires robust tools to track whether beneficiaries are graduating out of poverty, achieving economic self-sufficiency, and demonstrating measurable behavioral changes in areas such as health-seeking behavior, children's school attendance, savings culture, and productive asset accumulation.

In this context, the Government [hereinafter referred to as "the Client"] seeks to engage a qualified consulting firm to:

- Design and implement a fully functional **Digital Financial System (DFS)** to replace the existing RSS manual financial management processes; and
- Develop an integrated **Beneficiary Graduation Tracking and Behavioral Change Survey Module** to monitor program outcomes and inform adaptive management decisions.

This assignment is aligned with the Government's broader digital transformation agenda and its commitment to strengthening social protection delivery systems in accordance with international best practices. The World Bank, as a development partner, will provide technical oversight and quality assurance throughout the implementation process.

1.2 Critical Problems in the Current Delivery System

#	Problem Area	Current Impact on Program
P1	Manual Paper Processing	Loan applications, approvals & disbursements managed via paper forms — delays of 4–8 weeks per cycle; error rates exceed 20%
P2	Cash Leakage & Ghost Loans	Manual cash disbursement enables ghost borrowers & fund misappropriation, estimated at 15–20% annual loss on a USD 3.8B portfolio
P3	Poor Geographic Monitoring	Field officers in remote upazilas report manually. HQ has zero real-time visibility into fund utilization or officer activity
P4	Fragmented Data Silos	USSO, USW & HQ operate on separate, incompatible legacy systems — reconciliation takes weeks and produces inaccurate data
P5	No Digital KYC / Beneficiary ID	Absence of biometric/NID verification leads to duplicate beneficiaries and ineligible applicants receiving public funds
P6	Zero Real-Time Reporting	HQ & District offices receive annual paper reports — no dashboards, no early-warning for loan defaults or officer non-performance
P7	No Graduation Measurement	No structured mechanism to measure beneficiary graduation, poverty reduction outcomes, or behavioral change across Program cohorts

2. OBJECTIVES

2.1 Overall Objective

The overall objective of this assignment is to design, develop, test, and deploy a secure, scalable, and user-friendly RSS Digital Financial System (DFS) that replaces the current manual financial management system, while incorporating a dedicated module for designing and administering surveys to track beneficiary graduation and behavioral change.

2.2 Specific Objectives

1. **Digitize Financial Operations:** Transition all manual financial management processes - including payment scheduling, disbursement, reconciliation, and reporting - into a mobile-enabled digital platform accessible to government administrators, field officers, and beneficiaries.
2. **Enhance Transparency and Accountability:** Establish a robust digital audit trail for all financial transactions, reducing opportunities for fraud, leakage, and administrative error.
3. **Improve Beneficiary Experience:** Provide beneficiaries with a simple, accessible mobile interface to receive payments, check balances, register complaints, and access program information, including in low-connectivity environments.
4. **Enable Real-Time Financial Reporting:** Equip program managers and decision-makers with real-time dashboards and customizable reports on financial flows, payment statuses, and budget utilization.
5. **Credit Scoring:** Deploy AI/ML-powered credit scoring and non-performing loan (NPL) prediction with 30-day early-warning alerts to ministry-level stakeholders.
6. **API Integration:** Integrate the platform with EC NID biometric verification, Bangladesh Bank (BACH + CIB), IBAS++ (Ministry of Finance), and all MFS provider ecosystems.
7. **Track Beneficiary Graduation:** Design and operationalize a structured graduation tracking framework within the MFS to monitor beneficiaries' progress toward economic self-sufficiency and program exit criteria.
8. **Measure Behavioral Change:** Develop a flexible, mobile-compatible survey module that enables program staff to design, deploy, and analyze surveys measuring behavioral change outcomes among beneficiaries across key domains including health, savings, and livelihoods.
9. **Build Institutional Capacity:** Train government staff at central and subnational levels to operate, maintain, and continuously improve the DFS and its associated survey module.

3. DFS PLATFORM ARCHITECTURAL FRAMEWORK

The platform is designed as a five-layer ecosystem: three operational tiers (Citizen/Borrower, Field Officer, Government Stakeholder), a central Core DFS Engine, and a sovereign infrastructure and government integration layer. All components communicate through a secured API Gateway enforcing PCI-DSS Level 1, ISO 27001, and Bangladesh Bank MFS compliance throughout.

