

Requesting Section: WASH Climate & Sustainable Environment, UNICEF EAPRO

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## East Asia & Pacific regional solar energy market assessment (RFPS)

### 1. Background

With an estimated 2.3 billion people, the East Asia and Pacific region is growing and developing rapidly. The region has seen millions of people move out of poverty in the past two decades, driven by strong economic growth. A diverse and dynamic demographic of young people – approximately 329 million adolescents reside in the East Asia and Pacific region and constitute a quarter of the world's adolescent population – are growing up with different aspirations than their parents and a different outlook for their future.

Yet today, 30 million children in the region live in extreme poverty – a number that is growing as a result of the COVID-19 pandemic. These children and their families in the EAP region are at high risk from climate change because of the region's high exposure and vulnerability, as well as slow progress already on many development indicators. The region is among the world's most vulnerable regions to natural disasters, including those related to climate change. The region is also one of the most vulnerable to the impacts of climate change. The frequency, intensity and duration of climate-related extreme events and the slow onset changes such as sea-level rise are escalating, disproportionately affecting the most vulnerable and marginalized children.

Clean, affordable and reliable energy is an important enabler and dramatically improves the quality, accessibility and reliability of child-centric social services including health, education and WASH, while making these public systems more resilient to the impacts of climate change. Without electricity, it is impossible to achieve **universal health care, reduced child mortality, and improved maternal health** (SDG 3 on Health); **inclusive and quality education for all** (SDG 4 Education), and **clean water and sanitation** (SDG 6 WASH), affordable and clean energy (SDG 7), sustainable cities and communities (SDG 11), climate action (SDG 13), (and some loosely related ones include SDG industry innovation and infrastructure, SDG12 responsible production and consumption).

Clean and reliable energy improves access to clean water through solar pumps; improves digital connectivity essential for young people's future prospects and learning; ensuring lighting in the home so that children can do their homework at night; and powering life-saving medical and cold-chain equipment for vaccines, among multiple other areas. It also helps reduce indoor and outdoor air pollution. Across the Asia Pacific region, there are still up to 157 million people lacking access to electricity.

The UNICEF East Asia and Pacific Regional Office Management Plan (ROMP) for 2022-2025 was developed at a pivotal moment for the children of the region, as countries attempt to balance a process of managing the ongoing COVID-19 pandemic and vaccine rollout whilst attempting to navigate a pathway to recovery from its economic and social impact. The pandemic has highlighted the importance of predictable, affordable, and sustainable delivery of WASH and health services. The pandemic has also illustrated what can happen when children's education is interrupted. An enabler of all of these social services is a reliable and clean energy source. Solar power, when correctly designed and installed, can ensure this by providing a source of power that is not vulnerable to regular service interruptions due to high electricity demand, and can provide services to unserved remote areas, while reducing carbon emissions.

In many hard-to-reach areas especially in conflict zones, where fuel is limited, solar technologies offer a reliable source of energy to ensure a reliable water service. The renewable energy share continues to grow – representing up to 8.5% of total final energy consumption in 2018. The demand for such well-designed

systems continues to increase, both in humanitarian and development contexts, and such systems can reduce the potential for conflict and migration, strengthening the humanitarian-development-peace nexus, providing important employment opportunities for youth in conflict areas and beyond, providing new, 'green' jobs.

Given the dramatic reduction in the costs of solar technology globally, and the potential of solar power to provide sustainable and resilient services, UNICEF has made the commitment to scale-up the use of renewable energy across all sectors and for its own operations. Solar power will ensure the sustainability and long-term impact of UNICEF's interventions in water and sanitation, health and education; and help us reach UNICEF's Strategic Plan targets and the Sustainable Development Goals. Despite its importance, reliable and affordable electricity access is often an overlooked building block of quality WASH, healthcare and educational services. Some of the solutions to increase energy access in healthcare and educational facilities include extending the grid network or connecting to decentralized solutions such as mini-grids or stand-alone solar PV systems. Decentralized solar energy solutions are promising options that can also simultaneously transform the sectors to a low carbon and climate resilient development pathway. This is a powerful benefit to children in the face of a changing climate and degrading environment.

