TERMS OF REFERENCE

(Data Base Administrator, ETL Developer (Extract, Transform, Load Developer

Power Bl Developer, System Engineer/ System Administrator, Education Specialist

/ ECE-Foundational Learning Specialist)

In order to strengthen the Project Coordination and enhance the overall efficacy of Action to Strength Performance for Inclusive Education (ASPIRE), project, there is a need to hire (consultants) on a short-term basis (consultants for initially six-month period- Extendable) in order to effectively manage the extensive impact of the projects in question.

The recruitment will be made on Quality & Cost Based Selection (QCBS) criteria.

The candidates are required to submit their CVs, at following address.

Reform Support –Unit, SE&LD (RSU)

Project Background

Actions to strengthen Performance for Inclusive and Responsive Education (ASPIRE) was approved on 30thJuly, 2020 with the amount of 200 Million $.The Program's support for improved equity in service delivery (both in access and quality) and sector management, is highly justified, based on Pakistan's needs to: (i) mitigate the socio-economic disruption to family incomes; (ii) build the resilience of the education system to face natural and health-related disasters; and (iii) incentivize coordinated efforts to increase equity in access and quality of education, with a focus on girls and OOSC. To achieve these goals, the Program will: (i) support the safe reopening of schools; (ii) expand access to quality traditional and multi-modal education as a mechanism to support students during emergencies and to engage the high number of OOSC into the system; and, (iii) create stronger coordination and management practices between Federal and Provincial governments.

DATABASE ADMINISTRATOR

(Contract employee for 6 months- Extendable)

The task of an expert database Administrator (DBA) is to manage and maintain the databases including designing, implementing and maintaining database system and related software's. 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. He/She must have experience of databases integration experience.

Tasks and responsibilities:

1. 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.
2. Keep all database version and patches UpToDate.
3. Ensure high availability & automated backups.
4. Optimize/manage database design for best output. Confirm data deployment security to ISO 27001. Identify in writing the discrepancies in any deployment.
5. Ensure data format consistency between different applications & systems . Write/Review related documentation before implementation. Share that with in-house developer & outsourced software Firm developing system.
6. Perform database optimization & indexing on bi-weekly basis and on need basis.
7. Ensure three environments all time present. Test, Training & Production. Make sure no junk data in Production system.
8. *Databases* (SQLServer; mySQL, PostgreSQL etc), hosting environments (including windows & Linux).
9. Meeting the organization team when requested.
10. Providing technical assessment, feedback and recommendations related to the progress of work done.
11. Participating in the launching of the installation of the application and other related meetings as necessary.
12. Being ready to work on a testing host server to put the developed version and any new software changes on a daily basis.
13. Performing all fixes/new components required by the organization during the agreed duration.

14. Ready to learn any technology proposed by the RSU for a specific implementation and apply it as required by the organization.

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:

1. Initial and Final development detailed plan and evaluation of the start status and final status.
2. The efficient database system for entire organization; with regular backups & redundancy deployed.
3. Configure & optimize databases; related backups & high availability. Integration of databases with other databases to synchronize and sink data. Especially Landing Zone storage server.
4. Apply; zero loss data rule and trace all activities. Issues Logs.
5. All related electronic materials (CDs, e-books, databases license, passport drives, hard disk, USBs etc) acquired as part of the system (originals where applicable)
6. The Functional documentation.

Functional Competencies:

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

Professional skills:

1. Proven Experience of Databases administration and databases integration.
2. Embedding Application Security Components. ISO 27001 standard.
3. Experienced in configuring and setting up systems required & adapting to new technologies.
4. Backup and service continuity.

Qualifications of the Successful Individual Contractual employee:

1. Education: University Degree in BS/ B.E Computer Systems/Software Engineering or equivalent.
2. Experience with configuring, optimizing databases (MySQL, SQLServer, PostgreSQL) with high availability is required. At least 5 years.
3. Recognized Certification in Database management from OEM centers to be given additional weightage (5% marks).

ETL DEVELOPER (Extract, Transform, Load Developer)

(Contract employee for 6 months- Extendable)

Scope of work.

