United Nations Children's Fund
United Nations House 14201
UN street 14 Sukhbaatar district
Ulaanbaatar, Mongolia

TERMS OF REFERENCE FOR RENEWABLE ENERGY CONSULTANT
(National)

1. Background:

The United Nations Children's Fund (UNICEF) works for the rights of children to survival, development, participation, and protection as guided by the Convention on the Rights of Children (CRC). UNICEF provides long-term humanitarian and developmental assistance to children and their families in developing countries. UNICEF is active in over 190 countries and territories through Country Offices and National Committees. Seven regional offices provide technical assistance to Country Offices as needed. UNICEF 's headquarters in New York oversees overall management and administration of the organization.

In Mongolia, in 2014, Greenhouse gas (GHG) emissions from the energy sector were approximately 17 million tonnes of CO2 equivalent (tCO2e) or 50% of the total emissions. The country's per capita emission was 7.1t CO2 in 2014, higher than the global average of 4.87t CO2. If the current trend continues, by 2030 the share of the energy sector in total GHG emissions will be 81.5%. Mongolia has set a goal to reduce GHG emissions by 7.3 million tCO2 by 2030, including 4.9 million in the energy sector.

The UNICEF Country Programme Document 2023-2027 specifies that Water, Sanitation, Hygiene (WASH) & Climate, Environment, Energy, and Disaster Risk Reduction (CEED) programme will support children and adolescents to realise their right to safe WASH services and a healthy and sustainable environment while being better able to respond to climate, disaster and environmental risks and shocks. Within the Country programme 2023-2027, UNICEF Mongolia is aiming to reduce impacts of climate change and air and environmental pollution on children, and pilot and scale up renewable energy systems and low carbon energy technologies at institutional and household levels.

In Mongolia, the vast majority of the public buildings such as kindergartens, schools, family health centers, and hospitals are using coal-fired Heat Only Boilers (HoBs) for heating during the wintertime. UNICEF Mongolia is collaborating with Orkhon province in the implementation of clean and energy efficient technologies in education and health-related public buildings to reduce air pollution caused by coal-burning. In 2023, UNICEF conducted the feasibility study of using the solar-assisted ground source heat pump (GSHP) system for heating the kindergarten #28 and administrative building in Yarguit bagh in Erdenet city of Orkhon province. In 2024, UNICEF plans to construct the system for these target buildings. During all stages of the GSHP project-cycle including design, installation, construction, and commissioning it is essential to have a qualified power engineer/renewable energy engineer in house.

2. Purpose of Assignment:

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The consultancy service aims to oversee the engineering design and drawings and construction work of the solar assisted ground source heat pump system for the Kindergarten #28 and Bagh Buildings in Orkhon province.

3. Scope of Work:

(1) Leading on engineering design and drawings, preparing a comprehensive bidding document package and completing the bidding process.

- Prepare technical conditions document.
- Prepare and get approval of the engineering design ToR from relevant authorities.
- Prepare full and complete package of the bidding document and get approval from all relevant parties.
- During the final Contract negotiation and signing, take thorough review and discussion with the firm on the timeline, deliverables and payment.
- Organize stakeholders' meeting in Orkhon and provide advice Governor's office of Orkhon about the entire process the project: obtaining technical requirements from relevant Electricity distribution network, engineering design approval process, construction and on-site supervision, risk and mitigations and commissioning process.
- Ensure that the working group is set up and the focal point is appointed by the Orkhon Governor's office (develop short ToR for the working group and focal point).

(2) Providing engineering design and drawing document preparation and securing necessary approvals.

- Review all the used data and information used for drawings.
- Hold weekly meetings on the progress of the work and hold consultation meetings with relevant stakeholders (UNICEF, Orkhon Governor's Office, the contracted firm).
- Review the drawings before submission to the authorized government entity.
- Review budget
- Ensure that the contracted firm gets approval from the authorized government entity in a timely manner.

(3) Providing technical supervision of the construction work, including testing and commissioning.

- Prepare supervision and reporting templates for the firm.
- Ensure that the contracted firm has weekly/monthly updated calendar.
- Ensure that the contracted firm submits daily and weekly reports on the progress.
- Make site visits on regular basis (at least biweekly basis)
- Ensure that Occupational and health safety procedures are in compliance by the firm
- Ensure that environmental management plan (EMP) is implemented by the firm as a part of the entire Contract.

- Ensure that recommended actions drawn from the Gender and Social Safeguards Assessment are implemented.
- Oversee the system testing once construction is completed.
- Develop and submit technical supervision and conclusion report.
- Prepare for commissioning by the authorized government agency.
- Ensure that the Commissioning by the authorized government agency takes a place in a timely manner.

(4) Delivering the final completion report

- Archive material preparation
- Project document submission

4. Contract duration (start and end date):

- Start date: 14 June 2024 and 28 February 2025 (8 months).

5. Type of engagement: Deliverable-based consultant.

6. Deliverables, Timeframe and Payment Schedule:

Deliverables	Delivery deadline	Payment Schedule and %
Engineering design and drawings, complete package of the bidding document and bidding process completed and the selected made a contract.	15 July 2024	31 July 2024. 20%
Engineering design and drawing document preparation and approval.	31 August 2024	31 August 2024 30%
Technical supervision reporting, testing completed	30 November	30 November 2025 20%
Commissioning by the relevant government authority is completed, approval documents are in place.	20 January 2025	31 January 2025 20%
Final completion report	09 February 2025	16 February 2025 10%

7. Travel plan: The consultant is requested to travel to Orkhon province, approximately 15 field missions, 1-2 days per visit, totaling 30 days during the period of consultancy. S/he is responsible for arranging her/his own travel and should submit all-inclusive financial proposal factoring the travel costs.

8. Project Management:

Direct supervisor: Climate change and clean air specialist.
Frequency of performance review:

- Monthly-based progress updates and if needed adjustments into the initial plan of work.
- Deliverable-based performance review and reporting.

9. Qualifications and competencies:

- Minimum qualifications required: Master's degree in power engineering and renewable energy and other relevant field.
- Relevant working experience: 5 years of work experience in the area of renewable energy is required. Experience in renewable energy systems design and coordination of ground source heat pump projects will be an asset.
- Knowledge and skills to use Photovoltaic systems (Pvsyst) and Transient system simulation (TRNSYS) software programmes.
- Fluency in Mongolian and English.

10. Evaluation Criteria

A two-stage procedure shall be utilized in evaluating proposals, where the evaluation of the technical Proposal will be completed prior to any price proposal being reviewed and compared. For evaluation and selection method, the Cumulative Analysis Method (weight combined score method) shall be used for this recruitment:

- Technical score -weight 80%
- Financial score - weight 20%

Only candidates who have attained a minimum of **70 points** will be considered technically qualified candidates.

Only the financial/price proposals of candidates with a minimum of 70 points in the technical evaluation will be considered and evaluated. The total weight allocated for the price component is 20.

The Cumulative Analysis Method (weight combined score method) will be used for evaluation and selection. The maximum number of points shall be allotted to the lowest Financial Proposal that is opened /evaluated and compared among those technically qualified candidates with a minimum 70 points score in the technical evaluation. Other Financial Proposals will receive points in inverse proportion to the lowest price. The Contract shall be awarded to the candidate obtaining the highest combined technical and financial scores, subject to the satisfactory reference checks.