There are limitations, however, in the form of limited data and market information on a granular (national and sub-national) level to understand the access gap, the demand for sustainable energy based on type and size of school/health facility, the cost of providing electricity, willingness to pay, the most appropriate delivery models and best sustainability measures including long-term operations and maintenance (O&M) which is a major challenge. These include recent energy technologies and service delivery innovations, and financing services to ensure sustainability.

## **2. Objectives, Purpose & Expected results**

The purpose of this consultancy is to assess the market landscape and demand for the provision of solar energy in UNICEF's key sectors (WASH, education and healthcare) in the East Asia and Pacific (EAP) region, to generate the evidence base to inform UNICEF's value add and future interventions to meet several Sustainable Development Goals. The market assessment will contribute to UNICEF EAPRO's upcoming energy strategy and support the scale up from renewable energy activities as a component of existing UNICEF programmes, to developing renewable energy programmes that deliver on UNICEF's mandate.

The specific objectives are to:

1. Support the definition of UNICEF's role in scaling up solar energy usage and low carbon resilience building, climate mitigation and adaptation activities within the provision of basic services for WASH, education and healthcare for children in the region;
2. Provide market data and evidence to motivate for UNICEF's value add and future interventions for solar energy services within the key UNICEF sectors. This evidence will include distinct areas for UNICEF to incentive the solar energy markets and investors to focus on renewable energy provisions in its key thematic areas, leading to fundraising and partnerships for investment from energy access and climate change mitigation angles; and
3. Strengthen UNICEF's ability to work with its country offices and national counterparts to build up evidence and provide analysis to support UNICEF's advocacy work in the area of climate change mitigation, renewable energy investment and usage and low carbon resilience building and development from a child-centered lens.

## **3. Description of the assignment**

UNICEF East Asia and Pacific Regional Office (EAPRO) is seeking to engage an institution to conduct a solar energy demand and market assessment specifically for healthcare and education in the East Asia and Pacific Region. The objective is to get a comprehensive understanding of how energy markets are presently investing

in and implementing solar energy for all services related to WASH, healthcare, and education provision, and how UNICEF's mandate can accelerate the transition or uptake of reliable, affordable and solar technologies for underserved, rural facilities in these sectors. The market assessment will utilize existing data, assessments, and project examples in the defined countries to package the information in a way that informs UNICEF's mandate and delivery modalities for future energy interventions at the regional and country levels.

To deliver on the above objective, the service provider will undertake the following tasks:

1. Collect and analyze of key data on solar energy specifically for the provision of services related to WASH, healthcare and education across 18 countries in the EAP region <sup>1</sup>
2. Make recommendations for UNICEF regional and national activities to support the expansion of solar energy provision, and improve the quality and sustainability of solar installations, demonstrating UNICEF's value proposition and entry points.

The tasks are further detailed below:

**Task 1: Collect and analyze of key data on renewable energy specifically for the provision of services related to WASH, healthcare and education across 18 countries in the EAP region (70%).**

- Carry out a desk review of existing data<sup>2</sup>, data sources, and methodologies relevant to solar energy demand, energy access of WASH, healthcare facilities and schools, including socio-economic and other relevant data and prioritize information and mechanisms for data collection;
- Define structure of a platform for collection and analysis of market data. This data should include qualitative and quantitative data on two levels: general solar energy market information per country<sup>33</sup> (renewable energy generation capacity and resources; existing regulation; tariff structures; household subsidies; targets; growth rates; etc.) and solar energy as related to WASH, healthcare and education (i.e. demand; types of technology per facility, etc). In addition to this, it should include data from and mapping of ongoing and recently completed initiatives by other entities (e.g., Government, GAVI, UNDP, UN Habitat, WHO, World Bank, ADB, IOM etc.) at regional and country levels, noting new programs related to solarization of schools, healthcare facilities and WASH services given the COVID-19 pandemic;
- Identify organizations supporting solar energy expansion in WASH, healthcare facilities and schools by country in the EAP region and make recommendations for potential partners for UNICEF.
- Document other energy initiatives and focuses as well as highlight key aspects including for WASH, health, and education: (i) approaches/models adopted/planned in those initiatives, (ii) technologies and related mechanisms/measures in place to ensure adequate operation and maintenance of the energy infrastructure, (iii) resources allocated and financing mechanisms, and (iv) extract lessons learned from the implemented/completed ones and qualify the results achieved to compare with ex-ante targets;
- Analyze collected data to understand regional gaps, bottlenecks, opportunities, threats, and emerging patterns in the provision of renewable energy for healthcare and education & WASH services;
- Prepare regional analysis report based on the above assessments. The regional analysis should include table summarizing key information across the 18 countries, including but not limited to information on the enabling environment for solar energy in healthcare and schools (existing and upcoming policy, regulation, main government partners, tariffs, targets, main bottlenecks for scale up, etc).

