Terms of Reference
Framework Agreement for Consultancy: Design and Supervision of Solar Systems for communal Water Pumping Stations

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1. Introduction

1.1. Background Information:

Solidarités International, a non-governmental, humanitarian organization, has been at the forefront of providing crucial aid in regions affected by conflict and natural disasters. With a mission rooted in assisting populations in distress, Solidarités International is dedicated to addressing the fundamental needs of those under threat, aiming to improve their living conditions substantially.

In Lebanon, our involvement has been particularly significant, given the country's complex socio-political landscape and the challenges it faces. Lebanon has been grappling with a multitude of

crises, including economic instability, political unrest, and the influx of refugees, primarily from neighbouring conflict zones. These challenges have exacerbated the vulnerabilities of both the local and refugee populations, making humanitarian intervention crucial.

Solidarités International's work in Lebanon is diverse and responsive to the evolving needs of these communities. Our focus areas include, among others, Water, Sanitation, and Hygiene (WASH). Recognizing the critical importance of access to clean water and sanitation facilities, our projects aim to improve WASH infrastructure and practices in informal settlements and host communities. This is not only vital for the health and well-being of the communities but also a fundamental human right. Our interventions range from constructing and rehabilitating water and sanitation systems to promoting hygiene awareness and practices among the population.

Our approach in Lebanon has always been community-centric, ensuring that the interventions are tailored to the specific needs and contexts of the communities we serve. We work closely with local authorities, community leaders, and the populations themselves to ensure that our projects are not only effective but also sustainable in the long term.

The introduction of solar-powered water pumping systems is vital for sustainable solutions that address the immediate needs of the communities while considering environmental impacts. This project aligns with our broader goals of enhancing living conditions through sustainable practices and represents a significant step towards resilience and self-sufficiency in the communities we support in Lebanon.

1.2. Project Overview:

This pivotal consultancy focuses on the design and supervision of solar systems for communal water pumping stations. The initiative is a strategic response to several critical challenges faced by communities in Lebanon, primarily revolving around water accessibility and sustainable energy use.

Key Aspects of the Project:

- Harnessing Solar Energy: Lebanon, characterized by its Mediterranean climate, presents an opportunity for solar energy utilization. By tapping into this renewable resource, the project aims to power water pumping stations, thereby reducing reliance on conventional, non-renewable energy sources. This shift not only aligns with global environmental sustainability goals but also positions Lebanon further towards friendly energy adoption in the region.
- Addressing Water Supply Challenges: Access to clean and reliable water remains a pressing issue in many Lebanese communities, exacerbated by infrastructural challenges and the increasing demand due to population growth, the influx of refugees and the worsening economic crisis. The solar-powered water pumping stations are envisioned to

provide a consistent and sustainable water supply, crucial for both domestic and agricultural needs.

- Mitigating Power Shortages: Lebanon's frequent power shortages significantly impact essential services, including water supply systems. By integrating solar power into these systems, the project aims to ensure uninterrupted operation, thereby mitigating the effects of power instability on water availability.
- Community-Centric Approach: The design and implementation of the solar systems will be carried out with a strong emphasis on community needs and contexts. This involves not only technical assessments but also community engagement to ensure that the systems are tailored to the specific requirements and conditions of each location.
- Environmental and Economic Benefits: The project is expected to yield significant environmental benefits, and economically, it offers a cost-effective solution to water supply issues, reducing operational costs in the long term and fostering community resilience.
- Capacity Building and Sustainability: An integral part of the project is to build local capacity in maintaining and operating these solar-powered systems. This could include, *based on each project's specificities*, training local technicians, and ensuring the long-term sustainability and effectiveness of the systems.

The exact location(s) of the site(s) will be further communicated to the bidders/contractors once a site is identified. Alternatively, Solidarités International keeps the option of site identification by the contractor itself. In all cases, the location of the site(s) is limited to North of Lebanon, Akkar, and Bekaa areas.