The main scope of the ETL developer is to follow three steps i.e extract, transform and load data using tools of integration. Extract the data from different data sources/ databases; maintain the quality of data with clear understanding of quality formatted data for transfer to target system, loading the structured and formatted data into a target database by using the different tools like special design programing for landing zone server, Integration server etc.

Task and responsibilities:

1. Define the data sources; specify APIs and databases for designing and implementing data integration workflow.
2. To develop SSIS packages for ETL.
3. Data extraction detailed planning to extract data from sources.
4. Describe Data transformation, cleaning the data and manipulation of data before loading it into target system.
5. To specify the destination system for data loading.
6. To maintain quality, speed and accuracy of the data.
7. To define the tools, programing language and technologies to be used for ETL.
8. To define how data quality and ETL process will be monitored and reported.
9. To define how the ETL developer will collaborate with other team members and communicate progress.
10. To define specify project timelines, milestones and deliverables.
11. To ensure the data security during ETL processes.
12. To ensure the error handling mechanism to address data quality issues and failures in the ETL process.

Expected out puts and deliverables:

4

1. 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:
2. Initial and Final development detailed plan and evaluation of the start status and final status for ETL process.
3. Apply; zero loss data rule and trace all activities to load data to targeted system.
4. Apply; zero loss data rule and trace all activities during the data transformation process, to meet the criteria of required data formatting.
5. The Functional documentation for designed APIs, programing and tools for ETL process.

Functional competencies:

- Ability to plan, prioritize, manage a demanding workload and meet the set deadlines.
- To develop SSIS packages for ETL
- Collaboration with database administrator and data analyst or BI developer to ensure data accuracy and integrity.

Professional skills:

- Must have strong knowledge of different databases.
- Proven experience as an ETL developer, must have programming, data modeling, data warehousing and data integration experience.
- Proven experience in designing, developing, and maintaining ETL processes and workflows using tools like Azure landing zone, Apache Nifi, Microsoft SSIS, Talend, informatica, or custom scripts.

Qualifications for successful contractual employee:

- BS/B.E degree in Computer Science/Information Technology/Data engineering or equivalent.
- Have minimum ETL tools proficiency as ETL developer for 5 years at least.
- Candidate having certifications in ETL tools or technologies given preference.
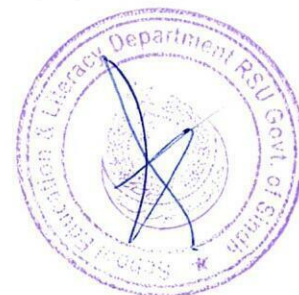
## Power BI Developer (power Business Intelligent tools developer)

(Contract employee for 6 months- Extendable)

Scope of work:

An expert Power BI Developer gathering data from various sources like databases, spreadsheets or online services. Cleaning and preparing that data for analysis to design interactive and visually appealing reports and dashboards using power Business Intelligent tools. Data visualization by applying formulas, calculation to derive insights from data for creating charts, graphs, tables from raw data to meaningful understanding for decisions making. Large and complex data presentation in intelligent way that can be integrated into other applications or platforms for quick and better understanding regarding to specific areas/business of data sets.

Tasks and responsibilities:

1. Designing and developing power BI reports based on business requirements.
2. Connecting to data sources and creates data models.
3. Creating interactive visualizations and dashboards.
4. Data integration by connecting Power BI to different data sources and ensuring data refresh schedules are maintained.
5. Implementing security measures control access to reports and data sources, ensuring data privacy and compliance.
6. Gathering data from various sources such as databases, APIs and cloud services.
7. Cleaning structuring and transforming raw data into a useable format for analysis.
8. Designing data models within power BI to support reporting and analysis requirements.
9. Connecting Power BI to different data sources and ensuring data is refreshed regularly.
10. Creating interactive and visually effective reports, dashboards, and scorecards using Power BI tools.
11. Selecting the appropriate visualizations i.e charts, graphs, maps etc to effectively convey insight to end-users.
12. Writing and optimizing data analysis expressions (DAX) formulas and M language scripts for custom calculations and data transformations.
13. Ensuring that reports and dashboards load quickly and respond smoothly, even with large datasets.
14. Collaborating with database administrator and System administrator and other stakeholders to understand data requirements and report specifications.
15. Troubleshooting the issues of data connectivity, report design and data refresh.
16. Managing version control for Power BI files to track changes and collaboration with other developers.
17. Ensuring the accuracy, consistency and reliability of reports and data.
18. Analyze pervious and present data for better decision making.
19. Develop strong data documentation about algorithms, parameters, models.
20. Perform detailed analysis on tested and deployed Power BI scripts.
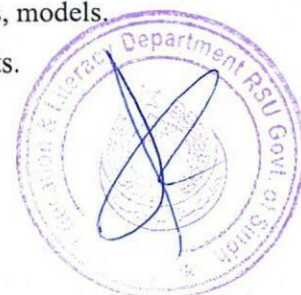
21. Define and design new systems.
22. Take care of data warehouse development.
23. SQL query for better results.