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<sup>1</sup> Cambodia, China, DPRK, Fiji, Indonesia, Kiribati, Lao PDR, FSM, Mongolia, Myanmar, PNG, Philippines, Solomon Islands, Thailand, Timor-Leste, Vanuatu, Vietnam

<sup>2</sup> Socio-economic data on children's health and education levels, disparity, progress towards accomplishing SDGs 3 and 4, etc. This will help establish the baseline against which the impact of sustainable energy on children's health and education can be tracked and monitored.

<sup>3</sup> It is envisioned that the general renewable energy market data is pulled directly from existing sources from the World Bank, IRENA, etc to streamline the availability of regularly updated information

**Task 2: Make recommendations for UNICEF regional and country level to support the expansion of solar energy provision, and improve the quality and sustainability of solar installations, demonstrating UNICEF's value proposition and entry points (30%).**

- Deep dive into one country (to be identified) by carrying out a dedicated review of ongoing solar programmes aligned to UNICEF programme areas and identify potential entry points for UNICEF with development partners, DFIs, market enablers, and programmes focused on the provision of energy access for WASH, education and healthcare;
  - Identify gaps and challenges for UNICEF engagement;
  - UNICEF activities in solar energy (a few case studies);
  - Potential entry points for UNICEF in programming and advocacy;
  - Propose basic programme outlines and elements for further development by UNICEF; and
  - Propose applicable models for innovative renewable energy delivery and financing; and
  - Develop guidelines, tools and modelling templates for assessing demand for schools and healthcare centres in the future.
- Prepare executive summary on UNICEF's value add to scaling up solar energy for WASH, healthcare and education in the EAP region;
- Develop criteria and ranking system<sup>4</sup> to score which countries/settings are most in need to be prioritized for interventions to close energy gaps in healthcare facilities and schools (including their related WASH services);
- Design a template for 'investment cases' or 'funding readiness' (loosely related to content in case studies) and complete cases for 2 prioritized countries linked to the ranking system, including viable interventions and preliminary activities that can be carried out by UNICEF within existing programmes or new programmes<sup>5</sup>;
- Identify entry points and make recommendations for UNICEF to support improved solar energy solutions, quality standards and assessment tools as industry standards in the EAP region.

#### 4. Deliverables

Description	Deliverables	Estimated Timeline
Collect and analyze key data on renewable energy specifically for the provision of services related to WASH, healthcare and education across 18 countries in the EAP region	<ul style="list-style-type: none"> <li>• Inception report for entire consultancy</li> <li>• Desk review</li> <li>• Data platform</li> <li>• Draft regional report</li> <li>• Final regional report</li> </ul>	<ul style="list-style-type: none"> <li>• 1 October 2022</li> <li>• 1 November 2022</li> <li>• 1 December 2022</li> <li>• 15 January 2023</li> <li>• 15 February 2023</li> </ul>
Make recommendations for UNICEF regional and country level to support the expansion of solar energy provision, and improve the quality and sustainability of solar installations, demonstrating UNICEF's value proposition and entry points	<ul style="list-style-type: none"> <li>• Validation workshops</li> <li>• Deep dive report for one country</li> <li>• Executive summary</li> <li>• Criteria and ranking system</li> <li>• 2 Investment cases</li> </ul>	<ul style="list-style-type: none"> <li>• 15 January 2023</li> <li>• 15 January 2023</li> <li>• 1 March 2023</li> <li>• 15 February 2023</li> <li>• 30 March 2023</li> </ul>

<sup>4</sup> The ranking system should include but not be limited to: market research including regulations, tariff structures and planning/laws for energy (specifically rural electrification and basic services); energy demand and gaps for schools and healthcare facilities; on-going projects and investment initiatives; funding available/ease of doing business for energy companies; available providers in the market; and presence of UNICEF energy projects in country

<sup>5</sup> The template draft should be reviewed by UNICEF to ensure it meets UNICEF's branding and publication requirements.

