

TERMS OF REFERENCE FOR INDIVIDUAL CONTRACTOR

PART I		
Title of Assignment	<i>International Consultancy:</i> Electrical & Mechanical Engineer expert in Renewable Energy	
Section	Supply, Operations	
Location	Lilongwe, Malawi, with frequent trips to project sites.	
Duration	11.5 months	
Start and End Date	From: February 15 th , 2021	To: January 30 th , 2022

BACKGROUND

Climate change and environmental degradation undermine children's rights around the world. Therefore, the UNICEF Executive Director issued an Executive Directive "Addressing the Impact of Climate Change on Children" in March 2016, instructing all UNICEF Country Offices (COs) to incorporate climate change and related issues in their Country Programmes (CPs). In response to the Executive Directive, the UNICEF Malawi CO together with UNICEF HQ (Division for Data Research and Policy) commissioned a "Climate Landscape Assessment for Children (CLAC)" report. It provides the essential baseline information on climate, environment and energy (CEE) issues affecting children and provides recommendations to the CO on incorporating the most important issues and opportunities in the country programs.

In response to these developments UNICEF Malawi has adopted a sustainable and climate resilient approach in the pillars and programs of the Malawi's Country Program Document (CPD) for 2019-2023 that contributes to a better life and addresses the impact of climate change of every child in Malawi. UNICEF Malawi Country Office (MCO) has also prepared a UNICEF Sustainable Renewable Energy Strategy to spearhead sustainable energy solutions in its current programmes. The strategy is centered upon a collaboration with the Government of Malawi and Partners to contribute to a better life for every child in Malawi by addressing the impact of climate change through inclusion of renewable energy, energy efficient and energy conservation initiatives to improve energy sustainability, resilience and security in communities of Government of Malawi programs supported by UNICEF Malawi.

UNICEF MCO already has several activities running to reinforce its commitment towards sustainable programs. Through support of Global Alliance for Vaccines and Immunization (GAVI) HSIS (Health System and Immunization Strengthening) funding, UNICEF is supporting Ministry of Health (MoH) to provide sustainable solar power supply to various health delivery infrastructures. Also, within the framework of the Education and Nutrition programmes, UNICEF Malawi is looking to introduce RE technology.

To build on the existing Renewable Energy initiatives and to extend further the support to the Government of Malawi, UNICEF is therefore seeking to hire a qualified Electrical and Mechanical Engineer with specialization in Renewable Energy (M&E/RE Engineer) to be able to support the country office programmes and operations to manage the implementation of RE activities and ensure quality throughout all the phases of the projects.

JUSTIFICATION

This position requires a technical knowledge of renewable energy engineering especially solar system engineering, electrical and mechanical engineering. UNICEF MCO is currently hiring an international Engineer to provide technical assistance on the ongoing solar projects. The Engineer's contract ends in January 2021. To ensure continuity to UNICEF MCO programmes and operations a M&E/RE Engineer should be onboard by mid-February 2021.

PURPOSE OF THE ASSIGNMENT

The M&E/RE Engineer will support the UNICEF country programmes and operations in the assessment and implementation of sustainable energy activities/projects. The M&E/RE Engineer will liaise with the relevant stakeholders engaged in the RE sector and including with national/international suppliers, installers and field technical operations, in identifying and managing systems needing site visits. This role will work in challenges contexts where local resources and capacities can be limited.

SCOPE OF WORK/OBJECTIVES

Under the supervision of the Construction Specialist, the M&E/RE Engineer's responsibilities include, but are not limited to:

- Assure UNICEF participation in and host, as may be appropriate, donor working group and partner meetings on energy and renewable energy with GoM, UN Agencies and other Partners with renewable energy portfolios and coordinate with UNICEF program sections to establish efficient inter-ministerial coordination structure for UNICEF supported RE implementation.
- Provide a climate change, environment and energy information interface between the sectorial programs within the organization and coordinate sectorial activities with the broader mandates of UNICEF Regional offices and Headquarters in New York.
- Build Capacity in the Government of Malawi by: Monitoring the performance and energy efficiency (production, use and cost effectiveness) of renewable energy installations through real time data collection, and to providing quality assurance of equipment selection, installation standards, commissioning and maintenance services.
- Conduct detailed site assessments for solar feasibility.
- Develop and manage data gathering systems and remote monitoring tools exploring last online and offline applications and software available and operational in the country.
- Electrical design of PV plants.
- Creation of Mechanical system layouts.
- Performance modelling of PV systems.
- Review and evaluate plans or specifications to determine technological or environmental implications.
- Test green technologies or processes.
- Provide economic justification, develop cost estimates of PV plants and support UNICEF Supply section to evaluate bids and contract and prepare PO's.
- Develop standard operation procedures and quality or safety standards for solar installation work. Determine operational methods.
- Create checklists for review or inspection of completed solar installation projects. Inspect finished products to locate flaws.
- Support the installation teams during installation, start-up, testing, system commissioning, and performance monitoring.
- Provide technical guidance to other personnel; develop and present training as required to project team.
- Ability to manage the full EPC contractors during project life, QA/QC monitoring, field change requests and manage cost control responsibilities for projects.
- Support project proposal development.
- Support/organise/coordinate technical project meetings.
- Interact with and oversee subcontractors when required.
- Test or evaluate photovoltaic (PV) cells or modules installation; provide technical direction and correcting activity of key test sites.
- Present engineering analysis plans and recommendations to site staff and management.
- Ensure projects reporting, including payment approvals, practical and final certifications, compliance to projects' requirements and UNICEF internal procedures.
- Provide support with the contracts closure activities, including the provision of maintenance manual and training modules.

- Provide support to different sections to incorporate renewable energy systems within their programmes/projects (i.e. solar water heating) and to implement sustainable and energy efficient projects.

REPORTING REQUIREMENTS

To whom will the contractor report (supervisory and any other reporting/communication lines):

The M&E/RE Engineer will report to the Construction Specialist and to the relevant chief of programmes/pillars when solar services are required to achieve programmatic goals. For GAVI HSS projects, the M&E/RE Engineer will also report to the Chief of Health and/or the Project Manager; and as well as for Teacher Development Centres to the Chief of Education and/or the Project Manager.

What type of reporting will be expected from the contractor and in what format/style will the submissions of reports/outputs be done:

The M&E/RE Engineer will submit monthly reports against a monthly workplan discussed and agreed with her/his Supervisor. The M&E/RE Engineer will also submit weekly progress reports and any ad-hoc report that may be required for the execution his tasks during the overall contract period. The format of the report will be agreed with her/his Supervisor.

How will contractor consult and deliver work and when will reporting be done:

A list of expected deliverables is listed here below. Any additional tasks and associated deliverable not included in these TORs in a monthly workplan to be discussed and agreed with her/his Supervisor.

The M&E/RE Engineer will submit to his/her Supervisor monthly invoice requests jointly with the following supporting documentation:

- Monthly workplan agreed with the Supervisor;
- Monthly report indicating the achieved activities/results;
- Proposed monthly programme and activities planned for the coming month.

EXPECTED DELIVERABLES

The Contractor will support the UNICEF Malawi office in the implementation of their programmes with sustainable energy approach.

This consultancy will be orientated as follows:

1. Support Health in the implementation of GAVI HSS programme. The M&E/RE Engineer will provide technical assistance to the following activities:
 - solarization of existing and new health facilities in remote areas of the country to improve access, quality and utilization of EHP services including immunization;
 - Installation of electrical-mechanical systems in four new vaccine stores and solarization of two, including the National Vaccine Store in Lilongwe, so that reliable power supply is ensured throughout the year;
 - Installation and commissioning of Cold Chain Equipment, to improve cold storage capacity in the country.
2. Support Basic Education and Youth Development (BEYD) Section, MCO and Ministry of Education, Science and Technology (MoEST) to integrate sustainable approaches to energy in their projects/activities.
 - Ensure Operation and maintenance of solar systems installed at 20 Teacher Development Centres by UNICEF in 2019/2020

- Build capacity within Ministry of Education, Science and Technology (MoEST) to be able to continue operation and maintenance in future

- Support Malawi Country Office (MCO) to design and develop proposals focusing on renewable energy and coordinate sectorial and government activities with broader mandates of UNICEF Regional Office (RO), Headquarters (HQ), Energy Donor Working Group (EDWG) and Government of Malawi (GoM).

