



EAST AFRICAN COMMUNITY SECRETARIAT

INDIVIDUAL CONSULTANCY FOR A COMPUTER PROGRAMMER / DEVELOPER TO ESTABLISH THE LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS) FOR THE EAC REGIONAL NETWORK FOR MOBILE LABORATORIES PROJECT

TERMS OF REFERENCE

1. Background

The EAC Secretariat signed a 3-year financing agreement with the Federal Government of Germany through the German Development Bank (KfW) on 23rd November 2016 to support the establishment and operationalization of the EAC Regional Network of Public Health Reference Laboratories for Communicable Diseases (EAC – RNPHRL). The purpose of the laboratory network is to strengthen the capacity of Partner States to detect and respond to pathogens of biosafety level 3 and 4 nature.

Given the region's requirement for technical support regarding this level of laboratory practice, the EAC Secretariat with support from KfW appointed the Bernhard Nocht Institute for Tropical Medicine (BNITM) headquartered in Hamburg, Germany as a Technical Consultant to support the project given their particular experience in supporting similar interventions in the recent transnational Ebola outbreak in West Africa (2014-2016). Subsequently BNITM has seconded an experienced Microbiologist and an experienced Molecular biologist to the EAC Secretariat to support this process.

As part of the project implementation, a Laboratory Information Management System (LIMS) is to be established in the mobile laboratories to streamline laboratory workflows, reduce transcription error rates and improve connectivity for data reporting.

The C4G Basic Laboratory Information System (BLIS) Open Source Laboratory Information Management System (LIMS) was selected for the EAC Mobile Labs project, due to advantages

of BLIS including that it is open source, Web based, interoperable with the existing LIMS used in the various Partner States and that it can be integrated with DHIS-2 system that is used both regionally and nationally. Other capabilities of the C4G BLIS include capturing data offline that can be synchronized later when the network becomes available and the ability to use a mobile app which have GIS enabled IDSR for tracking samples. One limitation of the C4G BLIS LIMS however, was that it does not currently contain a module to manage the biobanking of samples, which is a key component of the EAC mobile laboratory project. However, an existing open source biobanking module can be interfaced with the C4G BLIS to address this.

2. Objective of the Assignment

The overall objective of the assignment is to establish the LIMS for the EAC mobile labs through customizing the C4G BLIS in order to meet both technical and operational requirements. Customization will include among other things, sample workflows and direct interfacing with key laboratory equipment, including the PCR and ELISA machines.

3. Scope of the work

The consultant will be based at the East African Community headquarters in Arusha, where the mobile training labs are stationed. He/she is expected to work with the Health experts and ICT experts at the EAC HQs and the National Public Health Laboratories in the EAC Partner States to establish the C4G BLIS LIMS for the EAC mobile labs.

The consultant will be responsible for undertaking the following tasks:

- i. installation of the system on the Server (Linux or windows based, HTML, PHP, JS, SQL)
- ii. setup an graphical user interface for patient's data
- iii. setup workflow of samples in the LIMS
- iv. setup equipment and consumables
 - implementation of API to PCR machine
 - implementation of API to ELISA
- v. developing a result reporting system to hospitals/health facilities
- vi. establish the report of data to the respective NPHL databases in each Partner State (integrated API)
- vii. setup interface to internal biobanking software
 - A proper open source biobanking software, easy to integrate into the LIMS (e.g. Open Specimen with similar architecture)
 - Installation of the biobanking software
 - Implementation of storage types, container types, sample types, etc. in the biobanking software
- viii. establish interface to NPHL biobanking software in each Partner State
- ix. establishment of statistical reports (aggregated data) for each lab

Implementation of security arrangements:

- i. development of a system of access control and role management
- ii. establishing of automated backup
 - local backup on an external hard drive
 - backup on a regional Server (EAC) for disaster recovery, but also for advisory reasons (QC)
- iii. ensure system stability by installation of a RAID system
- iv. documentation of strategies for security arrangements, e.g. disaster recovery, storage locations, access, passwords

- v. secure storage of the hardware with regulated access (physical security)
- vi. establishing encrypted external connections (DHIS2, Backup to EAC, NPHL – Biobank)

4. Methods and Tools

The consultant will identify the most appropriate methodology for undertaking the assignment.

