



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



**TERMS OF REFERENCE**

**Database Administrator**

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.

<b>Project Objectives</b>	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.
<b>Project Cost</b>	IDA: US\$100 million  GPE ESPIG: US\$29.9875 million  GPE MG: \$24.775 million  <b>Total: US\$154.7625 million</b>
<b>Expected Project Duration</b>	August 2021 – April 2026
<b>Component 1</b>	<p>Transforming teaching practices in the early grades</p> <ul style="list-style-type: none"> <li>▪ <b>Subcomponent 1.1:</b> Implementation of a Continuous Professional Development (CPD) model for improved literacy skills in the early grades</li> <li>▪ <b>Subcomponent 1.2:</b> Behavioral nudges for improved learning</li> <li>▪ <b>Subcomponent 1.3:</b> Technical Assistance (TA) for transforming teaching practices</li> </ul> <p>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.</p>

<b>Component 2</b>	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.
<b>Component 3</b>	Improving system capacity for effective school leadership and management support: <ul style="list-style-type: none"> <li>▪ <b>Subcomponent 3.1:</b> Establishing a technology-based student attendance monitoring system</li> <li>▪ <b>Subcomponent 3.2:</b> TA and capacity building for school leadership and local education office management to mitigate student dropout</li> </ul> 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.
<b>Component 4</b>	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).
<b>Geographic Scope</b>	The Project will be implemented in twelve selected districts in Sindh: Badin, Ghotki, Jacobabad, Kambar-Shahdadkot, Kashmore, Mirpurkhas, Mititari, Sanghar, Shikarpur, Sujjawal, Tando Muhammad Khan, and Thatta.

**1. Implementation Arrangement:**

The Project will be implemented by SELD of the Government of Sindh (GoS), through the Project Management and Implementation Unit (PMIU). This will be housed in the RSU, which will monitor overall implementation of Project activities with TA support. The RSU will be headed by the CPM (Chief Programme Manager) who will be responsible for providing overall Supervision.

The design, implementation planning and construction supervision activities for the Component will be managed through the consulting firm. The firm will be hired by the RSU and will be responsible for conducting needs assessment, preparing site specific master plans and detailed designs and drawings, construction supervision and quality assurance of the Project.

**2. Scope of Work:**

The task of an expert database Administrator (DBA) is to manage and maintain the databases including designing, implementing and maintaining database system and related softwares. Monitor database performance and identify, resolve issues to ensure optimal performance. Develop and implement backup and recovery plans to ensure data availability and recovery in case of disasters. Ensure data security and integrity by implementing appropriate access controls. Troubleshoot database related problems and provide timely and effective solutions to minimize downtime and ensure continuity of operations. In addition to DBA responsibilities incumbent must be proficient in the System Engineering related activities.

Direct supervision and directions of the Lead MIS expert, the Database Administrator shall perform the following tasks and responsibilities:

- Eliminate data loss risk at all levels. Enable redundant and fully backed up systems & source code copies. Assist the management in procuring required hardware & support services.
- Keep all database version and patches UpToDate.
- Ensure high availability & automated backups.
- Optimize/manage database design for best output. Conform data deployment security to ISO 27001. Identify in writing the discrepancies in any deployment.
- Ensure data format consistency between different modules & systems of SELECT. Write/Review related documentation before implementation. Share that with in-house developer & outsourced software Firm developing system.
- Perform database optimization & indexing on bi-weekly basis and on need basis.
- Ensure three environments all time present. Test, Training & Production. Make sure no junk data in Production system.
- Install & configure RAID; VMs, Operating systems, **Databases** (SQLServer; mySQL, PostgreSQL etc), hosting environments (including windows & Linux) and customized software's.
- Install opensource tangerine software & customize it for local integration.
- Install opensource ODK server & dashboard. Link it's **database** with other systems in SELECT project.
- Research & Install any new software/tool/framework required by the project team. Suggest better alternates as applicable.
- Understanding of the required hardware & configurations as per project scope & implementation plan. Study implementation plan & ground realities & timely define the required hardware requirements and related software's and licensing needs to lead MIS expert/ project management.
- Analyze, evaluate and draft reports for all procured/received hardware specs and software of servers SAN, router, switches etc. Manage inventory with dates and regular status check.
- Connectivity of servers, SAN and other peripherals/ hardware.
- Enable secure LAN access between project office & tier II hosting procured by project.
- Configuring of domain & IP's (private & Public) to the application services and Databases. Manage IPs and troubleshoot any IP clashes.
- Configuring SSL's on all live links & VPN's on all required links.
- Ensure the alternate resources/hardware for backup of application and database. Ensure automated backup linkages.
- Bi-Weekly reporting on the progress & challenges.
- Maintain and analyze logs of servers, SAN etc. for optimization & preempting possible problems.

- Manage and monitor all system installation & breakdowns.
- Design the best output of implemented system infrastructure. Keep an up to date diagram accessible to project team.
- Maintain warranty and support activities logs of all installed hardware.
- Tasks related to Databases:
- Meeting the project Team when requested.
- Providing technical assessment, feedback and recommendations related to the progress of work done.
- Participating in the launching of the installation of the application and other related meetings as necessary.
- Being ready to work on a testing host server to put the developed version and any new software changes on a daily basis.
- Performing all fixes/new components required by the project during the agreed duration.  
Servers cascading/mirroring and distributed servers technology for smooth access to the system on larger scale.
- Ready to learn any technology proposed by the project for a specific implementation and apply it as required by the project.

### **3. Expected Outputs and Deliverables:**

Progress towards achieving each task during the contract will be monitored on a regular basis and with reference to a clear set of deliverables, including, where needed/applicable:

- Initial and Final development detailed plan and evaluation of the start status and final status.
- The efficient database system for entire SELECT; with regular backups & redundancy deployed.
- Configured all servers for hosting. Test, training & production environment.
- Configure & optimize databases; related backups & high availability.
- Apply; zero loss data rule and trace all activities.
- Weekly Progress Reports. Issues Logs.
- Current Networking Relationship Diagram with all nodes & software details including environments, redundancy & roles. To be produced after each/any change.
- All related electronic materials (CDs, e-books, passport drives, hard disk, USBs etc) acquired as part of the project (originals where applicable)
- The Functional documentation.

The Technical documentation including the installation documentation and the detailed installed application specifications document. This covers ALL software's.

- All necessary documentation (hardware and Software): to maintain the sites where the software has been installed and all related passwords. This to be accessible to lead (or designated) resource at all times.
- Procedure of back up and the disaster recovery plan.

**4. Functional Competencies:**

Ability to plan, prioritize, manage a demanding workload and meet the set deadlines.

**5. Professional skills:**

- Proven Experience of Databases administration.
- Proven Experience of Servers operating System installation at least 5 years.
- Proven experience with setting up VMs, RAID, OS for Servers and SAN.
- Embedding Application Security Components. ISO 27001 standard.
- Experienced in configuring and setting up systems required & adapting to new technologies.
- Backup and service continuity.

**6. Qualifications of the Successful Individual Contractor:**

- Education: University Degree in BS/ B.E Computer Systems or related field.
- Experience: At least 2 years of relevant experience in (data center operations) physical Server, SAN, router, switches operations.
- Experience with configuring, optimizing databases (MySQL, SQLServer, PostgreSQL) with high availability is **required**. At least 5 years.
- CCNA, CCNP holder would be considered additional grace. 5% additional marks.
- Recognized Certification in Database management from OEM centers to be given additional weightage (5% marks).