## 5. Reporting requirements

The contractor will be required to provide and deliver the following:

- An inception report, including methodology, timeline, preliminary design of platform and outline for case studies, as well as proposed changes made to the scope of work in the kick-off meeting. If stakeholder interviews are required for gap assessments and market data collection, preliminary list of stakeholders is required. This information will be presented in an inception meeting with focal points from priority sectors.
- Progress reports and presentations on regional data per the above schedule of deliverables
- validation workshops, one for the case study country and one regional
- Final reports for the region analysis.

All reports, together with the required reporting guidelines and deadlines for submission are listed above. All reports should be written in English. Payments will only be made upon successful review and deliverable sign-off by UNICEF.

**Note:** All reports as part of the deliverables (such as inception report, draft report and final report) must meet the quality standards of UNICEF.

- Methodological rigor will be given significant consideration in the assessment of the quality of deliverables. In the domain of ethical compliance, the research should be guided by **UNICEF Procedure on Ethical Standards in Research, Evaluation, Data Collection and Analysis** and when relevant the approval of an ethical review board will be a prerequisite for the research. (<https://www.unicef.org/evaluation/documents/unicef-procedure-ethical-standards-research-evaluation-data-collection-and-analysis>)
- Reports as part of the deliverables (including both Inception Report and Final Report) must meet the quality standards of UNICEF in line with **UNICEF Standard Operating Procedures for Research Studies and Evaluations**. The Final Report will need to be rated as satisfactory or above by UNICEF's quality assurance review facility. (<https://www.unicef-irc.org/files/upload/documents/UNICEF-%20Quality-Assurance-Research.pdf>)

## 6. Location and Duration

- The assessment will be carried out via desk research and additional stakeholder consultations for the 18 countries. The contractor is expected to liaise with UNICEF Country Offices (COs) via virtual consultations.
- The consultancy is expected to start in September 2022 and run for a period of 6 months from the date of signing the contract. EAPRO will review draft reports for quality assurance and provide feedback on the deliverables within 10 working days.

## 7. Mandatory and Desirable Qualification Requirements

The assignment requires an institution with at least seven years of consulting and solar energy project experience in the development and energy sectors and capable of deploying experienced teams in multiple countries simultaneously. The team should demonstrate strong background in implementing energy technologies, designing energy projects, energy policy and/or energy economics with expertise in social, economic and environmental dimensions of sustainability and in the design and formulation of energy projects.

Interested firms should clearly demonstrate their experience in:

- Renewable energy and finance with focus in the solar sector at regional and country levels;

- Developing innovative solar energy delivery and financing models (e.g., leveraging private-public partnerships) in developing countries;
- Conducting energy demand assessment, cost benefit and economic analyses for renewable energy delivery in developing countries including East Asia and Pacific countries. Provide sample of previous work;
- Market research;
- Analyzing trade conditions for energy equipment;
- Research, strategy, or market assessments for UN agencies is an advantage;
- Developing sustainable and effective delivery models to scale-up renewable energy.
- Knowledge and previous work experience in the East Asia and Pacific region

While the consultant firm has the responsibility of proposing the team composition, the tasks in the assignment will require the involvement of at least:

- A Seasoned Team Leader/Lead consultant with at least a Master's degree in energy economics, engineering, development studies, economics, or renewable energy technologies and significant experience in off-grid energy access and able to communicate effectively in English;
- Off-grid solar PV market assessment expert who has been involved in at least 2 major assignments related to solar PV market assessment in EAP region;
- Renewable energy systems and technology expert, with demonstrable experience in EAP region on demand and systems assessment for renewable energy in schools, healthcare centres, etc;
- Renewable energy investment expert who has been involved in at least 2 assignments related to off- grid solar projects. This includes experience in program design, project finance and renewable energy investment cases in the UNICEF areas of interest of WASH, Health and Education;
- Local experts in at least some EAP countries, with demonstrable experience on solar energy applied to healthcare and education uses, to facilitate in-country dialogues and data collection. Noting that local experts can also fulfill the above roles (Team lead; investment expert; technology expert; market assessment expert).
- Knowledge of languages spoken in the region and field presence in EAP countries is an advantage.