1.3. Purpose of the Consultancy:

The primary aim of this consultancy is to engage a highly skilled and experienced professional or firm to undertake the critical task of designing and supervising the implementation of solar-powered water pumping systems in a community/various communities across Lebanon. This consultancy plays a pivotal role in the success of the project, with responsibilities encompassing several key areas:

- Comprehensive Planning and Design: The consultant will be responsible for developing an all-encompassing plan for the solar-powered water pumping systems. This involves creating detailed designs that are not only technically sound but also optimized for efficiency and sustainability. The design process will require a deep understanding of solar power technology, water pumping mechanics, and the integration of these systems in a manner that is both practical and cost-effective.

- Site Assessments: A critical component of the consultancy is conducting thorough site assessments. This involves evaluating potential locations for the installation of the solar water pumping systems–if the location is not already specified by Solidarités International at the outset–taking into account factors such as solar irradiance, ground conditions, water table depth, accessibility, and the specific water needs of each community. These assessments are crucial in ensuring that the systems are installed in the most suitable locations for maximum efficiency and effectiveness.

- Stakeholder Engagement: The consultant will play a key role in engaging with various stakeholders, including local communities, government bodies, and other relevant organizations, in close coordination with Solidarités International and as instructed by the Organization and project's requirements. This engagement is essential for understanding the unique needs and concerns of each community, ensuring local buy-in, and fostering collaborative relationships that will support the successful implementation and long-term sustainability of the project.

- Supervision of Installation Process: Beyond the design and planning phases, the consultant will oversee the installation of the solar water pumping systems. This includes ensuring that the installation is carried out in accordance with the design specifications, within the stipulated time frame, and adheres to the highest standards of quality and safety.

- Tailoring to Local Needs and Conditions: A significant aspect of the consultancy is to ensure that the systems are specifically tailored to meet the needs of the communities and to adapt to the geographical and environmental conditions of Lebanon. This approach is crucial for the long-term success and sustainability of the project.

- Sustainability and Efficiency Focus: The consultant is expected to prioritize sustainability and efficiency in all aspects of the project. This includes selecting appropriate technology, designing systems for optimal energy use, and considering the environmental impact of the systems.

2. Objectives of the Consultancy

2.1. Primary Objective:

The primary goal of this consultancy is to design and supervise the implementation of sustainable, efficient, and resilient solar-powered water pumping systems that are cost-effective and suitable

for the specific contexts of communities in Lebanon. In more detail, the primary objective is to determine the feasibility for installation of the Renewable Energy solutions to generate power by Solar Photovoltaic (SPV) systems or else, preparation of the design, technical specifications, and supervision and testing of the implemented system.

The solar pumping system to be installed can include, but not limited to, solar panels with all accessories, steel structure, required electronic equipment to power the existing water pumping system, protection and online monitoring system and fence. The PV panels will produce energy that will be directly used to power the pump without a battery storage. PV panels will produce DC power, the conversion of DC to AC current will be done via a variable speed drive inverter (VFD). The consultant may propose the use of other renewable energy solutions if applicable.

The objective encompasses:

- **Sustainable and Efficient Design and effective supervision:** Designing and implementing systems that leverage renewable solar energy, minimizing environmental impact while maximizing efficiency.
- **Resilient Systems:** Ensuring the systems are robust and capable of withstanding Lebanon's diverse environmental conditions, including its varied climate and topography.
- **Cost-Effectiveness:** Designing and implementing systems that are economically viable, considering both the initial setup costs and long-term operational expenses.
- **Adaptation to Local Contexts:** Tailoring the systems to meet the specific needs and conditions of each community, taking into account factors such as local geography, solar irradiance, water table depths, and community size.

2.2. Secondary Objectives:

1. **Training and Capacity Building:**
    - Develop and conduct a comprehensive training program for local staff, covering both the operational and maintenance aspects of the solar-powered water pumping systems.
    - Facilitate a practical training session, ensuring that local personnel acquire the necessary skills for sustainable system management.
    - Produce user-friendly training materials and manuals in Arabic, unless agreed upon to use another language by Solidarités International, focusing on practical knowledge and easy-to-follow guidelines.
2. **Community Involvement and Stakeholder Engagement:**
    - Build and maintain strong relationships with local stakeholders, including community leaders, local water authorities, and relevant organizations, aligning the project with local needs and priorities.
    - Organize regular meetings and consultations with stakeholders–in close coordination with and as agreed upon by Solidarités International–to ensure

ongoing communication, address any concerns, and maintain transparency and inclusivity.