3.1 Architectural Layer Specifications

Layer / Tier	Components	Key Interfaces	Standards & Protocols
Tier 1 — Citizen / Borrower	Borrower Mobile App (Android/iOS); USSD *321# Channel; SMS/Push Notifications; Self-service Web Portal; MFS Wallets (bKash/Nagad/Rocket); NPSB Interoperability	Bangla biometric-first UI (WCAG 2.1 AA); USSD Gateway API (per MNO); REST/Webhook to bKash/Nagad/Rocket; ISO 8583 financial messaging	Android 8.0+; WCAG 2.1 AA; AES-256 local encryption; TLS 1.3; ISO 8583 (NPSB); REST/Webhook (MFS APIs)
Tier 2 — Field Officer / USSO	Android Tablet App (offline-first); CAPI Survey Module; Biometric SDK + Hardware; Officer Performance Dashboard; Offline Sync Engine; CATI / Phone Survey Interface	EC NID API (biometric match); GPS module + timestamp; QR code scanner (EMI collection); Camera OCR (NID card); Fingerprint reader SDK; Auto-sync (TLS 1.3 on reconnect)	Offline-first architecture; AES-256 local storage; ODK-compatible survey standard; GPS NMEA 0183 geo-tagging; Biometric SDK (ISO 19794-2)
Core DFS Engine	KYC & Registry Module; Payment & Disbursement Engine; AI/ML Credit & NPL Module; Survey & Graduation Engine; Financial Management Module; GRM Module; Data Migration Tool; Security Layer (RBAC/Audit)	API Gateway (all tiers); Bangladesh Bank BACH/CIB API; EC Biometric API; IBAS++ Treasury API; e-Nothi Allocation API; MFS Provider APIs; BFIU AML/CFT Reporting; Open Banking API	Microservices (Java/Node.js); ISO 8583 financial messaging; PCI-DSS Level 1; OAuth 2.0 / JWT auth; RBAC + MFA/2FA; AES-256 encryption; Immutable audit log (SHA-256)
Tier 3 — Government Stakeholder	Executive Command Dashboard; Geographic Portfolio Heatmap; Survey & Graduation Analytics; MIS & Audit Reporting; Mobile Command App; Whistleblower & Audit Trail	React web + mobile app; Role-based access (DSS/MoSW); GIS API (district/upazila heatmap); SDG data export; Bangla + English output; Digital ministerial signature	RBAC + 2FA mandatory; ISO 27001 audit log retention 7yr; PDF/Excel/CSV/SPSS export; WCAG 2.1 AA; World Bank data sharing protocol

Infrastructure & Integrations	Bangladesh Govt Cloud (BCC NDC); NTMC Disaster Recovery Site; 10 Govt/MFS API integrations; MNO USSD Gateway; NPSB Settlement Layer	BCC NDC Dhaka (primary); NTMC Gazipur (DR backup); Docker/Kubernetes containers; CI/CD pipeline (GitOps); VPN tunnels to all govt APIs	ISO 27001 cloud hosting; 99.9% SLA / RTO<4hr / RPO<1hr; Data residency: Bangladesh only; PCI-DSS Level 1; ISO/IEC 27017 (cloud security)
--	---	--	--

3.2 Automated Microcredit Lifecycle — End-to-End Digital Flow

The platform shall replace the current 6-week paper process with a fully automated, transparent workflow across eight stages:

Step	Stage	System Layer	Key Actions
1	Borrower Registration	Borrower App	NID scan + biometric → EC API verification → Samity group enrollment → digital borrower profile created
2	Loan Application	Borrower App	Borrower submits e-application: loan purpose, amount, guarantor. System auto-checks for existing/duplicate loans
3	Field KYC Visit	Field Officer App	Officer GPS-stamps visit, scans NID, captures photos, confirms land/asset details digitally. All records synced to central server
4	AI Credit Scoring	Central DFS Engine	ML engine scores applicant using NID data, Bank/MFS history, repayment track record, and geo-risk index
5	Digital Approval	MFI Supervisor App	Supervisor reviews AI recommendation → digital signature approval → instant notification to borrower's app and SMS
6	Wallet Disbursement	MFS Core + bKash/Nagad/Rocket	Approved amount pushed to borrower's mobile wallet in minutes. Bangladesh Bank BACH inter-bank settlement for MFI accounts
7	EMI Collection	Borrower App / USSD *321#	Weekly/monthly EMI deducted from wallet or paid via USSD. Digital receipt auto-generated and stored in borrower passbook
8	Portfolio Monitoring	Government Stakeholder App	Real-time NPL tracking, GPS verification of officer visits, auto-escalation on 3+ missed EMI payments. Default alert to district supervisor

3.3 Security Architecture

Security is embedded at every layer of the platform architecture — from device-level biometric authentication at Tier 1 and offline AES-256 storage at Tier 2, through immutable ledger integrity at the Core Engine, to cloud-level ISO 27001 controls at the infrastructure layer.

