CONSULTANCY TO IMPLEMENT A VIRAL LOAD SAMPLE MANAGEMENT SYSTEM–LABORATORY INFORMATION MANAGEMENT SYSTEM (VLSM–LIMS) IN THE REPUBLIC OF SIERRA LEONE

ROLE (PART TIME)	ICT Consultant
REPORTING TO	Project Director
DEPARTMENT/UNIT	Regional Laboratory Programme, Global Health Security
PROJECT	Technical Support to implement a Viral Load Sample Management LIMS System (VLSM) in the Republic of Sierra Leone
DUTY STATION	Sierra Leone (Freetown, Makeni, Kambia or Port Loko)
Please note that this position is only open to residents of Sierra Leone	

1. Background

Amref Health Africa is being supported by the African Society for Laboratory Medicine (ASLM) to implement a Viral Load Sample Management System–Laboratory Information Management System (VLSM–LIMS) to manage laboratory workflow, tracking and reporting test results electronically, and reducing turnaround time for tests such us COVID-19 and molecular HIV diagnosis such as Viral Load (VL) and Early Infant Diagnosis (EID). This a six months' project that will integrate VLSM with the in-country data management system such as DHIS2 and interface to high throughput instruments.

Amref Health Africa desires to engage an individual consultant or a consultancy firm for 6 months to support implementation of the technical component of the project activities, working closely and sometimes jointly with the existing laboratory systems project staff, all under close in-country supervision and guidance by the Program Director of ASLM Technical Support, to implement a Viral Load Sample Management System–Laboratory Information Management System (VLSM–LIMS) Project in the Republic of Sierra Leone.

2. Objectives of the Consultancy

The overall objective of the Consultancy is to provide technical support for the implementation of a Viral Load Sample Management System–Laboratory Information Management System (VLSM–LIMS) in the Republic of Sierra Leone.

3. Activities and Outputs

1. *Support the assessment of selected laboratories to identify available infrastructure and infrastructure needs for system installation.*
    a) Collaborate with the Ministry of Health and Sanitation (MoHS) and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) implementing partners and other relevant stakeholders to review the findings of the landscape analysis and needs assessment of the LIMS conducted by the Directorate of Laboratory Diagnostics and Blood Safety (DLDBS) in April 2022, and assess the recommendations.
    b) Work with the MoHS, Centers for Disease Control and Prevention Headquarters (CDC–HQ), VL/EID reference laboratory managers and other stakeholders to review and customize an integrated Open eLIMS to include HIV and related tests, and COVID-19.
    c) Work with the national team and JHPIEGO to scale up the Open eLIMS to CHAMPS Makeni, Port Loko and Kambia District Hospital laboratories.

d) Train district hub trainers as Trainers of Trainers (ToTs) and facilitate them to cascade the training to their district teams.
e) Engage the MoHS on the database and systems hosting, and establish a virtual cloud as the main primary hosting platform and revamp the physical server at the Central Public Health Reference Laboratory (CPHRL) to serve as back-up.

2. *Remote login of samples into the Open eLIMS*
   a) Establish remote log-in in the two district hubs at Port Loko and Kambia District Hospital laboratories.
   b) Link the automated testing platforms at the reference laboratories with the e-LIMS to automatically feed into the dashboards upon verification, and eliminate the need for manual data entry to reduce manpower costs and transcription errors.
   c) Support the district hubs to print and dispatch results back to the facilities through the hub motorbike riders.
   d) Train facility staff to access to the system to enable them obtain results with smart phones and update patient records in real time.
   e) Network the 2 testing laboratories at CPHRL and CHAMPS Makeni to the MoHS e-LIMS database such that results uploaded by the testing laboratories can immediately be downloaded and transferred to patient files at the peripheral facilities.

3. *Development of an Interoperability Layer (IL) between the Open eLIMS, District Health Information System 2 (DHIS2) and the eTracker*
   a) Develop an interoperability layer that will help exchange of data between the Open eLIMS and the DHIS.
   b) Support interoperability of Open eLIMS and eTracker: in this use case, the system will exchange data with specific test systems to achieve remote log-in of test requests and automated transmission of laboratory results to the eTracker system which is currently predominantly being used for HIV care and treatment programs.
   c) Support interoperability of Open eLIMS and DHIS2: here, standard automated reports will be developed, and through a web application programming interface the reports will be entered into the DHIS2.

4. *Capacity building for healthcare workers on the use of the data for decision making using embedded dashboards both in the Open eLIMS and District Health Information System (DHIS)*
   a) Conduct capacity building at different levels for all healthcare workers who will be interacting with the proposed systems.
   b) Train TOTs who will later be supported to cascade the training to regions, districts and facility levels, using a phased approach.
   c) Engage M&E associates at all district level hospitals to lead multidisciplinary teams to utilize available data to inform decision making and appropriate corrective measures.