3. **Supervision of Implementation:**
    - Oversee the entire implementation process of the solar-powered systems, ensuring adherence to the design specifications and quality standards.
    - Coordinate with contractors, suppliers, and Solidarités International teams to ensure timely and efficient installation of the systems.
    - Monitor the progress of the project, making adjustments as necessary to meet the project goals and respond to on-ground challenges while communicating regularly with Solidarités International, particularly on challenges faced, conflicts that can arise, and project's milestones.

3. Scope of Work

3.1. Design Requirements:

- **Development of Specifications:** Create detailed technical specifications for solar-powered water pumping systems. This includes the selection of solar panels, pumps, batteries, inverters, and other necessary components and after conducting a topographic survey.
- **Customized System Design:** Design systems tailored to the specific needs of each community, taking into account factors such as the scale of water demand, the geographical layout of the installation sites, and the integration with existing water infrastructure if present.
- **Technological Advancements:** Incorporate the latest advancements in solar technology available in the market to maximize efficiency and longevity of the systems while taking into consideration the cost. This may involve researching and selecting innovative materials or methods that enhance the performance of solar panels or pumping mechanisms under local conditions.
- **Community-Centric Approach:** Ensure that the design is sensitive to the needs and capabilities of the community, in close coordination with relevant stakeholders, including ease of use and maintenance requirements.

3.2. Site Assessment–if the site is not selected from the outset:

- **Guideline Development:** Formulate comprehensive guidelines for site assessment that include technical, environmental, and social considerations.
- **Evaluation of Sites:** Conduct thorough evaluations of potential sites for the installation of solar water pumping systems. This involves assessing solar irradiance levels, water table depth, soil type, and topographical features.

- **Accessibility Analysis:** Consider the accessibility of sites for installation and maintenance purposes, as well as the ease of water distribution from the pumping stations to the end-users.
- **Risk Assessment:** Identify any potential risks or challenges associated with each site, such as susceptibility to natural disasters or land ownership issues.
- **Communicate regularly with Solidarités International for site approval.**

3.3. Stakeholder Engagement:

- **Government and Local Authorities:** Coordinate with government bodies as the municipalities and local water authorities–in close coordination with Solidarités International and as agreed upon the extent of external communication the Consultant should carry–to ensure compliance with regulations, gain necessary approvals, and foster support for the project.

3.4. Environmental Considerations:

- **Impact Assessments:** Conduct environmental impact assessments as agreed upon with Solidarités International to evaluate the potential effects of the solar water pumping systems on the local ecosystem.
- **Sustainability Measures:** Implement measures to minimize any negative environmental impacts, such as careful placement of panels to avoid habitat disruption, and use of environmentally friendly materials.
- **Compliance with Standards:** Ensure that all aspects of the project comply with local and international environmental standards and best practices.
- **Monitoring Plan:** Establish a plan for ongoing monitoring of environmental impacts during installation, to ensure adherence to environmental standards and best practices.

3.5. Tender documents:

- The consultant shall submit the draft tender documents to Solidarités International for their review and consultation of governmental bodies before it is finalized.
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- The Consultant is expected to submit the Initial Design (including detailed drawings, report, and calculation notes) and draft tender documents (including conditions of contract, general and specifications, BOQ, cost estimate, etc) within the timeframe as indicated in Section 5. Timeframe. After receiving feedback and approval (if there are comments), the Consultant is expected to submit the final design and tender documents as indicated in Section 5. Timeframe in two (2) hardcopies and one (1) electronic copy. The outcomes of all the steps mentioned in the Design Phase and the Tender Phase should be incorporated in the draft and final design and tender documents with the following:
- The detailed design of the items including design drawings for the solar system, as well as electromechanical and civil works.