Security Domain	Controls & Mechanisms	Compliance Standard
Identity & Access	RBAC with 12 defined roles; MFA/2FA mandatory for all Tier-2 and Tier-3 users; biometric login (Tier-1 borrowers); JWT token with 3-min expiry	ISO 27001 A.9; NIST 800-63B; Bangladesh Bank MFS Guideline 2022
Data Encryption	AES-256 encryption at rest (all databases and local tablet storage); TLS 1.3 for all data in transit; HSM for cryptographic key management	PCI-DSS Req. 3 & 4; ISO 27001 A.10
Transaction Integrity	Immutable ledger (SHA-256 hash chain); idempotency keys prevent duplicate payments; digital signature on all approvals; transaction receipt confirmation	PCI-DSS Req. 10; Bangladesh Bank audit requirements
Vulnerability Management	Annual penetration testing (independent party); quarterly automated vulnerability scans; OWASP Top 10 compliance; secure code review before each release	ISO 27001 A.12; PCI-DSS Req. 11
AML / CFT Compliance	Real-time BFIU transaction monitoring; automated STR generation for suspicious transactions; CDD/KYC records linked to EC NID; 7-year record retention	BFIU AML Guidelines 2020; Bangladesh Bank FATF compliance
Privacy & Data Protection	No biometric data stored beyond verification; data minimization principle; beneficiary consent management; separate PII and financial data schemas	Bangladesh Personal Data Protection Act; GDPR-equivalent controls
Business Continuity	Active-active BCC NDC + NTMC DR architecture; RTO <4 hours; RPO <1 hour; offline mode for field apps; tested failover every 6 months	ISO 22301; ISO 27001 A.17
Audit & Whistleblower	Immutable audit trail: every transaction, approval, and field visit timestamped with SHA-256 hash; encrypted whistleblower channel; log retention 7 years	ISO 27001 A.12.4; World Bank anti-corruption policy

3.4 Non-Functional Requirements & Scalability

NFR Category	Requirement	Target / Metric
Scalability	Horizontal auto-scaling for concurrent peak load at disbursement cycles	Handle 8.5M concurrent active users; auto-scale 10x on demand
Performance	API response time for all Tier-1 and Tier-2 transactions	<2 seconds for 95th percentile under normal load
Offline Capability	Field officer tablet app in zero-connectivity environments	Full functionality offline; unlimited queue; auto-sync on reconnect
Interoperability	API compatibility with all 10 government and MFS partner systems	Open API (REST/ISO 8583); documented; government-accessible post-handover
Data Retention	Financial transaction and audit records	Minimum 7 years; survey data 10 years; biometric verification logs 5 years
Accessibility	UI/UX for low-literacy rural borrowers	WCAG 2.1 AA; Bangla pictographic; biometric-first; USSD fallback for feature phones
Compliance	Financial regulations	PCI-DSS Level 1; ISO 27001; Bangladesh Bank MFS Guideline 2022; BFIU AML/CFT

3.5 Development Methodology

Agile / Scrum Framework

The DFS platform shall be built using an Agile/Scrum methodology with 2–4-week iterative development sprints. Each sprint produces a testable, demonstrable increment reviewed jointly by DSS PMU and the World Bank team. Sprint retrospectives drive continuous improvement. A detailed Gantt chart shall be submitted in the Inception Report (D01) and updated monthly.

Human-Centered Design (HCD)

All user interfaces — particularly the Borrower Mobile App and USSD channel — shall be developed through a rigorous Human-Centered Design process with a minimum of three rounds of participatory testing with actual low-literacy rural beneficiaries and field officers before production deployment. The design principle is biometric-first, Bangla-first, and zero-password for Tier-1 users.

Open Standards & Government Ownership

The entire platform shall be built on open standards and open-source technologies wherever feasible, ensuring long-term sustainability, vendor independence, and the ability for DSS government staff to maintain and extend the system post-handover. All APIs shall be fully documented and delivered to DSS as part of the IP transfer.

4. SCOPE OF WORK — DFS CORE MODULES

4.1 Module A: Borrower Mobile Application

Designed for low-literacy rural users — available in Bangla with biometric-first UX. Must function on Android 8.0+ smartphones and be published on Google Play Store.

