

TERMS OF REFERENCE FOR INDIVIDUAL CONSULTANTS AND CONTRACTORS

Title: National Information Technology (IT) Specialist for development of computerized maintenance management system (CMMS)	Funding Code: SC180970 WBS: 3900/A0/08/881/002/003	Type of engagement <input checked="" type="checkbox"/> Consultant <input type="checkbox"/> Individual Contractor Part-Time <input type="checkbox"/> Individual Contractor Full-Time	Duty Station: Freetown, Sierra Leone (including travel to districts)
<p>Background:</p> <p>Medical equipment is the vital component in the hospital care delivery. With support from multiple donors, Ministry of Health and Sanitation (MoHS) procured and distributed across the country a number of expensive medical equipment for maternal, neonatal and child health care such as infant warmer, oxygen concentrator machines, respirators/ambu bags, infant incubators, monitors, infusion pumps, ventilators. However, return on investment for the equipment is not always optimal because of poor management and maintenance coupled with over-utilization and inappropriate use of these equipment.</p> <p>Indeed, the preventive maintenance of these equipment and repair of the broken equipment is a major challenge in Sierra Leone. There is neither database or inventory system to keep track of the availability and functionality of the equipment across the health facilities, nor any record of preventive maintenance history of the equipment. MoHS has placed one biomedical technical assistant in each district hospital since 2017; however, many of them were not very active. With support from the International Biomedical Engineer hired by UNICEF, the MoHS recently started establishing a system to manage medical equipment (inventory of equipment, preventive maintenance and repair and corrective maintenance of damaged medical equipment). As a part of this effort, the MoHS has developed the Policy on management and maintenance of medical equipment and devices, standard operating procedures (SOPs), and training manuals to develop/strengthen the system. The International Biomedical Engineer has provided a series of training, mentoring and coaching support to build the capacity of the biomedical technicians in-country to conduct regular preventive maintenance and repair and maintenance of non-functional / damaged medical equipment.</p> <p>Against this backdrop, the MoHS has requested UNICEF to provide support to establish the Computerised Maintenance Management System (CMMS) for medical devices in the district and referral hospitals. While the International Biomedical Engineer has worked on the concept and basic design of the CMMS, there is a need for information and technology (IT) specialist to support the software development and operationalisation. This is a vital step to continue building the system to manage and maintain medical equipment in Sierra Leone, as part of both regular health system strengthening work and COVID-19 emergency response.</p>			
<p>Purpose and objectives:</p> <p>The purpose of the consultancy is to establish a functional Computerised Maintenance Management System (CMMS) for medical devices at hospitals to ensure and improve availability and performance of medical equipment and devices, at the least possible cost and with all safety considerations through proper maintenance and management. This is expected to contribute toward improving quality of hospital care delivery and ultimately reducing the mortality and morbidity of mothers, new-borns, and children.</p>			

Specific objectives include:

- To develop a country specific CMMS software application (inventory of equipment, preventive maintenance, and repair and maintenance of non-functional medical equipment) and establish a network.
- To develop capacity at the of the Maintenance Unit members, key health facility department heads, district health management teams (DHMTs) and MoHS central staff in the operation and use of the software application.

Methodology and Technical Approach:

Under the overall guidance of Director of Reproductive and Child Health (RCH) of the MoHS and UNICEF's Biomedical Engineer, IT specialist will provide technical guidance and capacity building support to the MoHS in establishing a functional and sustainable network for Computerized Maintenance Management System (CMMS) for medical devices especially in SCBU in Sierra Leone. The consultant is also expected to work in close collaboration with the Information, Communication and Technology (ICT) Manager, HSS Manager and the Director of Hospital and Ambulance Services of the MoHS. The consultant should ensure that the MoHS management and users' needs should be fully reflected in the system design through participatory and consultative process. Inter-operability with the relevant existing systems should also be ensured.

Specific Tasks of the Consultant:

- Consult and confirm with the relevant MoHS managers, UNICEF staff, and other stakeholders to define the needs for functionality and scope of the CMMS software application.
- Review the existing third-party developed commercial software which was pilot tested in Sierra Leone and understand the customization requirements for the Work Order System, Scheduling, Inventory of equipment and Maintenance Human Resources, Monthly accomplishment reporting generation, display of Asset Registry, and performance indicator monitoring.
- Design, develop and test a country-specific customized system software application based on the above by simplifying the existing commercial software application and adjusting some functions to the country needs.
- Design a network for CMMS in the MoHS, district Hospitals, referral hospitals, and DHMTs; either cloud or internet based.
- Develop list of hardware to establish the network and estimated cost.
- Establish a network as per the above design.
- Establish a system that manages the users and software, control the users' accounts, system documentation and resolve technical issue at the MOHS level.
- Develop capacity of the Maintenance Unit, key health facility department heads, DHMT, and MoHS in the operation and use of the software.
- Liaise and link up with the MOHS ICT manager and related Directorates to establish interoperability with other systems.
- Develop a brief user manual for CMMS software application, along with administration guidelines, including a clear documentation for all components of the system with full details of the hardware, software, operating procedures, upgrades/modifications procedures, and backup and data security policy.
- Install and operationalize CMMS at all special care baby units (SCBUs) in the country.

Expected Deliverables:

- A customized CMMS software application.