- The preparation of the complete technical specifications including the details of all materials and execution works, as well as the details for procuring and installing the equipment needed for the works.
- The consultant shall estimate the work quantity for each of the project components according to the most suitable work breakdown structure to allow the prospective bidder (Contractor) to determine a competitive unit price and estimate of the total construction cost. The consultant should also prepare a cost estimate.
- Other documents include, project summary, bid selection criteria for contractors, invitation to bid, instruction to bidders, draft contract including terms and conditions, minimum performance standards and technical specifications, any technical recommendation and conclusion, bidding forms.
- Support Solidarités International, if requested, as observer or technical evaluator in the tender evaluation committee related to work implementation.
- Any other works deemed necessary, upon mutual agreement.

3.6. Project Supervision:

- Implementation Oversight: Oversee the entire project implementation process, ensuring adherence to design specifications and quality standards.
- Contractor Coordination: Manage and coordinate with contractors, suppliers, and local teams for timely and efficient installation while keeping Solidarités International in the loop.
- Quality Control: Implement rigorous quality control measures to ensure the systems meet the designed specifications and performance criteria.
- Schedule Management: Monitor project timelines, making adjustments as necessary to meet deadlines in close coordination with Solidarités International and respond to any on-site challenges.
- Safety Compliance: Ensure that all installation activities comply with relevant safety standards and regulations.
- Issue Resolution: Actively identify and resolve any technical or logistical issues that arise during the installation phase.
- Reporting and Documentation: Maintain detailed records of the project's progress, including reports on installation activities, challenges encountered, and solutions implemented and report to Solidarités International regularly, in particular related to the project’s milestones, challenges faced, etc.
- Handover Process: Facilitate a smooth handover of the completed systems to the local community/managing authorities/water authorities, including providing comprehensive documentation and operational guidelines.

Refer to Annex 1. Detailed Scope of Work for further requirements.

4. Deliverables

4.1. Design Documents:

- **Detailed System Designs:** Provide comprehensive designs for the solar-powered systems, including layout plans, component specifications, and installation blueprints.
- **Technical Drawings:** Produce precise technical drawings that detail the structural and electrical aspects of the solar systems.
- **Specifications Document:** Compile a complete specifications document outlining the technical requirements, materials, and performance standards for all system components.

4.2. Tender documents: As specified in Section 3.2.

4.3 Reports:

- **Progress Reports:** Submit regular progress reports throughout the project duration, detailing the status of design, site assessments, stakeholder engagement, and installation activities. These reports should include updates on milestones achieved, challenges encountered, and mitigation strategies employed.
- **Final Comprehensive Report:** Upon project completion, provide a detailed final report encompassing all aspects of the project. This report should include an overview of the project, methodologies used, final designs, implementation outcomes, challenges faced, and recommendations for future projects.

4.4. Training Materials:

- **Training Manuals:** Develop comprehensive training manuals tailored to the needs of local staff. These manuals should cover operational procedures, maintenance routines, and basic troubleshooting for solar systems.
- **Educational Resources:** Create additional educational resources, such as quick-reference guides, to facilitate understanding and effective use of the systems.
- **Training Program :** Provide a structured outline for training programs, including objectives, methodologies, and evaluation criteria. Deliver the training session(s) as detailed in the scope of work.

4.5. Supervision Documentation:

- **Installation Supervision Reports (Progress Reports):** Document the supervision process during the installation of the solar systems. These reports should detail the adherence to design specifications, quality control measures, coordination with contractors, and any on-site problem-solving.
- **Safety Compliance Records:** Maintain records of all safety measures and compliance checks conducted during the installation phase.

- **Issue Resolution Log:** Keep a log of any issues encountered during the installation and the actions taken to resolve them. This log will be crucial for future reference and for improving practices in similar projects.
- **Handover Documentation:** Prepare comprehensive handover documents, system manuals, and maintenance schedules, to be provided to the managing authorities or community representatives upon project completion.

5. Timeframe

The timeframe for the project is a critical component, ensuring that the project progresses efficiently while allowing for thorough planning, design, implementation, and evaluation. The following outlines the timeline, including key milestones, report schedules, and necessary approvals from Solidarités International.