#	Feature	Functional Description
F1	Digital NID Onboarding	One-tap NID entry + fingerprint via smart card reader or camera OCR. Direct link to Bangladesh Election Commission (EC) voter database for real-time verification
F2	Biometric Authentication	Fingerprint & face-ID login — no password required for low-literacy rural borrowers. Prevents proxy access and identity fraud
F3	e-Loan Application	Guided Bangla/English application with autofill from NID data. Supports upload of deeds, guarantor documents, and supporting photos
F4	Real-time Notifications	SMS + push alerts at every lifecycle stage: application received, credit scored, approved, disbursed, EMI due, payment confirmed
F5	Instant Wallet Disbursement	Approved funds pushed directly to borrower's bKash, Nagad, or Rocket wallet — zero cash handling by any field officer or government agent
F6	EMI Repayment Tracker	Visual EMI calendar; one-tap repayment via mobile wallet. Auto-generates digital receipt. Eliminates need for physical field officer collection visit
F7	Loan History & Credit Score	Borrower dashboard showing credit score, full repayment history, and eligibility status for next loan cycle. Promotes financial literacy
F8	Complaint & Grievance Portal	Digital complaint submission against field officers or process failures. Auto-escalation to MoSW oversight desk within 48 hours; status tracked in app

4.2 Module B: Field Officer Tablet Application

Offline-capable, GPS-stamped, biometric KYC-enabled tablet application for USWs and USSOs. Must function on Android tablets with minimum 10-inch screen, 4GB RAM, and 64GB internal storage.

#	Feature	Functional Description
F1	Doorstep Biometric KYC	Capture fingerprint + photo + NID scan on tablet. Instant EC API verification. All KYC records were encrypted and synced to central server
F2	GPS-Stamped Field Visits	Each field visit geo-tagged with coordinate and timestamp. Prevents false reporting. Officer's daily route plotted on admin dashboard for supervisory review
F3	Samity Group Loan Management	Register Samity members, record weekly meeting attendance, manage joint liability agreements, and track group repayment performance digitally
F4	Mobile QR Collection (No Cash)	EMI repayments collected via QR code scan — funds transferred directly to MFI account. Auto-generates digital receipt. Eliminates cash leakage risk
F5	Offline Sync Mode	Full app functionality without internet in remote haors/chars/hilly upazilas. All data queued locally and auto synced to central server when connectivity restored
F6	CAPI Survey Administration	Conduct Computer-Assisted Personal Interviews for poverty and behavioral surveys; skip logic enforcement; offline data captured with GPS geo-tagging
F7	Officer Portfolio Dashboard	Field officer views own NPL rate, target-vs-collection ratio, and borrower health scores — enabling self-performance management and supervisor transparency

4.3 Module C: Government Stakeholder Dashboard & Command Application

Role-based web and mobile command platform for DSS Management, Ministry of Social Welfare, Finance Controller, and District Supervisors. Live data — no manual report compilation.

#	Feature	Description	Authorized Roles
G1	Executive Command Dashboard	Role-based live view of fund disbursement, recovery, NPL and borrower count — national to upazila level drill-down. Live KPIs with auto-refresh	DSS HQ, Ministry, Finance Controller

G2	Geographic Portfolio Heatmap	Color-coded district/upazila map showing fund utilization, default rates and field officer activity in real time. Color bands: <75% red, 75–85% amber, 85–95% green, >95% blue	All Government Tiers
G3	AI Default Prediction Engine	ML model flags districts/MFIs with rising NPL 30 days in advance. Auto-sends early-warning alerts to ministry officers with recommended interventions	District Supervisor, DSS HQ
G4	Auto-Generated MIS Reports	One-click generation of disbursement, collection, repayment, and fiscal audit documents — parliament-ready. No manual compilation. Bangla and English output	Finance Controller, Parliament Secretariat
G5	Multi-Agency Data Integration	Unified dashboard pulling data from all partner Banks, MFS providers, and DSS field systems — eliminating data silos across USSO, USW and HQ	DSS HQ, MoSW
G6	Policy Disbursement Workflow	Minister/Director General approves new fund tranche via digital signature in app — funds released to DSS system in minutes via IBAS++ treasury integration	Minister, Director General
G7	Whistleblower & Audit Trail	Every transaction, approval and field visit is timestamped and immutable. Full audit trail available for anti-corruption reviews, BFIU examination, and external audit	All Tiers + External Auditors

4.4 Core DFS Engine — Eight Functional Modules

The Consultant shall design, develop, and deploy 8 core DFS modules within the Central Microservices Engine:

- **M-01 KYC & Beneficiary Registry:** Digital biometric onboarding; EC NID API; bulk import with de-duplication; unique digital ID linked to MFS wallet; Online Application and Selection, dynamic household database with socio-economic profile and change history, System configuration, OTP Service.
- **M-02 Payment & Disbursement Engine:** Beneficiary and Loan Management, Automated scheduling; multi-level approval workflow; direct-to-wallet disbursement (bKash/Nagad/Rocket); USSD OTC for non-smartphone users; BB BACH settlement; digital receipts.
- **M-03 EMI Repayment & Recovery:** One-tap repayment via wallet or USSD; QR code collection by field officers; auto-generated receipt; auto-escalation on 3+ missed payments; NPL tracking with configurable thresholds.