- Cost estimate for establishing the CCMS and the network along with the list of the hardware required for network development.
- User manual for CCMS software application.
- Training of biomedical technicians at the hospitals, DMOs and M&E officers at DHMTs, IT officers at Directorate of Policy Planning and Information (DPPI), and users at MOHS directorates / programmes on CMMS use.
- Installation and operationalisation of CMMS at all SCBUs in the country.

Management, Organization and Timeframe:

The consultant will be seconded to the MoHS, and s/he will be working partially from UNICEF premises and partially from the government premises. The monthly fees of the consultant (direct payment) will be processed by UNICEF with submission of his monthly progress report certified by his supervisor.

The duration of the consultancy is 7 months.

Start date: 15 September 2021 End date: 14 April 2022

Child Safeguarding

Is this project/assignment considered as “Elevated Risk Role” from a child safeguarding perspective?

☐ YES ☒ NO If YES, check all that apply:

Direct contact role ☐ YES ☒ NO

If yes, please indicate the number of hours/months of direct interpersonal contact with children, or work in their immediately physical proximity, with limited supervision by a more senior member of personnel:

Child data role ☐ YES ☒ NO

If yes, please indicate the number of hours/months of manipulating or transmitting personal-identifiable information of children (name, national ID, location data, photos):

More information is available in the [Child Safeguarding SharePoint](#) and [Child Safeguarding FAQs and Updates](#)

Work Assignment Overview			
Tasks/Milestone:	Deliverables/Outputs:	Timeline	Estimate Budget
Develop a software application for the CMMS	CMMS software design; database system; user guide; and report outlining the process and outcome of establishing digitized maintenance management system	By the end of the consultancy	
Develop the estimated cost for establishing the CCMS and the list of the hardware to establish the network.	Estimated cost for establishing the CMMS. The list of the hardware items for establishing the network.	30 September 2021	
Training on the use of the Computerized Maintenance Management software to Biomedical technicians at the hospital, DMO and M&E officers at DHMTs, IT officers at DPPI and users at MOHS directorates/programmes.	Reports on training workshop, on-the-job training, supportive supervision, coaching and mentoring	31 December 2021; 31 January 2022	
Support installation and operationalization of CMMS at all SCBUs in the country	Reports on establishment of the CMMS at all SCBUs Monthly Reports on the use of CMMS in the SCBUs, which includes the reporting on the Work Order System, Scheduling, Inventory of equipment and Maintenance Human Resources, Monthly accomplishment reporting generation, display of Asset Registry, and performance indicator monitoring.	January 2022 January 2022 onwards	
Monthly Work Plan and Progress Report	Submission to and approval by MoHS and UNICEF (e-copy) of the monthly work plan and progress report against the approved work plan.	1 st week of every month	
End of consultancy reporting and debriefing	Submission to and approval by MoHS and UNICEF (e-copy) of the end of consultancy report	By the end of the consultancy	

Budget Year: 2021-2022	Requesting Section/Issuing Office: <i>Health and Nutrition Section</i>	Reasons why consultancy cannot be done by staff: This is an earmarked activity under the DFID funded SLP II project. There is no staff capacity that can be dedicated at the Country Office nor is it efficient to deploy surge or stretch since this assignment requires a local IT expert that understands the context. UNICEF staff will provide guidance, supervision, and management oversight to the consultant to ensure that the committed activities are conducted timely and with quality, in full alignment with the overall health sector priorities and policy direction.
Included in Annual/Rolling Workplan: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, please justify:		
Consultant sourcing: <input checked="" type="checkbox"/> National <input type="checkbox"/> International <input type="checkbox"/> Both Consultant selection method: <input type="checkbox"/> Competitive Selection (Roster) <input checked="" type="checkbox"/> Competitive Selection (Advertisement/Desk Review/Interview)		Request for: <input checked="" type="checkbox"/> New SSA – Individual Contract <input type="checkbox"/> Extension/ Amendment
If Extension, Justification for extension: N/A		

<p>Minimum Qualifications required:</p> <p><input type="checkbox"/> Bachelors <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD <input type="checkbox"/> Other</p> <p>Enter Disciplines: An advanced degree in the relevant professional area, particularly the degree in IT is an advantage. *A first level university degree with an additional two years of experience may be accepted in lieu of the advanced university degree.</p>	<p>Knowledge/Expertise/Skills required:</p> <p><u>Experience</u></p> <ul style="list-style-type: none"> • At least 2 years' experience in IT system installation, maintenance, and software development. • A track record of achieving or contributing to tangible IT systems development • Experience in hospital and public health setting. • Experience working in local hospitals as IT expert is an advantage. <p><u>Skills required</u></p> <ul style="list-style-type: none"> • Good English communication skills, both written and verbal. • Ability to develop software application • Facilitation / training skills to carry out capacity building and transfer basic skills on IT to software users. • Coordination skills with the key health stakeholders. • Interpersonal skills to establish rapport with the local hospital technicians and staff, the key MoHS stakeholders, UNICEF, and other health partners. • Relevant knowledge of hospital and public health systems.
<p>Administrative details:</p> <p>Visa assistance required: <input type="checkbox"/></p> <p>Transportation arranged by the office: <input type="checkbox"/></p>	<p><input type="checkbox"/> Home Based <input checked="" type="checkbox"/> Office Based:</p> <p>If office based, seating arrangement identified: <input checked="" type="checkbox"/> TBD</p> <p>IT and Communication equipment required: <input checked="" type="checkbox"/></p> <p>Internet access required: <input checked="" type="checkbox"/></p>