To support the UNICEF country office, the contractor will be expected to perform the following activities and deliverables as per a rolling schedule and monthly workplan which will be discussed and agreed upon as per programme and various component/activity requirements as below:

Task	Deliverable/Outcome (e.g. Inception, progress, final reports, training material, workshop, etc.)	Planned Completion date	% of total fee payable
Project planning and sites' selection in coordination with MOH-EPI team (as per COVID19 office procedures) – for multiple projects components as and when agreed with ministry.	<ol style="list-style-type: none"> 1. Preparation & on time revision of projects' programmes and milestones. 2. Preparation of costs & benefit and risks analysis. 3. Preparation of assessment protocols; 4. If required, design & delivering trainings for the assessment teams on the use of protocols and assessment tools; 5. Submission of site assessment reports and installation layouts. 6. Submission of monthly progress report as per the agreed upon monthly workplan. 	Monthly based on the approved workplan	Monthly
Assisting the procurement of renewable energy or electrical/mechanical services – for multiple projects components as and when agreed with relevant sections.	<ol style="list-style-type: none"> 1. Definition of project requirements and scope of works; 2. Preparation of relevant bid documents including eligibility and evaluation criteria; 3. Answer to technical queries; 4. Submission of technical assessment report; 5. Revision of CRC and contract documents (such as project programmes) before contracts' signature. 6. Submission of monthly progress report as per the agreed upon monthly workplan. 	Monthly based on the approved workplan	Monthly
Assisting the contract management for renewable energy or electrical/mechanical services, including information sharing and coordination with relevant project stakeholders, including ministries and MERA (Malawi Energy	<ol style="list-style-type: none"> 1. Revision/certification of the deliverables submitted by the service providers before installation, such as: Loads Assessment, Preliminary and Detailed Reports, BOQs and project schedule; 2. Review/finalization of final project report 3. Review of tender documents submitted, if any 	Monthly based on the approved workplan	Monthly

Regulatory Authority) – for multiple projects components as and when agreed with relevant sections.	<ol style="list-style-type: none"> Submission of site monitoring reports and equipment inspection reports. Revision/certification of interim payments; Preparation/revision/certification of contract' s variations; Certification of the woks, and systems/equipment installation and commissioning. Revision/certification of the maintenance report and remote monitoring of the performance of the equipment; Support training of end users and district health technicians; Meeting minutes preparation and sharing. Project file shared and kept well organised. Preparation/submission of lessons learned report. Submission of monthly progress report as per the agreed upon monthly workplan. 		
Support MCO to maintain solar systems at 20 Teacher Development Centres and support MoEST and district offices for capacity building to operate and maintain solar systems.	<ol style="list-style-type: none"> Prepare yearly maintenance plan and set inspection protocols; Inspection of the solar systems according to established protocols in coordination with MoEST district officers; Submission of site inspection reports containing system performance analysis and faults and defects, if any; Support training of end users at the TDCs; Ensure training of district officers to continue basic operation and maintenance of the solar systems for the future; Submission of monthly progress report as per the agreed upon monthly workplan. 	Monthly based on the approved workplan	Monthly
Support all UNICEF sections/pillars to build project proposal with RE initiatives, as and when agreed with the relevant sections.	<ol style="list-style-type: none"> Preparation of concept note. Further developing business case and costs benefit analysis report Preparation of project's programmes, milestones and timelines 	Monthly based on the approved workplan	Monthly
Support the UNICEF contribution and participation to Energy Donor Working Group	<ol style="list-style-type: none"> Ensure participation in meetings and information sharing in the RE sector; Meeting minutes prepared and submitted 	Monthly based on the approved workplan	Monthly

(EDWG) and other RE committees in Malawi, as and when agreed with the relevant sections.	3. Establish efficient inter-donor and inter-ministerial coordination structure for UNICEF supported RE implementation.		
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However, as the actual starting date may impact the dates estimated in the TOR, the exact timeframes and actual delivery dates will be jointly agreed upon between the contractor and the supervisor upon contract signature.

PERFORMANCE INDICATORS FOR EVALUATION OF RESULTS

The performance of work will be evaluated based on the following indicators:

- Completion of tasks specified in TOR
- Compliance with the established deadlines for submission of deliverables
- Quality of work
- Demonstration of high standards in cooperation and communication with UNICEF and counterparts

PAYMENT SCHEDULE

All payments, without exception, will be made upon certification from the supervisor of the contract, of the satisfactory and quality completion of deliverables and upon receipt of the respective and approved monthly invoice.