Expected out puts and deliverables:

1. Designing and developing power BI reports based on business requirements.
2. Connecting Power BI to data sources including databases, APIs, EXCEL files, cloud based services and creates data models.
3. Creating interactive visualizations and dashboards.
4. Data integration by connecting Power BI to different data sources and ensuring data refresh schedules are maintained.
5. Can be develop the applications in PHP, .NET etc besides of Power BI tools.
6. Ensuring that reports and dashboards load quickly and respond smoothly, even with large datasets.

Functional competencies:

Power BI Developer must have proficiency or familiarity with data science, business intelligence, and data analytics. Power BI Developer must also be aware of data integration, data warehousing, modeling, along with presentation tactics and concepts.

Professional skills:

1. Power BI developer must possess experience of working with BI tools and BI systems.
2. Must be able to build rich dashboards.
3. Write DAX expressions, and also implement security.
4. Can be develop the applications in PHP, .NET etc
5. Power BI Developer knows scripting and programming languages. He also expected to know about database management, SQL querying, data modeling, Online Analytical Processing.
6. Must have experience with Power BI data flows, power Automate, and Power Apps for end-to-end solutions.
7. Power BI Developer has in depth knowledge of Microsoft Business Intelligence stack like Power Pivot, SSRS, SSIS, and SSAS

Qualifications for the successful contractual employee:

- BS/B.E degree in Software Engineering, Computer Science, Information Technology, Data Science or equivalent.
- Minimum over all 5 years hands on experience of applications development & Power BI developer.
- Power BI certification of Microsoft considered as additional grace.
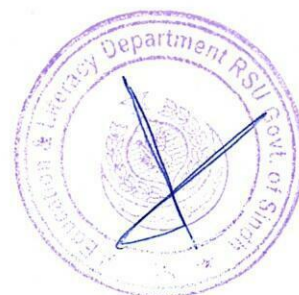
SYSTEM ENGINEER/ SYSTEM ADMINISTRATOR-

(Contractual employee for 6 months- Extendable)

Scope of Work:

The task of an expert system Engineer/System Administrator is to control and maintain system take proactive steps to align all technical resources for stable system outcomes. Mount physical Servers, installation of operating system, software's, RAID generation in servers and other relevant hardware. Remote access of console of servers, keep firmware updated of servers and relevant hard ware for multiple operating system, safe connectivity of LAN with cloud servers, ensure the health of servers, SAN and all relevant hardware and take troubleshooting measures in case of any fault occurs. Virtual Machines creation (VMs) in server machine for backup of application, database to ensure service continuity of the system. Configuring and customization of Landing Zone server with existing databases for sharing, synchronizing, sinking data with other databases.etc.

Tasks and responsibilities:

1. 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 reporting officer.

2. 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.

3. 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.

4. Install & configure RAID; VMs, Operating systems, *databases*, hosting environments including (windows & Linux) and customized software's.

5. Setting up user accounts and access permissions.

6. Install dashboard. Link it with other systems in the organization.

7. Research & Install any new software/tool/framework required by the technical team. Suggest better alternates as applicable.

8. Connectivity of servers, SAN and other peripherals/ hardware including cloud based server connectivity with LAN of organization.

9. Enable secure LAN access between office & cloud server and sharing data with other databases using landing zone server.

10. Configuring of domain & IP's (private & Public) to the application services and Databases. Manage IPs and troubleshoot any IP clashes.

