

## TERMS OF REFERENCE

### Consultancy for the assessment and development of guidelines for Energy Efficiency and Renewable Energy of the Rural Water Supply in Viet Nam

#### Summary

<b>Title</b>	Assessment and Guidelines for Energy Efficiency and Renewable Energy of Rural Water Supply in Viet Nam
<b>Purpose</b>	The overall objective is to assess progress toward sustainable community water supply through the application of renewable energy and to evaluate the efficiency, effectiveness, and relevance of climate resilient technologies to the local context and develop a Guidelines for application.
<b>Location</b>	Home-based desk review and primary data collection in three provinces for three regions in Viet Nam
<b>Duration</b>	November 2022 – June 2023
<b>Start Date</b>	Nov 1 <sup>st</sup> , 2022
<b>Reporting to</b>	Chief of Child Survival, Development, and Environment

#### 1. Background

**Viet Nam ranks sixth among the countries most affected by climate change.** Over the last 50 years, the average temperature in Viet Nam has increased by 0.5°C while the water level has risen by 20 centimeters. As a result, the Mekong Delta, and other coastal cities, such as Ho Chi Minh City and Da Nang, are at exceptionally high risk. In addition, extreme weather events such as typhoons, floods, and droughts caused by climate change have increased the intensity and frequency. Between 2015 and 2020, Viet Nam experienced multiple waves of natural disasters, clearly signifying the direct impacts of global climate change on humans, particularly families, women, and children in remote, mountainous, and coastal areas, who are already vulnerable.

The country's fast-growing economy also increases fossil fuel use and polluting industries. The energy sector is the biggest emitter of greenhouse gases (GHG) in the country, and Viet Nam's increasing electricity demand has significantly increased highly polluting coal-fired power generation. By 2030 coal is targeted to take up most electricity generation in the country, and the current fossil-fuel dependent energy systems will make it very challenging for Viet Nam to pursue a sustainable development path aligned with the Paris Climate Agreement goals. Also, for Viet Nam to achieve its Nationally Determined Contributions (NDCs), scaling up investments in clean energy is of utmost importance. Viet Nam urgently needs to transition towards a low carbon and climate-resilient path for current and future generations.

In recent years, Viet Nam has strengthened its efforts in addressing climate change through a prioritized development program per Article 7 of the Paris Agreement to protect people's lives and livelihood, particularly vulnerable groups, including children. Domestic laws and policies have been developed and amended to be more consistent with other international conventions on climate change, with extensive references made, particularly in components on climate change adaptation (CCA) and disaster risk reduction (DRR). Efforts in strengthening the national CCA have enabled Viet Nam to develop more comprehensive and detailed approaches to managing increasingly severe risks related to climate change and natural disasters, aiming toward sustainable development.

As Viet Nam is driving its solar ambition by installing the largest solar PV capacity in the Southeast Asia region in 2020 and further accelerating it with the very recent reform of solar feed-in-tariffs announced by the Prime Minister in April 2020, there is a momentum for nation-wide solar adoption, if a viable financial model is demonstrated, and if the public sector investment and application demonstrates a strong example.

There are more than 17,000 water piped schemes in rural areas in Viet Nam. Many of them have the potential for applying renewable energy and energy efficiency. These will not only reduce carbon emissions but also save costs on the operation. This study is part of the “Sustainable Rural Water, Sanitation and Hygiene and Disaster Risk Reduction for Children Development” project which supports the Ministry in Agriculture and Rural Development to have evidence and clear understanding on factors and concrete steps for applying renewable energy in the WASH sector in Viet Nam.

This TOR is for a consulting firm/institution to assess progress toward sustainable community water supply through the application of renewable energy and to evaluate the efficiency, effectiveness, and relevance of climate resilient technology to the local context. It will help enhance evidence and data generation on clean energy and contribute to UNICEF's global efforts to promote sustainable energy and climate resilient clean water, sanitation, and hygiene services for children. Based on the study, the consulting firm is also expected to develop guidelines on applying renewable energy and energy efficiency for rural water schemes, provide technical support for recommended pilot modalities, and document proposed modalities.

### Justification

This assignment requires high-level technical expertise and intensive human resources to explore insight from the field and with national partners. Therefore, through a competitive bidding process, UNICEF needs to recruit an institution with relevant qualifications, competencies, and skills in cost-effectiveness analysis, energy efficiency and renewable energy in the rural water supply.