Purchase Order Under the framwork agreement:

- **[To be determined]**: The consultancy is anticipated to commence on this date, following the finalization of the purchase order under this framework agreement.

Key Milestones and Expected Dates:

1. **Initial Site Assessments–if site not selected from the outset–and Stakeholder Meetings:**
    - Expected Completion: [Date]
    - Objective: To finalize the selection of sites and gather initial community and stakeholder input.
2. **Submission of Initial Design and Specifications:**
    - Expected Submission: [Date]
    - Objective: To provide preliminary designs and specifications for review and approval by Solidarités International.
3. **Approval of Initial Design and Specifications:**
    - Expected Approval: [Date]
    - Objective: To receive formal approval from Solidarités International, allowing the project to proceed to the next phase.
4. **Detailed Design and Final Plan Submission:**
    - Expected Submission: [Date]
    - Objective: To submit the detailed design documents, including technical drawings and final implementation plans.
5. **Commencement of Supervision of Installation:**
    - Expected Start: [Date]
    - Objective: To begin the on-site supervision of installation of solar systems following the approval of detailed designs and contractor selection.
6. **Mid-Project Review and Report (Mid-term Progress Report):**

- Expected Date: [Date]
- Objective: To assess the progress of the project, address any challenges, and make necessary adjustments.

7. **Completion of Supervision of Installation:**
    - Expected Completion: [Date]
    - Objective: To finalize the supervision installation of all solar-powered systems.
8. **Final Training and Handover documents:**
    - Expected Date: [Date]
    - Objective: To complete all training and officially hand over the handover documents mentioned in section "4.Deliveralbles".
9. **Submission of Final Comprehensive Report:**
    - Expected Submission: [Date]
    - Objective: To provide a detailed report on the entire project, including design, challenges, and recommendations as mentioned in section "4.Deliveralbles"..

Report Schedule:

- **Progress Reports:** To be submitted weekly to Solidarités International, detailing the ongoing progress, any issues encountered, and actions taken.
- **Critical Action Reports:** Reports required prior to any major decision or critical action, such as changes in design, major procurement, or significant alterations in the project plan. These reports should not be part of the financial proposal and are considered part of the supervision items in Annex 2.
- **Approval Requests:** Formal requests for approval from Solidarités International for critical actions in design and supervision, to be submitted as needed throughout the project.
- **Other reports as mentioned in section 4.Deliverables, including design documents, other reports–as detailed in Section 4–training material, and handover documentation.**

6. Consultant's Qualifications

The Consultant needs to be a firm/company and not an individual professional.

Educational Background:

- **Required Degrees or Certifications:** The consultant should possess a minimum of two qualified engineers posessing of a Bachelor's degree in a relevant field such as Electrical Engineering, Mechanical Engineering, Renewable Energy, or a related discipline (engineer 1) and civil engineering (engineer 2). Advanced degrees or certifications in solar energy systems, sustainable development, or project management are highly desirable.

Experience:

- **Solar Systems Experience:** Demonstrable experience in designing and implementing solar energy systems, with specific expertise in solar-powered water pumping systems.
- **Water Pumping Stations Experience:** Prior experience in the design, implementation, and supervision of water pumping stations, particularly in contexts similar to Lebanon.
- **Project Portfolio:** A proven track record of successfully completed projects in the field of renewable energy, water supply systems, or related areas, preferably with experience in humanitarian or development contexts.

Skills:

- **Technical Skills:** Strong technical knowledge in solar system design, energy efficiency, and water pumping technologies. Familiarity with the latest industry standards and technological advancements.
- **Project Management Skills:** Demonstrated ability in managing similar projects, including planning, execution, monitoring, and reporting.
- **Communication Skills:** Excellent communication and interpersonal skills, with the ability to effectively liaise with a diverse range of stakeholders, including community members, government officials, and technical teams.
- **Problem-Solving Skills:** Ability to identify challenges and develop effective solutions in a timely manner.

7. Budget and Payment

Budget Details:

- **Total Budget:** The total budget for the consultancy should be specified in the proposal, covering all aspects of the project from design to supervision and training.