5. *Deployment, scale-up, and support*
   a) Collaborate with the MoHS and the LIMS Technical Working Group (TWG) to define national LIMS requirements, and once the Open eLIMS satisfies most of the requirements, provide technical assistance (TA) to develop appropriate guidelines and deploy the system to laboratories throughout the country.
   b) Coordinate deployment workshops with relevant stakeholders from the Open eLIMS TWG.
   c) Provide hands-on training to the MoHS IT unit on setting up servers and workstations, conducting maintenance and updates, and troubleshooting.
   d) Together with the TWG, conduct remote follow-up with the laboratories to review and conduct mentorship within 1–3 months after deployment and training.
   e) Support quarterly meetings with the TWG to review activities and findings from the support calls, and feed information into the software roadmap.

6. *Support data-driven decision-making in HIV related and other infectious diseases*
   a) Support the MoHS and target reference laboratory managers to transform data stored in the Open eLIMS into information that is meaningful for decision-making,
   b) Collaborate with the MoHS to establish online data dashboards that display aggregate data on viral load testing and EID imported from eLIMS.
   c) Ensure the dashboards will import data from the system and create visualizations that will help the MoHS, implementing partners and other relevant stakeholders to monitor performance along the HIV care cascade and make programmatic decisions to improve timely quality of care.

4. Overall Deliverables

a) VLSM–LIMS customized with CDC country office and country stakeholders.
b) System successfully installed and operationalized at targeted sites.
c) Technology transfer successfully completed to build in-country capacity for operationalization and maintenance of the system.
d) System successfully transferred to MoHS and MoHS partner(s).

5. Expected Rate of Compensation

Each consultant will be compensated at an agreed rate per month while other costs of travel, per diem, supplies, and other related expenses will be met by Amref.

6. Method of Accountability

While executing this assignment, the Consultant will be technically supervised by the Amref Health Africa Program Director for the *ASLM Technical Support for the implementation of Viral Load Sample Management–Laboratory Information Management System (VLSM–LIMS) Project in the Republic of Sierra Leone*.

7. The Person

Education/Experience:

- A minimum of a Bachelor's degree in computer science, IT or related degree with at least 3 years of professional experience.
- Experience developing software documentation.
- Experience developing formal technical specifications, configuring health management software and related tools with Lab IT systems' architecture and integration.
- Experience in working with global health projects (especially PEPFAR and the Global Health Security Agenda) preferred.
- Experience in working with CDC cooperative agreements preferred.
- Experience with system implementation and required supportive supervision.

Knowledge:

- Knowledge of the software development life cycle.
- Operational knowledge of database management systems: MySQL, PostgreSQL and SQL Server, including database design, indexing, query optimization, and backups.

Skills:

- Working knowledge and experience with version control systems such as git.
- Demonstrable expertise in PHP frameworks (particularly Laravel and Zend) as well as WordPress CMS.
- Experience in front-end web technologies: HTML/CSS, Bootstrap, Javascript (AngularJS, Node.JS, and JQuery), JSON, REST APIs.
- Expertise in multi-environment server deployment (Linux and windows), configuration and management.

- Expertise in web server configuration: Apache and NGINX.
- Expertise in developing and maintaining REST API.
- Experience in interfacing software systems with hardware (such as laboratory analyzers) and with other software systems.
- Experience in mobile application development preferred.
- Experience working with and supporting end users with varying levels of expertise and be able to respond in a timely manner and professionally to user needs.

Abilities:

- Ability to develop unit testing of code components or complete applications.
- Ability to work independently with minimal supervision while also effectively collaborating with other program staff.
- Ability to work in a fast-paced and demanding environment.
- Ability to handle multiple tasks under tight deadlines and assuring completion of projects in a timely and efficient manner.
- Ability to lead and collaborate within a team setting.
- Excellent communication and training abilities.

8. Expression of Interest Specifications

Interested persons shall attach in their application a technical and financial expression of interest with the following components.

Technical

- Motivation letter detailing your understanding and fit for the role.
- Samples of two most recent related work experiences and references.
- Curriculum vitae

Financial

- Daily rate in USD

Send the above requirements to recruitment@amref.org quoting **ICT Consultant/SL/2023** in the subject line by **March 15, 2023**. Only shortlisted candidates will be contacted.

9. Evaluation of Expressions of Interest

- Amref Health Africa will critically evaluate the expressions of interest based on technical and culture fit and value for money
- Amref Health Africa reserves the right to accept or reject any expression of interest without giving reasons and is not bound to accept the lowest or the highest bidder.