## 2. Purpose, Objectives, and Audiences

The assignment's objective is to assess the potential for scaling up renewable energy and energy efficiency for rural water supply schemes and develop guidelines for this application. It is expected that the assignment will result in:

- **A situation analysis** of awareness, practices, policies and plans, actions/measures, technologies, and investment in energy efficiency and renewable energy;
- **Assessment of challenges** in scaling up renewable energy and energy efficiency, as well as **opportunities** to overcome those challenges, including the feasibility of accessing carbon credits;
- **An evaluation** of the clean water supply schemes that have applied renewable energy and energy efficiency modalities to calculate resource-saving and carbon emission reduction, thereby providing lessons learned for the application in rural clean water supply units;
- **Development of Guidelines for Department of Agriculture and Rural Development, Water Supply Units, other stakeholders** on renewable energy and energy efficiency application, including specific steps in technology, technical capacity, investment requirements, resource-saving, and required support, policies/legal document to enable Water Supply Units to develop and expand climate-resilient water supply services and organize one consultation and 2 training workshops for the Guidelines 'application.

The research insights will be used to:

- **Provide an overview and analysis** of the potential landscape of energy efficiency and renewable energy for the Rural Water Supply sector in Viet Nam
- **Explore the market** for possible scaling up of using renewable energy and accessing climate financing in the rural water supply

- **Enhance evidence and data** on clean energy and contribute to the Government of Viet Nam and UNICEF's worldwide efforts to promote sustainable energy for children.
- **Explore opportunity for application** of renewable energy and energy efficacy models for rural water supply

### Key audiences

UNICEF Viet Nam and government-related ministries such as the Ministry of Agriculture and Rural Development (MARD), Ministry of Industry and Trade (MOIT), Ministry of Science and Technology (MST), provincial related departments (Department of Agriculture and Rural Development -DARD, Department of Industry and Trade -DOIT, Department of Science and Technology -DST...), private sector, Rural Water Supply Units to be informed of the opportunity of scaling up of renewable energy in the rural water supply.

### 3. Scope, methodology, and technical approach

**Scope:** This work will be undertaken from November 2022 – June 2023 at both national levels using secondary data, and in selected provinces with primary data collection. The work will be implemented in collaboration with the central government (in Ha Noi) for desk review, discussion with key informants; and fieldwork to be conducted in 3 -5 provinces, representing three regions.

#### This assignment will cover the following tasks:

- **A situation analysis of overall policies, plans, actions, technologies, incentives and investment in energy efficiency and renewable energy at national level**
  - Desk review and summary of the current **government policy** (including financing), documents, and reports relating to renewable energy and energy efficiency development in Viet Nam, especially relevant regulations for the deployment of solar power and carbon credits with a focus on the implications for water supply, especially piped water schemes for **hard-to-reach areas and marginalized communities** and needs and potential of the energy market.
  - Review of **existing practices in terms of the scale, financing, models, technology, the market supply and demand** for renewable energy and energy efficiency in rural water supply in Viet Nam
  - Review **assessments, good practices and experiences** in renewable energy and energy efficiency in Viet Nam including from other sectors and from different countries
- **Evaluate the clean water supply model** that has applied renewable energy and energy efficiency modalities, thereby providing **lessons learned** for the application of rural clean water supply units
  - **Develop criteria and select at least 24 appropriate schemes** (with different capacities- very small, small, medium, and big) for evaluation that have been applied to renewable energy and energy efficiency modalities. It would be at least from 3 -5 provinces, representing for 3 regions.
  - **Estimation of EE potential measures** separately including use of renewable energy for each scheme, energy saving and Carbon emission of each scheme (both baseline and potential). The data will be based on the available document, reports, including operation and maintenance report and energy audit reports that have been undertaken as latest as possible last 5 years.
  - **Conduct field survey** for direct calculation at the site of selected schemes to have sufficient data for the evaluation. The agency is expected to equip all kind of necessary equipment and machines for measure and calculation at the site.
  - **Provision of simple block diagram of production** process for each of renewable energy and energy efficiency (at least for solar power, power production, energy saving in water

production and distribution, and water purification technology) with details of equipment/machineries utilized.

