



PROJECT MANAGEMENT & IMPLEMENTATION UNIT
SINDH EARLY LEARNING ENHANCEMENT THROUGH CLASSROOM TRANSFORMATION
REFORM SUPPORT UNIT (RSU)
SCHOOL EDUCATION & LITERACY DEPARTMENT



TERMS OF REFERENCE

System Administrator (Component 3 – SELECT)

The Sindh Early Learning Enhancement through Classroom Transformation (SELECT) Project encompasses a multi-pronged approach towards improving the quality of both teaching and learning practices in primary education, with a particular emphasis on foundational reading in grades 1 through 5. The Project comprises a series of focused and flexible implementation strategies, targeted at the school and meso- levels (personnel and systems at the school, taluka and district levels). The Project supports improvements in the transition from primary to elementary school, as well as a reduction in dropouts through targeted student attendance redress procedures. Desired Project outcomes would eventually contribute to reductions in learning poverty and in the number of out-of-school children.

Project Objectives	The overall development objective of this Project is to improve the reading skills of early grade primary students and increase student retention in primary schools in selected districts.
Project Cost	IDA: US\$100 million GPE ESPIG: US\$29.9875 million GPE MG: \$24.775 million Total: US\$154.7625 million
Expected Project Duration	August 2021 – April 2026
Component 1	Transforming teaching practices in the early grades □ Subcomponent 1.1: Implementation of a Continuous Professional Development (CPD) model for improved literacy skills in the early grades ▪ Subcomponent 1.2: Behavioral nudges for improved learning □ Subcomponent 1.3: Technical Assistance (TA) for transforming teaching practices Under this component, a CPD model will be implemented with the aim of improving literacy skills in early grades. Behavioral nudges will be utilized to improve student wellbeing and mitigate potential risks of dropping out. TA will also be provided for institutional capacity building and support.
Component 2	Improving the physical learning environment in selected primary schools, and upgrading them from grade 5 to grade 8, supporting the teaching and learning aims set out in Component 1 and the student retention aims set out in Component 3. Cost-effective and carbon-efficient technologies will be utilized to introduce needed climate adaptations and mitigate climate risk.

Component 3	Improving system capacity for effective school leadership and management support; □ Subcomponent 3.1: Establishing a technology-based student attendance monitoring system □ Subcomponent 3.2: TA and capacity building for school leadership and local education office management to mitigate student dropout A technology-based student attendance monitoring system will be established. TA will be provided, and capacity building will take place for school leadership and local education office management increase their ability to use school-level data in conjunction with Component 1 activities to mitigate student dropout.
Component 4	The Reform Support Unit (RSU) will monitor and evaluate the Project, monitor safeguards, oversee procurement and financial management, and will be responsible for overall management and coordination of the Project on behalf of the School Education and Literacy Department (SELD).
Geographic Scope	The Project will be implemented in twelve selected districts in Sindh: Badin, Ghotki, Jacobabad, Kambar-Shahdadkot, Kashmore, Mirpurkhas, Mititari, Sanghar, Shikarpur, Sujawal, Tando Muhammad Khan, and Thatta.

Component 3 includes the development and implementation of the Student Attendance Monitoring and Redress System (SAMRS) in selected schools of Sindh.

This component aims to support the planning, design, development, and implementation of the SAMRS in the selected schools. Under this component, the students will be provided with a unique student ID and their attendance will be monitored and analyzed over the academic years.

The activities under this component intend to provide a reliable and updated set of data on student attendance to the relevant stakeholders at all levels and aid in their informed decision-making process

1. Objective of Assignments

The System Administrator will be responsible for ensuring the stability, security, performance, and continuous availability of the SELECT Project's IT infrastructure, including servers, networks, virtualization environments, and hosted services across the Primary Site and Disaster Recovery (DR) Site.

The role requires maintaining all production, staging, testing, and QA environments, ensuring seamless operations in compliance with ISO 27001 Information Security Management System (ISMS) standards. The incumbent will provide technical expertise in system administration, infrastructure management, backup and disaster recovery, and security implementation, while supporting uninterrupted service delivery and operational continuity.

2. Scope of Work

Under the supervision of the Component-3 Lead, the System Administrator shall be responsible for the following:

Infrastructure Management & Administration

- Install, configure, and maintain physical servers, RAID systems, virtual machines, and operating systems (Windows and Linux) across Production, Staging, Testing, QA, and Training environments.

- Deploy and manage virtualization platforms including VM provisioning, snapshots, live migration, and physical-to-virtual migrations to ensure scalable and resilient infrastructure.
- Configure and manage SAN/NAS storage systems, including provisioning, capacity planning, and performance monitoring.
- Define hardware specifications, provide procurement recommendations, and maintain a comprehensive asset inventory including procurement details, warranty status, and system health records.

Compute & Storage Resource Monitoring and Capacity Planning

- Ensure efficient utilization of storage resources, including archival policies, data retention, and cleanup mechanisms.
- Conduct capacity planning and forecasting based on usage trends, projected growth, onboarding of new users, and system expansion.
- Support budgeting and procurement decisions by providing resource utilization reports and future capacity estimates.
- Continuously monitor compute, storage, memory, network, and database resource utilization across all environments (development, staging, production). Establish a dashboard for these risks & monitoring.
- Recommend and plan scaling strategies (vertical and horizontal) to ensure optimal system performance and cost efficiency.