Travel (international and local) costs will be reimbursed on actual expenditures and upon presentation of original supporting documents. As per UNICEF operational guidelines, travel for international consultancies, will be in economy class and will use the most economical route.

DESIRED COMPETENCIES, TECHNICAL BACKGROUND AND EXPERIENCE

Academic qualification: B.Tech or B.S in Electrical/Mechanical Engineering.

Work experience: Minimum (2) years' working experience in the renewable energy sector. The 2 years of work experience can be substituted with a relevant master's degree/specialization in Renewable Energy and a minimum of 1-year work experience.

Technical skills and knowledge:

- Understanding of solar module manufacturing processes, tools, equipment and materials;
- Knowledge of PV module reliability testing, compliance testing, and certification;
- Extensive AutoCAD experience drafting 1 and 3-line diagrams;
- Proficient with understanding of NEC code, CEC, building codes, structural codes, etc.
- Experience with site data collection, monitoring and database management;
- Experience with grid connected distribution such as generator, UPS or battery systems a plus;
- Experience with Solar Energy systems other than Solar PV;
- Knowledge of energy efficiency and energy conservation concepts;
- Experience with energy modelling software like EnergyPlus, eQUEST or others

Competencies:

- Previous working experience in Malawi is an asset.
- Previous working experience with UNICEF, other UN agencies or international humanitarian organizations is an asset.

Languages:

- Excellent written and oral communication skills in English language.

ADMINISTRATIVE ISSUES

UNICEF will regularly communicate with the specialist and provide feedback and guidance and necessary support so to achieve objectives of the work, as well as remain aware of any upcoming issues related to the performance and quality of work.

As per policy on consultants and individual contractors, the individual will be expected to complete a list of mandatory training, including policies on Prohibiting and Combatting Fraud and Corruption; Prohibition of discrimination, harassment, sexual harassment and abuse of authority and other relevant policies for their information and acknowledgment. Within 5 days of the contract commencement, the consultant/individual contractor is requested to complete the applicable mandatory trainings.

The Contractor will work at UNICEF country office in Lilongwe when not in mission. For working purposes, a dedicated office space shall be provided by UNICEF for the contractor to work, including ICT support and access to the relevant UNICEF applications.

CONDITIONS

- The candidate selected will be governed by and subject to UNICEF's General Terms and Conditions for individual contracts.
- No contract may commence unless the contract is signed by both UNICEF and the contractor.
- The contractor will be based in Lilongwe with frequent missions to the project sites in rural areas of Malawi.
- The contractor will be paid an all-inclusive fee (stationary, communication and other miscellaneous expenses) as per the stipulated deliverable and payment schedule.
- Under the consultancy agreements, a month is defined as 21.75 working days, and fees are prorated accordingly for actual days worked.
- The contractor is not entitled to payment for overtime, weekends or public holidays, medical insurance and taxes.
- The Individual Contractor will receive Paid Time Off (PTO) credit at the rate of one- and one-half days (1.5 days) for each full month of service, to be credited on the last calendar day of the month.
- Travel expenses for official in-country trips, including living costs, will be covered in accordance with UNICEF's rules and tariffs, by the contractor and reimbursed against actuals, unless otherwise agreed.
- Transport will be provided to the contractor during in-country field travel, if planned and approved.
- No travel should take place without an email travel authorization from section prior to the commencement of the journey from the duty station.
- Standard UNICEF procedures will apply for invoicing and all other financial management requirements set out in the contract.
- Standard penalty clauses will also apply for late and poor-quality deliverables. The supervisor of the contract will provide the contractor with the criteria for the evaluation of the quality of each deliverable.
- Additional details of UNICEF rules, regulations and conditions will be attached to the contract.

- Contractors will not have supervisory responsibilities or authority on UNICEF budget.
- The assignment is an on-site/off-site support.

HOW TO APPLY

Interested contractors should provide the following:

1. Curriculum Vitae
2. Brief technical proposal (no longer than five pages) demonstrating the contractor's understanding of the assignment and approach/methodology to the assignment
3. Financial proposal including a breakdown of their all-inclusive fees (including professional fees, travel, living cost, visa and other costs). Complete the attached form.



Financial
Proposal.xlsx

4. References details