- In case the information for calculation of selected schemes is not sufficient, the consulting firm should **propose alternative solutions** for being most appropriate approaches, with and without approach might be considered.
- **Assessment of challenges** in scaling up renewable energy and energy efficiency, as well as **opportunities** to overcome those challenges through interviews with key groups of stakeholders as below but not limited:
  - Water Supply Units, renewable energy companies to understand the overall needs of rural water supply units/service providers, the amount currently being met with renewable energy, the amount possible to transition, the buying potential, and barriers.
  - Commercial banks, companies, and other potential investors (e.g., Foundations, high net worth individuals, investment funds, etc.) to assess current investment, challenges, and barriers, opportunities for future investment in renewable energy applications for the rural water supply sector.
  - Related national agencies such as MARD, MOIT, MST and others on policies, incentives, and government plans in renewable energy and energy efficiency for Viet Nam and rural water supply in Viet Nam.
- **Develop guidelines** for government and private sector action, including specific recommendations in terms of technical capacity, investment required and policies to enable Water Supply Units to develop and implement climate resilient water supply systems
  - The target audience for guidelines should be government, investors, Water Supply Units
  - The content should be based on desk review and field evaluation that guides government, investors, Water Supply Units understanding on renewable energy and energy efficiency, the criteria of water supply schemes for application, solution for resources saving, as well as steps for application and related policies to be aligned.
  - Organisation of one consultation workshop and 2 training workshops for government, private sectors and water supply units will be implemented to walk the audiences through the guidelines content and applications.

### Methodology and technical approach

The study will employ a mixed methodology combining literature review, field survey combining quantitative and qualitative tools. Specifically, the institution is expected to conduct a systematic desk review of current evidence on good practises in renewable energy, energy efficiency for rural water and conduct field survey to measure and analyze data at water supply schemes related to energy use, potential of renewable energy application. The firm will use secondary data and collect primary data through key informant interviews, focus group discussions, in-depth interviews, case studies, and observation and participatory exploration methods with relevant government agencies and private sector partners in Viet Nam at the national and subnational levels, water supply product and service providers.

**The consultant team is expected to propose the most appropriate methodology, data collection and analysis tools, and the workplan for this assignment including for a site survey.** It is expected to deliver the following work:

- i. Review relevant documents to understand the background and context of the assignment
- ii. Develop research protocol and research tools, pretest research tools are required
- iii. Data collection for both quality and quantity research, site measurement/calculations, closely quality control to ensure timing is respected and quality standards are met.

- iv. Analyze data based on prior agreed analysis plan, summarize top-line findings and present to the client and relevant partners and stakeholders.
- v. Carry out one consultation workshop with relevant partners to validate findings and develop Research Report and Research Brief.
- vi. Develop guidelines for renewable energy and energy efficiency applications.
- vii. Conduct two trainings on the guideline's application.

In light of the current COVID-19 context, the consulting agency is expected to prepare a contingency plan which will include the possibility of conducting online interviews and relevant working modalities.

### Summary of specific tasks and deliverables with a timeline

#	Task summary	Deliverables	Deadline	Efforts
1	Analytical framework, detailed methodology and research tools	<ul style="list-style-type: none"> <li>- Inception report</li> <li>- Research tools, methodology and plan</li> <li>- Pretest result (as needed)</li> </ul>	Nov 2022	5 days
2	Conduct desk review, fieldwork, data collection, coding activities and ensure the quality of work	<ul style="list-style-type: none"> <li>- Regular fieldwork report/update</li> </ul>	Nov -Dec 2022	20 days
3	Analyze and interpret the data	<ul style="list-style-type: none"> <li>- Data analysis table/matrix</li> </ul>	Jan 2023	20 days
4	Prepare and present top-line findings and key recommendations at a national consultation workshop	<ul style="list-style-type: none"> <li>- Topline findings</li> <li>- Consultation workshop agenda, content, report</li> </ul>	Feb 2023	5 days
5	Final Draft Report, Research Brief	<ul style="list-style-type: none"> <li>- Research Report</li> <li>- Research Brief</li> <li>- All primary data collected should be made available to UNICEF and key counterparts</li> </ul>	Feb 2023	20 days
6	Develop a Guidelines on renewable energy and energy efficiency	<ul style="list-style-type: none"> <li>- Draft Guidelines on renewable energy and energy efficiency applications</li> </ul>	April 2023	20 days
7	Carry out two training on Guidelines for selected provinces	<ul style="list-style-type: none"> <li>- Two training agenda delivered with final agenda, materials, and training report</li> </ul>	May 2023	10 days
8	Finalize the Guidelines based on comments/feedback from the trainings	<ul style="list-style-type: none"> <li>- Final Guidelines</li> </ul>	June 2023	10 days
	<b>Total</b>			<b>110 days</b>