- **M-04 Financial Management & Accounting:** Budget and Loan planning; multi-level expenditure tracking; real-time treasury reconciliation; IBAS++ integration; cash flow, variance, and donor-specific reports.
- **M-05 AI/ML Credit Scoring & NPL Prediction:** ML model using NID, CIB, MFS history, geo-risk index; 30-day early-warning NPL alerts; bi-annual model audit; human override with explainability report to Bangladesh Bank.
- **M-06 Grievance Redress Mechanism (GRM):** Multi-channel intake (SMS/USSD/app/web); SLA-bound routing; auto-escalation; two-way communication; 48-hour MoSW escalation; GRM performance dashboard.
- **M-07 Monitoring, Case Management, Reporting & Analytics:** Role-based live dashboard; national to upazila drill-down; Case Management, GIS heatmap; AI default alerts; auto-generated parliament-ready MIS reports in Bangla and English.
- **M-08 Security Layer:** RBAC + MFA/2FA; AES-256 encryption; immutable audit log; annual pen-test; whistleblower module; data residency at BCC NDC Bangladesh.

5. SCOPE OF WORK — POVERTY REDUCTION SURVEY MODULE

5.1 Survey Instrument Design

The Consultant shall design a multidimensional poverty survey instrument grounded in internationally recognized frameworks and adapted for the Bangladesh rural context. The instrument shall cover the following domains:

Survey Domain	Key Indicators	Data Collection Method
Multidimensional Poverty (MPI)	Education, Health, Living Standards sub-indices; asset deprivation score	USWs tablet app; offline GPS-tagged household visits
Household Consumption & Expenditure	Monthly food/non-food expenditure; HIES-aligned methodology	Structured interview + receipt scan via tablet camera
Food Security & Nutrition	HDDS score; FANTA dietary diversity protocol; MUAC for children <5	Observational + interview; photo evidence captures
Livelihood Portfolio	IGA type, income source diversification, seasonal income pattern	Officer-facilitated interview + market linkage registry
Resilience & Vulnerability	Climate shock exposure, seasonal poverty depth, coping strategy index	Household questionnaire; satellite weather data overlay
Financial Inclusion Baseline	MFS account ownership, transaction frequency, savings habit score	API pull from bKash/Nagad with consent; officer survey
Social Capital	Community participation, trust indices, Samity group cohesion score	Group survey at weekly Samity meetings

5.2 Digital Survey Platform Technical Requirements

- Android/iOS tablet application for USWs with offline data collection and local AES-256 encrypted storage
- GPS geo-tagging of all household survey records for spatial poverty mapping overlay
- Photo capture and biometric verification for household validation — prevents survey duplication
- Drag-and-drop survey builder: skip logic, validation, multimedia, multi-language including Bangla and local dialects
- Automated data quality validation logic at point of collection — real-time error alerts to field officer
- 10% back-check re-interview protocol; automated quality validation at point of collection
- Cloud synchronization with end-to-end AES-256 encrypted data transmission (TLS 1.3)
- Open API for survey data export to BBS, Planning Commission MIS, and BIMS
- Data export formats: CSV, SPSS, Stata, R; World Bank supervision data feed

5.3 Longitudinal Survey Design

The survey module shall follow a longitudinal panel design enabling tracking of same households across a minimum of 3 rounds within the 18-month project period:

Round	Timing	Purpose	Target Households
Baseline Survey	Month 3–4	Establish poverty & behavioral benchmarks for all cohorts	3.5 million rural households
Midline Survey	Month 08–10	Measure interim change; refine graduation scorecard thresholds	Full baseline panel
Endline Survey	Month 16–18	Measure final outcomes; DiD impact attribution; Program evaluation	Full baseline panel
Ad-hoc / Spot Surveys	Ongoing	Targeted at-risk cohorts flagged by predictive scoring engine	Flagged high-risk households

6. SCOPE OF WORK — BEHAVIOURAL CHANGE IDENTIFICATION MODULE

6.1 Behavioral Survey Framework

This module shall identify and longitudinally track behavioral indicators associated with poverty graduation and sustainable social development outcomes across RSS beneficiaries across 10 domains:

Behavioral Domain	Key Indicators	Tracking Methodology
Financial Behavior	Savings rate, credit utilization ratio, MFS adoption velocity	Longitudinal panel — 6-month intervals; MFS transaction data API
Health-Seeking Behavior	ANC visits, child immunization completion, WASH compliance	CHCP integration; health center records linkage
Education Behavior	School enrolment, attendance rate, household education spends	BANBEIS school data API; household survey
Women's Autonomy	Mobility index, financial decision-making autonomy, loan in own name	Women's empowerment module in borrower survey
Economic Behavior	IGA type diversification, market linkage, value chain participation	Quarterly officer field assessment
Digital Behavior	App usage frequency, USSD vs app ratio, self-service vs officer-assisted	App analytics telemetry (anonymized)
Social Empowerment	Community participation, leadership roles, access to justice	Community group interview + officer assessment
Resilience & Coping	Shock recovery time, diversification strategy, access to safety nets	Household questionnaire for each survey round
Asset Accumulation	Productive asset ownership, land security, housing quality improvements	Observational + officer-verified household assessment
Graduation Readiness	Composite graduation scorecard across all domains above	Automated system computation after each survey round

6.2 Graduation Framework & Scorecard

The Consultant shall co-design a graduation framework with DSS and the World Bank, translated into an automated digital graduation scorecard within the DFS. Each beneficiary receives an automated scorecard updated after each survey round, with predictive risk scoring flagging households at risk of poverty reversal 90 days in advance.

- Graduation dimensions: economic self-sufficiency, asset accumulation, financial inclusion, health and nutrition, education, social empowerment, and Program exit readiness
- Difference-in-Differences (DiD) methodology for causal impact attribution of RSS Program interventions
- Machine learning-assisted clustering of beneficiaries by behavioral change trajectory — identifying 'fast movers', 'stalled', and 'at-risk of reversal' groups
- Predictive risk scoring: flag households at risk of reverting to extreme poverty 90 days in advance — trigger targeted USWs follow-up
- All outputs disaggregated by sex, age, disability status, division, and agro-ecological zone
- Automated quarterly behavioral change reports and annual Program-level impact assessment

7. TECHNOLOGY STACK & GOVERNMENT INTEGRATIONS

7.1 Technology Stack Requirements

Layer	Technologies / Standards	Compliance / Notes
Mobile Frontend (Tier 1)	React Native or Flutter; Bangla font rendering; biometric SDK integration	Android 8.0+; iOS 13+; WCAG 2.1 AA; offline-capable
Field Officer App (Tier 2)	Android native or React Native; ODK-compatible forms; offline-first architecture	AES-256 local storage; GPS NMEA 0183; ISO 19794-2 biometric
Government Dashboard (Tier 3)	React.js web application; native mobile command app	RBAC + 2FA; responsive; Bangla + English; GIS integration
Core Microservices Engine	Java Spring Boot or Node.js microservices; RESTful APIs; event-driven architecture	ISO 8583; OAuth 2.0 / JWT; PCI-DSS Level 1; horizontal scaling
AI/ML Layer	Python (TensorFlow / scikit-learn); credit scoring models; NPL prediction; behavioral clustering	Bi-annual model audit; human override; explainability report to BB
Database Layer	PostgreSQL (relational); MongoDB or Cassandra (NoSQL for survey data); Redis (cache)	AES-256 at rest; 7-year retention; geo-replicated to DR site
Infrastructure	Bangladesh Government Cloud (BCC NDC); Docker/Kubernetes; CI/CD (GitOps)	ISO 27001; 99.5% SLA; data residency Bangladesh only
Survey Platform	React Native or Flatter Kobo Toolbox-compatible; CAPI/CATI/USSD modes	Offline-first; GPS geo-tagging; SPSS/Stata/R export

7.2 Government API Integrations

#	Integration	Data Exchanged	Purpose
I-01	EC NID Biometric API	NID number + fingerprint → verified identity record	Real-time biometric KYC verification for all borrower onboarding
I-02	Bangladesh Bank BACH API	Payment instructions → settlement confirmation	Inter-bank settlement for MFI disbursement accounts
I-03	Bangladesh Bank CIB API	NID → credit history report	AI credit scoring input; existing loan de-duplication
I-04	IBAS++ Treasury API (MoF)	Budget tranche allocation → expenditure confirmation	Government fund release and treasury reconciliation
I-05	BFIU AML/CFT API	Transaction data → STR reports	Anti-money laundering monitoring; automated STR filing
I-06	bKash / Nagad / Rocket APIs	Disbursement request → wallet credit confirmation; EMI debit	Direct-to-wallet disbursement; USSD EMI collection
I-07	MNO USSD Gateway (*321#)	USSD session data → transaction request/response	Feature-phone access for non-smartphone rural borrowers
I-08	NPSB Interoperability Layer	ISO 8583 financial messages → settlement	Cross-MFS-provider interoperability and settlement
I-09	Social Registry / Planning Commission MIS	Survey microdata → anonymized export	National poverty statistics and Program evaluation data feed
I-10	a2i / e-Nothi / GovStack	Allocation approvals → digital notifications	Government workflow integration and digital signature