11. Configuring SSL's on all live links & VPN's on all required links.

12. Ensure the alternate resources/hardware for backup of application and database. Ensure automated backup linkages.

13. Bi-Weekly reporting on the progress & challenges.

14. Maintain and analyze logs of servers, SAN etc. for optimization & preempting possible problems.

15. Router (mikroTik etc) and switches management.

16. DNS mapping. Port forwarding, port blocking and unblocking.

17. Access Server, SAN, VM console using putty, ILO etc. utilities.

18. Manage and monitor all system installation & breakdowns.

19. Design the best output of implemented system infrastructure. Keep an up to date diagram accessible to project team.

20. Maintain warranty and support activities logs of all installed hardware.

21. Meeting the organization's team when requested.

22. Providing technical assessment, feedback and recommendations related to the progress of work done.

23. Participating in the launching of the installation of the application and other related meetings as necessary.

24. Being ready to work on a testing host server to put the developed version and any new software changes on a daily basis.

25. Performing all fixes/new components required by the organization during the agreed duration.

26. Servers cascading/mirroring and distributed servers technology for smooth access to the system on larger scale.

27. Ready to learn any technology proposed by the organization for a specific implementation and apply it as required by the project.

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:

1. Initial and final development detailed plan and evaluation of the start status and final status.
2. Keep system up with minimum down time.
3. The Detailed infrastructure/ architectural Specifications Document.
4. Configure all servers for hosting. Test, training & production environment.
5. Configure & optimize databases; related backups & high availability.
6. Installing different software and customization of softwares.
7. Complete data backup & redundancy; zero loss rule.
8. Weekly Progress Reports. Issues Logs.
9. Current Networking Relationship Diagram with all nodes & software details including environments, redundancy & roles. To be produced after each/any change.
10. All related electronic materials (CDs, e-books, passport drives, hard disk, USBs etc) acquired as part of the project (originals where applicable)
11. The Functional documentation.
12. The Technical documentation including the installation documentation and the detailed installed application specifications document. This covers ALL software's.
13. 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.
14. Procedure of back up and the disaster recovery plan.
15. Service continuity plan implementation.

Professional skills:

- Proven Experience of System Engineer/ system administrator.
- Proven experience of landing zone server and integration server.
- Proven Experience of Servers operating System installation at least 5 years.
- Proven experience with setting up VMs, RAID/multiple RAIDs, OS for Servers and SAN.
- Embedding Application Security Components. ISO 27001 standard.
- Experienced in updating firmware is required & adapting to new technologies.
- Backup and service continuity.

Qualifications of the Successful Individual Contractual employee:

- Education: University Degree in BS/ B.E Computer Systems or related field.
- Experience: At least 5 years of relevant experience in (data center operations OR in larger LAN based organization) physical Server handling, SAN, router, switches operations. including cloud-based servers.
- Experience of Landing Zone Server and integration server for integration of databases.
- CCNA, CCNP holder would be considered additional grace. 5% additional marks.

FOUNDATIONAL LEARNING SPECIALIST

1. Background of activity

The COVID-19 and 2022 floods have create challenges for the education sector, ASPIRE project focus on reversing those losses through accelerated learning programs. To fast track the learning, the project focused on recommendation programs for foundational learning, under policy support, which will help student to make rapid progress and get back on track academically. The preparation and approval of the foundational learning policy at national or province level leading to the roll out the accelerated foundation learning (ALF) program lagging district is expected to improve the minimum proficiency level (MPL) of students. Through ASPIRE the policy and procedures of foundational literacy will be developed, approved and implemented in 20% of the primary schools in each of the lagging districts.

2. Objective

The objective of this consultancy is to engage an expert who will lead and guide the process of preparing a policy document that addresses the acceleration of foundational learning, with a focus on reading.

3. Scope of work

The Foundational learning Specialist will play a pivotal role in the developed and approval of the Accelerated Foundational learning (reading) Program in lagging areas/districts. This is part of a broader initiative aimed at improving the Minimum Proficiency Levels (MPL) of students literacy skills and reducing the learning poverty indicator in lagging districts.

