

Title of Consultancy:	Type of Engagement	Place of Recruitment	Workplace of Consultant (duty station, ICT equipment)
Construction Manager (Civil Sanitary Engineer)	<input checked="" type="checkbox"/> Consultant <input type="checkbox"/> TA <input type="checkbox"/> Individual Contractor	International	Freetown
WBS:			
Budget Year: 2023	Requesting Section/ Issuing Office: WASH Section	Reasons why the assignment cannot be done by a staff member: The skill set required is specific and for a short period	
Duration / Timeframe/ 7.5 months (March to June 4 months and September to Mid-December 3.5 months).			
<p><u>Purpose of Activity/Assignment:</u></p> <p>1. <u>Background</u></p> <p>The UNICEF WASH Programme seeks to hire a Consultant (Construction Engineer) to support the implementation of WASH in communities and institutions. The Consultant will work under the direct supervision of the Chief WASH, and in close collaboration with the Ministry of Water Resources, Ministry of Health and Sanitation, Ministry of Fisheries and Marine Resources, and District Councils. S/he will be responsible for the design and construction administration in UNICEF-supported Districts in Sierra Leone.</p> <p>Presently, the WASH facilities' construction is carried out through PCAs with I/NGO partners in compliance with UNICEF's policy on partnership. While government counterparts will also monitor the construction of WASH in Healthcare Facilities, schools (including ECD Centers), and communities; to ensure quality, proper design, and construction administration, as per design specifications and Terms of Agreement (ToA); UNICEF will make quality checks prior to payment at various stages of construction. The UNICEF Construction Engineer will be responsible for reviewing each stage of construction and providing clearance before the next stage will begin. This will require frequent monitoring throughout the construction period. The construction component of the programme is managed by the WASH Specialists/Officers under the guidance of the Chief of WASH. With the scaling up of the field activity, there is a need for additional capacity to review the design and monitor WASH construction activities to enable early corrective actions to be taken to ensure timely completion. The Consultant is required by the Programme to ensure quality assurance throughout the construction management process, in line with the approved construction documents.</p> <p>2. <u>Justification</u></p> <p>While Sierra Leone has made satisfactory progress in improving water and sanitation services in urban areas, it continues to face a great challenge in rural areas, particularly remote rural villages. Nearly 2.95 million people (39 percent of the population) still use unsafe water and 1.4 million people (17.6 percent of the population) practice open defecation. Access to basic hygiene services stands at only 19.3 percent of the households within the population (JMP 2021 update). Disparities between urban and rural populations further exacerbate the situation. Access to basic water supply services in rural areas is only 50 percent compared to 76 percent in urban areas. In sanitation and hygiene, 26 percent of people in rural areas practice open defecation compared to 6 percent in urban areas. WASH situation in public schools and healthcare facilities is equally dire, impacting the quality of learning and care. According to JMP 2021, only one in every five schools can access basic water supply and sanitation services. The situation is the same in healthcare facilities, with just 21 percent having access to basic water supply services. WASH priorities for Sierra Leone are well articulated in the Government's Medium-Term National Development Plan (MTNDP)</p>			

2019-2023) and the 2018 Presidential Parliamentary address on national priorities. An emerging issue is a need to improve the quality and sustainability of WASH facilities. Further, the need for WASH services has increased largely due to the pandemic.

Against this backdrop, UNICEF has recently secured \$6.4M from the Government of Iceland mainly for the construction of WASH facilities in fishing communities and WASH in Institutions (PHUS and ECD centers and schools) for 3 years. There are also ongoing WASH construction activities under the FCDO (Soccer Aid), Islamic Development Bank (IsDB), and USAID for WASH in PHUs. To deliver results for children, UNICEF has ongoing partnerships with 8 I/NGOs as Implementing Partners-IPs under different funding. Engagement of NGO partners is also ongoing for 2023 WASH interventions through a Call For Expression of Interest (CFEI) and bidding process for engagement of drilling companies to drill boreholes. The project also aims at ensuring inclusiveness (girls and boys), suitability for use by children with disabilities, as well as adequate response to risks associated with extreme climatic events, particularly floods. However, some of the partners are facing challenges due to limited capacity to deliver the result on time. The Consultant is expected to provide technical guidance to the IPs on WASH engineering designs and ensure timely delivery of all the ongoing WASH installations.

3. Purpose and objectives

In close collaboration with the Ministry of Water Resources and Ministry of Health & Sanitation, and Ministry of Fisheries and Marine Resources the Engineer (Consultant) will lead and manage the construction of WASH facilities in schools, healthcare facilities, and communities. Further, S/he will provide technical assistance to IP and Government partners to build their capacity to monitor and supervise WASH facilities' construction by ensuring the required standard and quality of construction as per designs and specifications.