8. IMPLEMENTATION PLAN & PHASES

Phase	Timeline	Key Activities	Key Deliverables
Phase 1 — Inception & Analysis	Month 1–3	Mobilization; stakeholder consultations; process mapping; infrastructure assessment; inception reporting; baseline survey instrument design	D01 Inception Report; D02 Situational Analysis
Phase 2 — Design & Architecture	Month 2–5	MFS system architecture design; graduation framework co-design; survey module design; data governance & security plan; HCD user testing rounds 1–2	D03 System Architecture; D04 Graduation Framework; D05 Survey Module Design; D06 Data Governance Plan
Phase 3 — Development & UAT	Month 4–9	Agile sprint development of all 8 MFS modules + survey module; integration with 10 government APIs; UAT with DSS staff; HCD round 3; data migration design; baseline survey deployment	D07 MFS Beta Prototype; D08 Survey Module Beta; D09 Data Migration Report
Phase 4 — Pilot Deployment	Month 9–12	Pilot in 8 districts; load testing; end-to-end security penetration testing; enumerator training; pilot survey in pilot districts; monitoring and refinement	D10 Pilot Deployment Report
Phase 5 — National Rollout	Month 12–15	National deployment across 64 districts; training of ≥15,000 government staff; midline survey; DSS IT Operations Unit establishment	D11 MFS Platform (64 Districts); D12 Survey Module (National); D13 Training Materials; D14 Training Completion Report
Phase 6 — Handover & Sustainability	Month 15–28	System administration handover; O&M cost model submission; endline survey; final project reporting; IP transfer; 12-month warranty commencement	D15 System Admin Manual; D16 Final Project Report; D17 Sustainability & Handover Plan

9. DELIVERABLES & PAYMENT SCHEDULE

The Consultant shall produce 17 formal deliverables. DSS formal written acceptance is required before the associated payment milestone is triggered. An advance payment of 10% upon contract signing is payable against a bank guarantee of equivalent value.

#	Deliverable	Phase	Timeline
D01	Inception Report — Work Plan, Methodology & Stakeholder Engagement	Phase 1	M1–M3
D02	Situational Analysis — Process Mapping, Infrastructure Assessment	Phase 1	M2–M3
D03	DFS System Architecture & Technical Design Document	Phase 2	M2–M5
D04	Graduation Framework — Indicators, Milestones, Scoring Methodology	Phase 2	M3–M4
D05	Survey Module Design — Instruments, Domains, Data Protocols	Phase 2	M3–M5
D06	Data Governance & Security Plan	Phase 2	M4–M5
D07	MFS Beta Prototype — All Modules (M-01 to M-08) with UAT	Phase 3	M5–M9
D08	Survey & Behavioral Change Module Beta Prototype with UAT	Phase 3	M6–M9
D09	Data Migration Report	Phase 3	M7–M9
D10	Pilot Deployment Report — 8 Districts	Phase 4	M9–M12
D11	Fully Deployed DFS Platform — 64 Districts	Phase 5	M12–M14
D12	Fully Deployed Survey & Behavioral Change Module	Phase 5	M12–M18
D13	Training Materials Package (Bangla + English)	Phase 5	M12–M18

D14	Training Completion Report**	Phase 5	M12–M15
D15	System Administration Manual	Phase 6	M18
D16	Final Project Report	Phase 6	M18

****MIS User Training and Operational Acceptance**

MIS training is an integral part of this project. The Consultant is expected to undertake a comprehensive training to user of this MIS at various levels; with an aim to ensure the MOSW/DSS staffs may able to use this system independently and perform various transactions as desired. The following table describe a user pattern may need to train.

Description	Locations/Office	No. of Users (Minimum)
Ministry High Officials	MoSW & Others	100
DSS & ISO Project	Admin	100
DSS Field Officer & Staffs	575 Upazila/UCD level Office, 64 District office & 08 Divisional office	10000
Total		10200

To achieve this objective, consultant is expected to conduct a MIS user-training program for the following personnel: -

- 3000 MIS users –The target audience of such training programs are officers & staffs of MOSW/DSS and its stakeholders;
- 100 System Administrators – This training is primarily meant for DSS core IT team to undergo for System Administration, database management and administration of this Platform.
- All training expense will have borne by consulting firm and finance division circular will have to follow for training expense.

10. KEY EXPERT REQUIREMENTS

The Consultant shall field a multidisciplinary team of qualified experts. All Key Experts must be nominated in the Technical Proposal with detailed CVs. Substitution of Key Experts after contract award requires prior DSS PMU approval.