1. Conducting a thorough review of existing educational policies and frameworks related to foundational literacy.
2. Analyzing the current state of foundational education, identifying challenges, and assessing best practices through situational analysis/ FGDs, KIIs.
3. Developing a clear and comprehensive policy framework aimed at accelerating foundational literacy, including actionable recommendations and strategies.
4. Collaborate with national and provincial departments to develop a comprehensive foundational literacy policy, ensuring it includes a clear
5. Drafting a policy document that is well-structured, evidence-based, and actionable.
6. Conduct regional and provincial consultation session to prepare draft policy.
7. Providing guidance on the implementation and evaluation of the proposed policy recommendations.
8. Ensuring that the policy document is aligned with international best practices and standards in foundational education.
9. Conduct consultation session will allied institutions of SELD.

11

10. Closely work with SELD allied institutions, education expert (ASPIRE PMIU), Firm (if hired) and other stake holders.

11. Desk review of current status of foundational literacy and numeracy in Sindh province and best practices around the world.

12. Monitor and facilitate the notification of the policy by SELD.

13. Prepare Procedures of accelerated foundational literacy and numeracy policy.

14. Identify training needs and develop training programs for teachers and education stakeholders involved in the foundational literacy & numeracy.

15. Prepare implementation plan for teacher training regarding AFL.

16. Work closely with DCAR in preparation of training material

17. Design detail monitoring plan for timely monitoring of field activities.

18. Oversee the roll-out of the Accelerated Foundational Literacy (AFL) program in 20% of primary schools in each lagging district, in line with the policy and budget allocations.

19. Coordinate with local educational authorities and schools to ensure smooth program execution.

20. Monitor and evaluate the program's progress, making adjustments as necessary to meet MPL and learning poverty reduction targets.

21. Provide technical assistance and guidance to educators and program implementers to ensure effective delivery of foundational literacy and numeracy instruction.

22. Foster a culture of continuous improvement by providing ongoing support and mentorship to educators and program staff.

23. Establish a robust monitoring and evaluation system to track the impact of the AFL program.

24. Generate regular reports on program performance, outcomes, and challenges.

25. Share findings and recommendations with relevant authorities and stakeholders to inform decision-making.

26. Collaborate with communities and parents to raise awareness of the importance of foundational literacy and engage them in supporting their children's learning.

27. Facilitate community involvement in program activities to create a conducive learning environment.

28. Prepare framework and parameters for formative summative and diagnostic assessment for foundational literacy and numeracy

29. Suggest modification in CPD model 2022 in light of AFL.

4. Qualifications and Professional Experience

1. A master's degree in Education, policy development, or a related field.

2. A minimum 5 years of relevant experience in designing and implementing educational programs.

3. Proven experience working for foundational literacy will be the advantage.

4. In-depth knowledge of current trends and challenges in the field of foundational education

5. Strong research and analytical skills, with the ability to synthesize complex information into clear and actionable recommendations.

6. Strong knowledge of early grade literacy and numeracy development, pedagogical approaches, and assessment methods.

7. Experience working with local and international education authorities to develop and implement education policies and programs.

8. Proven ability to lead and manage teams effectively.

9. Proficiency in data analysis and reporting.

10. Knowledge of children's rights and creating a healthy learning environment.

5. Duration

The contract period is for 01 years that is extendable as per requirement.

EDUCATION EXPERT

1. **Background of activity**

   Under ASPIRE project is seeking to engage an education to provide subject matter expertise, guidance, and support in the field of education. The expert will play a crucial role in advancing the project education initiatives and targets.

2. **Objective**

   The objective of this consultancy is to secure the services of an Education Expert who can provide valuable insights, recommendations, and assistance in designing, implementing, and evaluating education programs and initiatives under ASPIRE project.