4. Methodology and Technical Approach

The technical approaches to be employed by the Consultant include the following:

- Review of existing designs/survey data for all the gravity-fed and solar-powered motorised systems.
- Field visits – to verify the technical feasibility/ appropriateness of the selected sites. Also, to identify alternate sites if necessary
- Rectification of errors in the designs
- On-the-job training of UNICEF and Government partners
- Monitor construction activities

5. Activities, Tasks, Outputs and Deliverables

a) Review/ prepare the design of WASH Facilities Specifically the Gravity Fed Water Supply System (GFS) and lift system (drilling boreholes with solar-powered motorized pumps) with reticulation

- i. Review the engineering designs of ongoing projects considering the various important parameters such as planning standards, population projections, demand forecasting, design criteria, standard specifications, etc., based on the engineering standards and guidelines. Ensure clarity and understanding by the IPs and other relevant stakeholders. All the designs should conform to the best international/national engineering standards and norms. All necessary calculations should be prepared to determine and justify the engineering solution proposed for each project/ component and incorporated into the design reports.
- ii. Assess and recommend the appropriate level of costs and fees and tariffs, considering the issues of operation and maintenance, ensuring that the poorest of the poor have equal opportunity to access to WASH services.
- iii. Review all necessary drawings, technical specifications, bill of quantities (BOQ), detailed cost estimates, implementation schedule, etc. The technical specifications should be in accordance with the best

- international/national practices and should be prepared to achieve the highest standards of quality.
- iv. Prepare tender documents for future WASH construction interventions.
 - v. Carry out Value Engineering to generate the number of technically feasible designs for each subproject and work out the least cost alternative to ensure the best techno-economic designs.

b) Construction Management

- i. Monitor construction of all project components, review the claims, and verify works completed and in progress and certify for payment to the IPs.
- ii. Check line level, and layout of construction to ensure conformity with the contract, and propose any change in the plans, if required.
- iii. As per the standard Construction Management System, assess and enforce the adequacy of IPs’ inputs in terms of material, equipment, construction machinery, workers, and construction approach and methodologies.
- iv. Monitor and enforce, as detailed in Safety Manual, the measures taken to ensure the workers’ safety, other project personnel, the public and works.
- v. Work as the engineer within the context of conditions of the partnership with I/NGOs (IPs) or contract with private sectors.
- vi. Regularly monitor physical and financial progress against the milestones as per the agreement to ensure completion of work on time.
- vii. Monitor and enforce Quality Assurance and Quality Control (QA & QC), the quality of inputs, processes, and outputs during all construction activities to ensure the highest quality of works conforming to the specifications and drawings.
- viii. Examine IPs’ claims for a time extension, variations, additional compensation, etc., and recommend appropriate decisions.
- ix. After physical completion of work, prepare planned maintenance procedures; check installation and commissioning; monitor preparation of the “as-built drawings”.

c) Capacity Building of Government partners at the National and District level for Operational Sustainability

Identify training needs, organize training courses, train government staff to enhance technical capacity focusing on the design and construction of WASH facilities, and ensure effective O&M post-construction period. Review and revise the WASHCOM and Village Maintenance Worker (VMW) training materials.

6. Reporting requirements:

The Consultant will prepare and present weekly progress updates (one-pager every Friday) and monthly progress reports against agreed targets at the end of each month and the final report at the end of the contract to the Supervisor.

7. Management, Organization and Timeframe

Chief of WASH provides overall guidance and support to the Consultant to deliver the results mentioned above.

8. Reason of extension in case of Amendment

N/A

Schedule of Deliverables	Due Date	Duration (maximum # of days)
Task 1: Review/Prepare the Design of WASH Facilities Specifically the Gravity Fed Water Supply System (GFS) and drilling boreholes with reticulation:		