Position	Qualification	Experience	Months	No. Person
Team Leader / Project Manager	Advanced degree in IT, CS or related field; Agile certified	10+ yrs complex digital financial systems; proven government client management	18 -m	01
Senior Software / DFS Architect	Advanced degree in CS / Software Engineering	8+ yrs scalable cloud-based financial systems; microservices; ISO 8583 fintech	15 -m	01
Mobile Financial Systems Specialist	BSc/MSc + MFS certifications	7+ yrs mobile money integration, USSD/SMS, digital payments in developing countries	15 -m	01
Mobile App Developer (Lead)	BSc CS + Android/iOS certification	7+ yrs Bangla-language mobile app development; biometric SDK integration	15 -m	01
AI/ML Credit & NPL Specialist	MSc/PhD Data Science or Statistics	6+ yrs ML credit scoring and NPL prediction (Python/TensorFlow); regulatory explainability	12 -m	01
Software Engineer/Developer	BSc CS+ Financial System Certification	5+ yrs financial system development, DFS/MFS Automation, financial frameworks	15-m	07
Poverty Survey Methodologist	MSc/PhD Statistics or Econometrics	7+ yrs MPI/HIES survey design; longitudinal panel management; DiD methodology	12 -m	01
Behavioral Change Analyst	MSc Psychology / Development Studies	6+ yrs BCC measurement in rural South/Southeast Asia; KAP survey design	12 -m	01

TERMS OF REFERENCE — RSS Digital Financial System (RSS-DFS)

Database Administrator	BSc CS + DBA certifications	6+ yrs SQL/NoSQL; data migration; data quality management; large-scale government systems	12 -m	01
Cybersecurity Specialist	BSc CS + CISSP/CEH/CISM	5+ yrs PCI-DSS, ISO 27001, penetration testing, AML compliance systems	12 -m	01
UX/UI Designer — Low-Literacy	BSc Design + HCD certification	5+ yrs mobile UX for low-literacy users; Bangladesh rural context; WCAG 2.1 AA	12 -m	01
Training & Capacity Building Specialist	MSc Education or HRD	5+ yrs government staff digital training in local languages; ToT design	12 -m	01

11. RISK MANAGEMENT

Risk	Likelihood	Impact	Mitigation Strategy
Low digital literacy among rural borrowers	High	High	Bangla biometric-first UX; USSD *321# fallback; pictographic guides; USWO handholding; 3 rounds HCD testing before go-live
Poor internet connectivity in remote upazilas	High	High	Full offline mode for field tablet app; USSD fallback; BTRC rural connectivity coordination; auto-sync on reconnect
Data security breach / cyber attack	Medium	Very High	PCI-DSS + ISO 27001; AES-256 encryption; mandatory 2FA; annual independent pen-test; immutable audit trail
Ghost beneficiary / NID fraud	Medium	Very High	BDEC biometric verification at registration; real-time API match; daily de-duplication report; BFIU AML monitoring
Delays in MoU signing (BDEC, BB)	High	Very High	Month 1 initiation; DSS PMU lead; World Bank facilitation; alternative verification path as contingency
MFS partner withdrawal (bKash/Nagad)	Low	High	Multi-MFS consortium model; government fallback wallet provision; NPSB interoperability; exit-clause penalties in contracts
Regulatory policy changes mid-project	Medium	High	Dedicated compliance officer; quarterly Bangladesh Bank liaison; World Bank policy barrier support; legal review before each phase
Field officer resistance to digitization	High	Medium	Change management Program; officer KPI dashboards; incentive structure tied to digital adoption; USWO champion network
AI credit model bias / inaccuracy	Medium	High	Bi-annual model audit; human override mandatory for borderline cases; explainability report to Bangladesh Bank
Survey data quality degradation	Medium	High	10% back-check re-interview protocol; automated real-time validation; enumerator performance scoring dashboard

12. SUSTAINABILITY & GOVERNMENT OWNERSHIP

- Transfer full Intellectual Property: source code, build scripts, API credentials, documentation, and all system assets to DSS upon Phase 6 completion
 - Establish and staff a DSS-owned IT Operations Unit with trained government employees by Month 18
 - Prepare a 5-year Operations & Maintenance (O&M) cost model and business case for submission to Ministry of Finance by Month 20
 - Negotiate post-project MFS partnership agreement templates with bKash/Nagad/Rocket for government preferential transaction pricing
 - Design the platform as a modular Platform-as-a-Service (PaaS) enabling replication across other DSS and MoSW Programs without additional vendor dependence
 - Provide 03-month post-deployment warranty support at no additional cost
 - All open-source components and APIs fully documented enabling independent government maintenance
-