**Duration and expected deliverables:** The timeframe for this consultancy is 110 days, between November 1, 2022 – June 30, 2023. All deliverables are expected to be developed in both Vietnamese and English, with the responsibility for translation in all the meetings with partners/informants belonging to the contracted institution.

#### 4. Suggested itemized costs:

Items
Lumpsum consultancy fees (National consultants rate applied: VNM3 and VNM4; international consultant rate applied: ....)
International travel <i>Travel cost for the field trip</i> Air tickets for field trips DSA Vehicle rental
Misc. expenses (organizing FGDs, fee for local facilitators and collaborators, workshop, etc)
Translation of the draft and final report

#### 5. Management

The assignment will be undertaken under the overall supervision of the Chief of Child Survival, Development and Environment (CSDE) with the day-to-day supervision of the Water and Sanitation Specialist, in consultation with related UNICEF Programme staff.

UNICEF Viet Nam's focal point will ensure that a consolidated work plan for this assignment facilitates the joint work of both the contracted institution and any personnel assigned by the Directorate of Water Resources, NCERWASS with quality assurance from UNICEF, NCERWASS and the provinces.

#### 6. Payment Schedule

The payment for the consultancy will be in three installments:

- The 1st payment upon the approval of the inception, desk review report, research protocols and ethical clearance, deliverables task 1 (30%)
- The 2nd payment upon the approval of the final report; deliverables of tasks 2, 3, 4 and 5 (40%)
- The last payment upon the approval of the final comprehensive report, policy brief, PowerPoint presentations, and intervention framework; deliverable of task # 6,7 and 8 (30%).

#### 7. Performance indicators for evaluation

- The quality of deliverables meets the standards set by UNICEF and specifications outlined in the contract.
- Deliverables are submitted in a timely manner, as per the timeline in the contract.
- Technical assistance is contextualized and draws on inputs provided by the partners.

#### 8. Qualification

An institution that can deploy a team comprised of a team leader and team members with the following qualifications:

The consulting firm must have the qualifications and experience on:

- At least 5 years of recent experiences in implementing market survey, survey of energy consumption/use of renewable energy, carbon emission....
- Extensive experience in working with Water Supply Units, enterprises. Experience in energy in sub-industry sector will be an advantage

- Experience in cooperating with business associations, businesses, and international organizations.

The following effort level in terms of person-days is foreseen for this assignment and Team members should have the following qualifications and experience but not limited:

**Team Leader:**

- Master's degree with knowledge in Business Management, renewable energy, energy efficiency or related fields.
- At least 10 years of experience in leading survey or research with government agencies, enterprises, SMEs, especially on energy consumption and use of renewable energy
- Technical knowledge on green development and green solutions for SMEs. Experience in Energy efficiency, renewable energy, green financing is an advantage
- Strong experience in working with different levels of enterprises, business associations. Experience working with the businesses in 5 mentioned subsectors will be an advantage
- Experience working with development project will be an added advantage
- Be fluent in English

**National Civil Engineer**

- Minimum of Master level degree(s) in the relevant field, such as water and sanitation engineering and at least eight years of relevant experience
- At least eight years of proven experience in the design, implementation, and/or evaluation of the engineering aspects of rural water and sanitation projects and programs, targeting climate change affected and vulnerable areas
- Proven prior experience with the design of low-cost on-site domestic WASH facilities
- Ability to work with a team of professionals effectively and respectfully with different cultural and sectoral backgrounds
- Be fluent in English

**Other National Team Members and survey team**

- Graduate with knowledge in Business Management, energy, or related fields.
- At least 5 years of experience in implementing survey or research with enterprises focusing on energy efficiency and renewable energy
- Technical knowledge on green development and green solutions for SMEs. Experience in Energy efficiency, renewable energy, green financing is an advantage
- Strong experience in working with business sector and businesses associations. Experience working with the businesses in 5 mentioned subsectors will be an advantage
- Be fluent in English.