5. Key deliverables of the consultant

The consultant should submit the following key deliverables,

- LIMS implementation strategy and schedule of work: Outlining details of activities with proposed methodology and timeline/delivery dates
- Production of a prototype LIMS customized for the EAC mobile lab workflows, ready for testing at the EAC HQs and in Partner States.
- Final configured LIMS for roll out across mobile labs in the EAC Partner States

6. Timeline

The LIMS consultant is expected to establish the prototype LIMS with configured workflows for the EAC mobile labs by 30th December 2019, ready for testing in the Partner States.

The final validated LIMS should be ready by 31st January 2020.

7. Duration

Contract Period: proposed 60 working days from 1st November 2019.

8. Place of assignment

EAC Secretariat, Arusha, United Republic of Tanzania

9. Payment

Payment will be made according to EAC financial rules immediately after full delivery of the product against presentation of an original invoice that lists the provided services in detail (e.g. Schedule, timelines, products).

10. Intellectual Property

All contents pertaining to this project (source codes, documentary, audio, digital, cyber, project documents, etc) belonging to the client, which the Consultant may come into contact with in the performance of his/her duties under this consultancy shall remain the property of the Client who shall have exclusive rights over their use. Except for purposes of this assignment, the contents shall not be disclosed to the public nor used in whatever without written permission of the Client in line with the national and International Copyright Laws applicable. In this context the client may be the EAC Secretariat, Partner States or any other EAC Stakeholder.

11. Contractual arrangements and Supervision

The Consultant will be hired under EAC terms of contract and supervised by the EAC Health department solely for the purpose of delivering the above outputs, within the agreed time frame.

EAC Secretariat shall provide necessary support to the Consultant in order to execute the assignment during the duration of the consultancy. These shall include:

- i. Access to relevant project documents necessary for execution of the duties under this consultancy;
- ii. Assist to arrange appointments for discussing with either EAC Secretariat or Ministry or NPHL officials in Partner States

12. Submission of the Consultancy Proposal

Applicants are required to submit the following:

- A Technical Proposal: Letter of Interest, stating why s/he consider to be suitable for the assignment; availability, experience.
- Financial proposal indicating consultancy fee and a breakdown of expenses (unit price together with any other expenses) related to the assignment.
- Detailed methodology on the approach and implementation of the assignment;
- Personal CV and
- At least two work references - contact details (e-mail addresses) of referees (firms for whom you've produced similar assignments).
- The proposals must be submitted in separate sealed envelopes (the technical proposal in one envelope and the financial proposal in another envelope) but both envelopes placed in one large envelope.
- In case of a firm, the firm must submit evidence that it is legally registered (certificate of company registration and Tax Identification Number - TIN)

13. Expected Profile of the Consultant (Individual)

The consultant(s) is expected to have the following competences, experience, academic and technical background:

- i. University degree in one or more of the following areas: ICT, Computer Science/Engineering, Health Informatics, Health Management Information Systems.
- ii. Qualifications or experience in Public Health, Health Sciences or Laboratory environment are an added advantage.
- iii. At least 2 years' experience and skills in designing, developing and maintaining LIMS, preferably C4G BLIS, and provide evidence of at least two (2) previous copies of contracts / orders of similar assignments
- iv. Proven ability in Computer programming especially for Free and Open Source Software
- v. Have technical Expertise in Linux and/or windows based, HTML, Php, JS, SQL, Apache, PostgreSQL database, Web Framework, Knowledge and experience of CSS and HTML
- vi. Prior experience in working with EAC and/or any other major national or multi-national companies/institutions is added advantage
- vii. Strong communication skills - Excellent knowledge of written and spoken English is desirable, Fluency in French is an added advantage

14. How to Apply

Qualified **Individual Consultants** should submit **expression of interest** to the following address not later than EAT 11.00 am of 6th November, 2019:

Secretary General

Attn: Secretary Procurement Committee

East African Community (EAC) Headquarters

Afrika Mashariki Road / EAC Close,

P.O. Box 1096, Arusha, Tanzania.

Office Tel: +255 27 2162100

Office Fax: +255 27 250 4255 / +255 27 250 4481

Email: eac@eachq.org and eacprocurement@eachq.org

Website: www.eac.int

For more information or clarification, please contact us on the address above or through e-mail: eacprocurement@eachq.org and eac@eachq.org . E-mail submissions will be accepted.

Any changes or modifications will be communicated on the EAC Website: www.eac.int.