Consultant firms are strongly encouraged to tap into additional locally based expertise, as appropriate, to contribute to enhance local capacities and facilitate the implementation of follow-up activities. The CVs of proposed staff should clearly demonstrate the relevant experience of each team member by task assigned.

## **8. Evaluation process for this solicitation / tender**

The evaluation panel will first review each response for compliance with the mandatory requirements of this RFPS. Failure to comply with any of the terms and conditions contained in this RFPS, including provision of all required information, may result in a response or proposal being disqualified from further consideration. Kindly also refer to the detailed instructions in the main LRPS document.

Each valid proposal will be assessed by an evaluation panel first on its technical merits and subsequently on its price. For this RFPS, the weight allocated to the technical proposal is 70 % (i.e. 70 out of 100 points). To be further considered for the financial evaluation a minimum score of 49 points is required. Only proposals with a score of 49 or more points in the technical evaluation will be financially evaluated (i.e. the financial proposal will be opened). For further details and the distribution of points kindly refer to **table 1** below.

The weight allocated to the financial proposal is 30 % as per the following: the maximum number of 30 points will be allotted to the lowest priced, technically compliant proposal. All other price proposals will receive points in inverse proportion to the lowest price. Commercial proposals should be submitted on an all-inclusive basis for providing the contracted deliverables as described in the TOR.

The proposal(s) obtaining the overall highest score after adding the scores for the technical and financial proposals is the proposal that offers best value for money and will be recommended for award of the contract.

**Table 1: Evaluation Criteria and distribution of points**

CATEGORY	Max. Points
<b>1. OVERALL RESPONSE</b> <ul style="list-style-type: none"> <li>The proposal includes a well-developed plan that demonstrates a firm understanding and experience as indicated in the TOR <b>(10)</b></li> </ul>	<b>10</b>
<b>2. PROPOSED TEAM and ORGANISATIONAL CAPACITY</b> <ul style="list-style-type: none"> <li>Team members - relevant experience, skills and competencies including familiarity with the EAP region and knowledge of languages spoken in EAP countries <b>(10)</b></li> <li>Professional expertise, knowledge and experience with similar projects, contracts, clients and consulting assignments including in the EAP region <b>(15)</b></li> </ul>	<b>25</b>
<b>3. METHODOLOGY</b> <ul style="list-style-type: none"> <li>Work plan and approach of implementation of the tasks as per the TOR <b>(10)</b></li> <li>Implementation strategies, monitoring and evaluation, quality control mechanism <b>(10)</b></li> <li>Technologies used, compatibility with UNICEF <b>(10)</b></li> <li>Innovative approach <b>(5)</b></li> </ul>	<b>35</b>
<b>TOTAL POINTS FOR TECHNICAL PROPOSAL</b> (min. passing score = 49 points)	<b>70</b>
<b>4. FINANCIAL PROPOSAL</b> Full marks are allocated to the lowest priced proposal. The financial scores of the other proposals will be in inverse proportion to the lowest price.	<b>30</b>
<b>TOTAL POINTS</b>	<b>100</b>

## 9. Administrative issues and Proposal to be submitted

- Bidders are requested to provide a detailed technical proposal in **Annex C** – Technical response form. The technical proposal must include all information needed to fully evaluate the proposal against the requirements and evaluation criteria outlined in section 7 and 8 of this TOR.
- Bidders must ensure not to include any financial information in the technical proposal.
- Bidders are requested to provide the detailed cost proposal in **Annex D** – Financial response form. All cost implications for the required service/assignment as per this TOR must be included. No costs can be added later.
- If the bidder wishes to include additional or optional elements outside the defined deliverables as per this TOR, these should be clearly marked as such in both, the technical and financial proposal.
- No international travel is expected under this assignment

## 10. Payment Schedule

No.	Payment	Tentative schedule	Deliverable
1.	20%	1 October 2022	Inception report
2.	50%	1 January 2023	Desk review, data platform, deep dive report for one country and draft regional report
3.	30%	30 March 2023	Final report, validation workshop minutes, criteria and ranking system, executive summary, and 2 investment cases

- The payment schedule must be based on completed deliverables.
  - If the bidder wishes to propose an alternative payment schedule, it must be included in the financial proposal. The final payment schedule is to be reviewed and agreed with UNICEF.
  - Payment terms 30 days net upon receipt of approved invoice.
-