<ul style="list-style-type: none"> i. Review the engineering design of ongoing projects considering the various important parameters such as planning standards, population projections, demand forecasting, design criteria, standard specifications etc., based on the engineering standards and guidelines. Ensure clarity and understanding by the IPs and other relevant stakeholders. All the designs should conform to the best international/national engineering standards and norms. All necessary calculations must be prepared to determine and justify the engineering solution proposed for each project/ component and incorporated into the design reports. ii. Assess and recommend the appropriate level of costs and fees and tariffs, considering the issues of operation and maintenance, ensuring that the poorest of the poor have equal opportunity to have access to the services. iii. Review all necessary drawings, technical specifications, bill of quantities (BOQ), detailed cost estimates, implementation schedule, etc. The technical specifications should be in accordance with the best international/national practices and should be prepared to achieve the highest standards of quality. iv. Prepare tender documents for future WASH construction interventions. v. Carry out Value Engineering to generate the number of technically feasible designs for each subproject and work out the least cost alternative to ensure the best techno-economic designs. 	<p>31 March 2023</p>	<p>30 days</p>
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<p>Task 2: Construction Management</p> <ul style="list-style-type: none"> i. Monitor construction of all project components, review the claims, and verify works completed and in-progress and certify for payment to the IPs (minimum of 6 project sites per month). ii. Check the line level, and the construction layout to ensure conformity with the PD or contract, and propose any change in the plans, if required. iii. As per the standard Construction Management System, assess and enforce the adequacy of IPs’ inputs in terms of material, equipment, construction machinery, workers, and construction approach and methodologies (minimum of 6 sites per month). iv. Monitor and enforce, as detailed in Safety Manual, the measures taken to ensure the workers' safety, other project personnel, the public, and works (minimum of 6 sites per month). v. Work as the engineer or employer's representative within the context of conditions of the partnership with I/NGOs (IPs) or contract with private sectors. vi. Regularly monitor physical and financial progress against the milestones as per the agreement to ensure completion of work on time. vii. Monitor and enforce Quality Assurance and Quality Control (QA & QC), the quality of inputs, processes, and outputs during all construction activities to ensure the highest quality of works conforming to the specifications and drawings (minimum of 6 sites per month). The UNICEF Construction Engineer will be responsible for reviewing each stage of construction and providing clearance before the next stage progresses on. viii. Examine IPs’ claims for a time extension, variations, additional compensation, etc., and recommend appropriate decisions. ix. After physical completion of work, prepare planned maintenance procedures; check installation and commissioning; monitor preparation of the “as-built drawings”. 	<p>Monthly</p>	<p>Throughout the consultancy</p>
<p>Task 3: Capacity Building of Government partners at the National and District level for Operational Sustainability</p> <p>Identify training needs, organize training courses, train government staff to enhance technical capacity focusing on the design and construction including the monitoring of WASH facilities, and ensure effective O&M post-construction period (at least 2 training). Review and revise the training material for WASHCOMs and Village Maintenance Workers (VMW) pre- and post-construction training.</p>	<p>30 November</p>	<p>20 days</p>

<p>Duration / Timeframe/ # of working days 7.5 months</p>	<p>Expected Start Date: 1 March 2023</p>	<p>Expected End Date: 15 December 2023</p>
<p>March to June 4 months and September to Mid-December 3.5 months. Total 7.5 Months</p>		

<p>Budget and Remuneration (for planning purpose only). Final fees will be negotiated by HR</p>			
<p>Description</p>	<p>Unit Cost (daily/monthly)</p>	<p>Quantity(ies)</p>	<p>Amount</p>
<p>Professional Fees & Subsistence</p>			

(Equivalent to P4)			
Travel Cost (International two trips)			
Work Permit			
Total Cost			

UNICEF recourse in case of unsatisfactory performance: Payment will only be made for work satisfactorily completed as per agreed deliverables and accepted by UNICEF.

Terms of Payment	<input type="checkbox"/> <input checked="" type="checkbox"/> Payment, upon completion of each deliverable according to schedule. <input type="checkbox"/> Payment, upon completion of all deliverables at the end of assignment. <input type="checkbox"/> Fee advance, percentage (up to 30 % of total fee)
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* The monthly fee will be paid at the end of each month upon the certification by the Supervisor that the tasks have been performed as per the TOR.

Condition of work

- The Consultant will be based in Sierra Leone.
- For Sierra Leone, the Consultant must secure medical insurance (inclusive of medical evacuation) prior to assuming his/her duties with UNICEF (proof of insurance with med-evac clause is required).
- Basic and Advance Security Certificate of completion.

Qualifications and Specialized Knowledge/experience required:

<p>Minimum Qualifications required:</p> <p><input type="checkbox"/> Bachelors <input type="checkbox"/> Masters <input type="checkbox"/> PhD <input type="checkbox"/> Other</p> <p>Enter Disciplines:</p> <p>Advanced degree (Master's or higher) in Civil/Sanitary engineering</p>	<p>Years of Experience and Knowledge/Expertise/Skills required:</p> <ul style="list-style-type: none"> • A minimum of eight years of relevant professional experience at national and international levels in water infrastructure, including the design of GFS, pumping systems, and WASH construction management. • Extensive experience with EPANET software and must have used EPANET to design or review water supply networks at least once in the past six months; experienced in ferrocement technology. • Experience working with optimization of design or water management capacity building in Rural or large-scale systems. • Experience with quality assurance and site monitoring for civil engineering projects, including review of change orders, inspection of works, and reporting discrepancies • Experience in contract administration and working with multiple stakeholders, especially government partners, in the management of various components of infrastructure contracts • Strong communication skills and flexibility working with various government stakeholders. • Previous work experience with UNICEF or other international organizations working in the WASH Sector in developing countries is an asset • Computer skills, including internet navigation and various office applications, including knowledge of AutoCAD and MIS/GIS applications. • Fluency in English is required.
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Consultant Selection Method:

<input type="checkbox"/> Competitive Selection (Roster) <input checked="" type="checkbox"/> Competitive Selection (Advertisement or Desk review or Interview or all) <input type="checkbox"/> Single Sourcing (exceptional, only in emergency situations L2, L3, approval by Head of Office strictly required).	Request for <input checked="" type="checkbox"/> New SSA <input type="checkbox"/> Extension/ Amendment
Request Authorised By:	Request Verified by HR:
Submitted by	Reviewed by
Approved by	