3. **Scope of work**

   The selected Education Expert will be responsible for the following tasks:

   1. Work closely with FL expert in preparation, approval of AFL policy.
   2. Support FL expert in preparation and implementation of AFL training program.
   3. Providing guidance and advice on curriculum development, pedagogy, and educational strategies under scope of project.
   4. Evaluating the effectiveness of educational programs and initiatives under scope of project.
   5. Offering recommendations for improvements in alignment with educational goals and objectives.
   6. Collaborating with internal teams and external stakeholders to develop and refine educational activities of the project.
   7. Contributing and support to the creation of educational content, materials, and resources.
   8. Identifying opportunities for innovation and advancement in design activities.
   9. Advising on educational technology and digital learning solutions.
   10. Participating in workshops, seminars, and conferences related to project.
   11. Preparing reports, presentations, and required documents on related activities.
   12. The education expert will propose mitigation measures for handling quality related aspects of the teacher training program.
   13. The Education expert will closely manage the record of Human resources utilized during implementation of the program and make the pool of HR for SELD future interventions.

14. He/ She that will be responsible to look after the overall planning, design of training program, implementation, monitoring and reporting of teacher training program in coordination with concern wings of SELD.

15. The expert will support in the timely implementation of teacher training Program with constant review of step by step program activities to achieve targets of projects.

16. The expert will also closely monitor the factors, which effects timely implementation of the activities and being hurdle in achieving targets.

17. in order to ensure sustainable developmental activities, the Expert will coordinate with the aligned institutions of SELD to ensure the implementation of teacher training activities as per approved revised CPD model 2022 in scope of project activities.

18. He/She under the guidance of the CPM-RSU and SPM(Q) RSU, Expert will be responsible for all aspects regarding the design and execution of trainings; ensuring that this is carried-out with transparency and efficacy and meets the objectives of the said activity.

19. Design training program for teachers and head-teachers on tech-enabled pedagogy, digital and distance learning skills, school leadership, better classroom management, use of technology-based assessment system.

20. Assist concern allied institute of SELD in aspects in training of master trainers for onward training at district, and school level.

21. Review the training methods and material proposed by different project and program to ensure that these draw on the best possible international practices and are appropriate for the target population.

22. Identify distance learning methods to ensure that the training is appropriate for vulnerable population within the scope of the project, including but not limited to gender and religious minorities.

23. In case of implementation of training program by firm review the monitoring reports submitted by the training providers to ensure that these are complete and submitted according to the terms of the Contract.

24. Coordinate the provision of the key deliverables within project Districts in close coordination with the Field Officers, so that said deliverables are provided according to the implementation plan.

25. Review and provide input to the M&E system, forms, data collection and analysis to ensure that it accurately tracks the activities within the Projects and assesses progress in implementation.

26. Liaise at the district level with the respective focal persons of Firm, RSU and align institutions of SELD for the development, implementation, monitoring, and reporting of training program.

27. Prepare periodic activity wise monitoring and progress reports (monthly, quarterly and annual), and submit to the SPM(Q)

28. Support and maintain systems that are in place to ensure that training program requirements are properly managed.

29. Carrying out frequent field visits and conduct monitoring for effective teacher training implementation at cluster ,cell hub and feeder school level Consult the Program beneficiaries and take stock of their feedback and document the field findings in record preferably for each visit.

30. Conduct field visits and assist in the training related auditing/Third Party Monitoring and assessment.

31. Maintain documentation of required compliance records.

32. Keep a regular track of mitigation measures taken at each training cycle through developing simple database/monitoring list(s) and adequately reflect in monthly/quarterly progress report(s).

33. Perform other related functions, duties, and tasks as may be requested by, CPM-RSU, SPM(Q).

4. **Qualifications and Professional Experience**

1. Masters in Education (sixteen (16) years of education), from a foreign or local university duly recognized by the Higher Education Commission (HEC) of Pakistan.

2. Preferred: M.Ed and B.Ed additional qualification, Diplomas, and trainings in Education. M.Phil. Ph D in Education will be given preference.

3. At least, five (05) years of documentary verifiable relevant experience, after acquiring stipulated qualifications, in Teacher Training Programs, curriculum and materials development of learning materials in low-resource environments; mentoring and capacity-

16

building of teachers, teacher educators, training related monitoring and evaluating activities.

1. Preferred: eight (08) or more years of relevant experience as a Manager/ Expert in Teacher Training Programs

2. Knowledge of international best practices in reading content and instructional practices.

3. Extensive experience in the field of education, including both academic and practical experience.

4. In-depth knowledge of educational methodologies, pedagogical approaches, and best practices.

5. Strong research and analytical skills.