In addition, the firm is expected to mobilize other skills/experiences among the team members including on policy and institution, gender and social aspects of water, climate change, climate-related statistician, etc.

**ASSOCIATION WITH OTHER ORGANIZATION(S)**

The consultant agency may associate with other organizations (NGOs/ research and technical institutions/ profit agencies, etc) to enhance their qualification and expertise for this Consultancy. In such instances, there should be a lead consultant agency and the other agencies should be its sub-consultant(s)/ associate(s). The assignment proposal should indicate the role and other details of the sub-consultant(s)/ associate(s). However, overall responsibility for planning, management, and coordination (technical, financial, administrative), M&E and quality assurance will vest with the lead consultant agency.

### Structure of the Technical Proposal

Interested institutions are required to submit a detailed technical proposal including the following:

1. Credentials document outlining the expertise of the company, detailing general and specific experience with similar clients and assignments, including the samples (e.g., reports, materials, products) of past relevant works.
2. Details of the proposed team for the assignment include the following information:
  - Title/Designation of each team member on the project
  - Experience in working on similar projects and assignments – List similar projects they worked on and their roles on the project.
  - The team needs to include different members who have background and working experience in the following key fields: economic analysis, public health research/study or social studies, etc.
3. Provide a summary of the approach which the agency would take to meet the specific objectives and deliverables outlined above.
  - *Submissions must be made in English.*
  - *No price information should be contained in the technical proposal.*
  - *Any submissions made outside of the allotted time frame or without adequate information will be automatically disqualified.*

### 9. Evaluation process and methods

The weighted ratio between the technical and the price criteria: (80:20)

Such the proposed programme is new and not available in Viet Nam. Given the newness, complexity, and strong requirement of innovation and creativity of the assignment, the ratio between the technical and the financial proposal for this task is 80:20 respectively. Only those proposals that score 70% of technical points on the technical proposal will be shortlisted.

Each technical proposal will be assessed first on its technical merits and subsequently on its price. A maximum of 80 points is allocated to the technical component and 20 points for the price component, with a maximum possible total score of 100 points.

The proposal obtaining the overall highest score after adding the scores for the technical and financial proposals is the proposal that offers the best value for money and will be recommended for the award of the contract. UNICEF will set up an evaluation panel composed of technical UNICEF staff.

In making the final decision, UNICEF considers both technical and financial aspects. The evaluation panel first reviews the technical aspect of the offer, followed by the review of the financial offer of the technically compliant vendors.

The proposals will be evaluated against the following two elements:

- a) Technical Proposal

Criteria		Points
1	Company Information	5
1.1	Legal Structure (Registration and taxes)	

1.2	Years of expertise and experience	
1.4	Financial capacities (Statement on consolidated sales and revenue in the past 5 years)	
<b>2</b>	<b>Technical Expertise</b>	30
2.1	Relevance of the approach to meet the specific objectives and reach the specific target audience	
2.2	Present/prior similar experience working with high profile customers (name of clients and project engagements)	
2.3	Technical services (Equipment, studio facilities, outsourcing suppliers, placement services)	
<b>3</b>	<b>Personnel</b>	30
3.1	Management position and technical competencies (CV)	
3.2	Number of key staff assigned to the project management	
<b>4</b>	<b>Innovative and Creative portfolio</b>	15
4.1	Samples of innovative research methodologies in emergency/epidemic contexts	
4.2	Samples with demonstrated experience in WASH, climate resilient, energy efficiency, renewable energy, carbon credits research, studies, and analysis	
	<b>Total</b>	<b>80</b>

b) Financial Proposal

The Financial Proposal should be broken down for each component of the proposed work. Please make sure to have separate line items in the price proposal for the following:

- Strategy and planning
- Creative Conception and Execution
- Field visit, consultation - data collection
- Designing and development process and options
- Consultation and finalization of the products

Mandatories

- All prices/rates quoted must be exclusive of all taxes as UNICEF is a tax-exempt organization.
- Financial Proposals must be submitted separately to Technical Proposals
- The total amount of points allocated for the price component is 20. (The maximum number of points will be allotted to the lowest price proposal of the technically qualified proposals).
- UNICEF will award the contract to the vendor whose response is of high quality and meets the specific objectives.