Network & Connectivity Management

- Ensure secure and stable LAN/WAN connectivity, including IP addressing, domain services, and SSL/TLS certificate lifecycle management.
- Configure and manage firewalls, VLAN segmentation, and VPN connectivity (site-to-site and remote access) with strong encryption standards.
- Configure DNS, load balancers, and monitor network performance (bandwidth, latency, packet loss) with automated alerting and reporting.

System Security & Compliance (ISO 27001 ISMS)

- Apply OS hardening based on CIS Benchmarks and manage patching cycles through formal change control procedures.
- Deploy and manage IDS/IPS systems, conduct vulnerability assessments and penetration testing, and ensure timely remediation of identified risks.
- Implement and enforce access control policies based on least privilege, manage privileged accounts, and enforce multi-factor authentication (MFA).
- Establish cryptographic controls for data protection (at rest and in transit) and ensure physical and environmental security at both Primary and DR sites.
- Ensure full compliance with ISO 27001 ISMS by conducting periodic risk assessments, identifying non-conformities, and reporting accordingly.

High Availability, Backup, Disaster Recovery & Business Continuity

- Implement backup mechanisms with defined RTO/RPO targets and maintain secure onsite/offsite/cloud replication.
- Conduct disaster recovery drills at least twice annually and update procedures based on outcomes.
- Provide support to Design, implement, and maintain high-availability architecture for all critical MIS components, including application servers, databases, APIs, and integration services.
- Ensure minimum service downtime through redundancy, failover mechanisms, load balancing, and clustering where applicable. Proactively address single points of failure.
- Coordinate with application and database resources to ensure that system upgrades, patches, and maintenance activities do not compromise availability.
- Maintain up-to-date documentation of HA architecture, failover procedures, and escalation protocols.

Monitoring, Logging & Performance Management

- Deploy and manage infrastructure monitoring tools (e.g., Zabbix, Prometheus, Grafana, etc.) for system and network performance tracking.
- Implement centralized logging systems with defined access controls and retention policies.
- Configure automated alerting mechanisms for critical system and security events.

Application & Platform Support

- Install and configure Tangerine and ODK servers with required system-level customizations and integrations across all environments.
- Ensure availability, performance, and stability of hosted applications and services.

Change Management & Documentation

- Manage infrastructure changes through formal change control processes.
- Maintain CMDB records for all hardware and system assets.
- Update infrastructure architecture diagrams, SOPs, and runbooks on a regular basis.

Incident Management & Audit Support

- Develop, maintain, and periodically test Incident Response Plans including escalation, containment, and post-incident review.
- Support internal and external audits by providing required documentation and evidence of controls.

Reporting & Coordination

- Submit bi-weekly progress reports and quarterly ISO 27001 compliance reports.
- Participate in technical and project coordination meetings.
- Perform any other tasks related to infrastructure management, security, and system administration as assigned by the competent authority.
- Collaborates with team members and third-party vendors.
- Provides technical input to IT team for capacity planning, infrastructure roadmap, and budget forecasting.
- Participates in World Bank & Vendors meetings, weekly /bi-weekly IT operations stand-ups, incident review processes, and quarterly infrastructure audits.

Professional Conduct & Soft Skills

- Demonstrates strong analytical and structured problem-solving skills under pressure.
- Communicates technical concepts clearly to both technical peers and non-technical stakeholders.
- Maintains confidentiality and exercises sound judgment regarding access to sensitive systems, data, and credentials.
- Follows change management procedures rigorously and documents all infrastructure changes accurately.
- Proactively identifies risks and proposes mitigation measures before escalation is required.
- Remains current with emerging technologies, threat landscapes, and best practices through continuous professional development.

3. Qualifications

a Education:

- i Bachelor's degree in computer science, Information Technology, Systems Engineering, Cyber Security or a closely related technical discipline.
- ii Equivalent professional certifications combined with demonstrated practical experience will be considered in lieu of formal qualifications.

b Experience:

- i Minimum five (5) years of hands-on experience in systems administration, infrastructure engineering, or equivalent technical operations role within an enterprise or mid-large IT environment.
- ii Demonstrable experience managing multi-server, multi-site infrastructures with physical and virtual environments.
- iii Proven track record of implementing backup/DR solutions, replication workflows, and conducting recovery testing in production-grade environments.
- iv Experience with CI/CD pipeline design and management in environments requiring separate Production, Staging, Testing, and QA tracks.

c Professional Certifications (Preferred):

Competency Area	Key Responsibilities & Requirements
Microsoft	MCSA/MCSE (Windows Server), Microsoft Certified: Azure Administrator Associate, Hyper-V administration credentials
Linux	LPIC-1/LPIC-2, CompTIA Linux+, Red Hat RHCSA/RHCE
Networking	Cisco CCNA/CCNP, CompTIA Network+, or equivalent vendor certification
Security	CompTIA Security+, CEH, CISSP (associate), or vendor-specific security certifications
Backup & DR	Veeam Certified Engineer (VMCE) or equivalent backup platform certification
Virtualization	Microsoft Certified: Windows Server Hybrid Administrator Associate or equivalent
DevOps / CI-CD	GitLab Certified Associate, Jenkins certification, or equivalent pipeline tooling credentials