Payment Schedule:

- **Initial Payment:** A percentage of the total fee (…%) upon contract signing.
- **Milestone Payments:**
- **Final Payment:**

8. Application Process

Submission Requirements:

- **Proposal:** A detailed proposal outlining at least (1)the approach to the project, methodology, (2) Priced BoQ, and (3) a preliminary timeline. Refer to Annex 2 for the financial proposal.
- **Curriculum Vitae (CV):** A current CV of employees highlighting relevant experience and qualifications and the organizational organogram.
- **Portfolio:** Examples of previous work or case studies of similar projects.

- **References:** Contact information for at least three professional references with details about similar work performed.
- **Warranty:** The Consultant should present a formal document stating that they will be held fully accountable and responsible for the design suitability for purpose and its technical integrity.
- Certificate of registration at the Ministry of Finance and VAT

The offers must be submitted in one original exemplar on which is mentioned "original", in a sealed envelope on which is written "**RFP - Framework Agreement for Consultancy: Design and Supervision of Solar Systems for communal Water Pumping Stations**".

- The ***Administrative and technical proposals*** should be also provided in a digital example(on a USB Flash drive), included in the original sealed envelope.
- The Financial offer must be in a dedicated and sealed envelope, inside the "original" envelope and labelled "Financial".

Envelope must be brought to:

Solidarités International office, Beirut, Ras El Nabaa, Abdul Moula Chaar Street, Chaar 3848 building.

Deadline for Submission:

- **Submission Deadline:** Applications must be submitted by 29/12/2023 17:00.

6. Annex 1. Detailed Scope of Work

The scope of the consultant firm's services includes:

- Provide the design of Renewable Energy solutions (Solar PV as a preferred choice but not exclusive) to run the water scheme with optimal installation and running costs according to the different possible final configurations of the water scheme infrastructure being constructed.
- Provide a technical and financial assessment of Renewable Energy installations including simulation, testing, and measuring and reporting (assessment report), including the assessment of any potential alternatives with related cost effectiveness evaluation.
- Prepare technical specifications, calculation notes (full design drawings and documents) and tender documents following Solidarites International procurement Procedures.
- Prepare workplan with time frame where all deliverables are mentioned with their delivery dates.
- Assist in the preparation of the Tendering Documents, notably the ToR of the works, BoQ and operational methodologies.
- Supervise completion and acceptance/commissioning of the renewable energy system with all the related structural and civil works.
- Final report including the information on Supervision and Certification of the works completed.
- Support the contractor in Providing one training consisting of two sessions for BWE and NLWE each station operators and the local committee on the operation of the system and its required maintenance.
- Provide follow up on the project performance for 3 months after the completion, follow up includes at least 1 site visits per week and monthly reports submitted by the end of each month.
- Develop an operation monitoring plan of the systems to be used after the implementation, according to Water Establishments requirements.
- Support SI during the opening of tender documents (selection of contractor to implement the work) Checking the items, materials, work methodology and support SI in the technical and financial evaluation for the bidders (upon request from SI)
- Conduct discussions and consultations with the Water Establishment, municipalities, partner organizations, consultant of the pumping station, contractor of the pumping station and other relevant stakeholders and review all existing documents, data, and information relevant to the Project in full coordination with Solidarites International.
- Collect information and mapping out the different components of the water systems
- Assess the condition of the components in the pumping station.

- Define the works that need to be completed to ensure functioning the system properly, considering cost efficiency.
- With the SI Engineer, review the survey of the lands selected and verify that the position of the station and the area of the land is suitable for the implementation of the RE systems.
- Ensure and supervise the compilation of the Operation and Maintenance (O&M) manual and training of the WE technical personnel by the Contractor, as part of the handover process.
- Conduct a risk analysis (financial risk, water quantity and quality risk vs water demand , design risks , construction and completion risks , operation and maintenance risks , market risks, force majeure risks ….etc) and recommend mitigation measures for consideration during the construction phase.
- Ensure the completion of the construction of the RE water pumping and chlorination systems within the timeframe of the project.

The consultant is expected to perform at minimum the following tasks:

A. Assessment to determine the technical and financial feasibility for installation of the Solar panel solutions to generate power by Solar Photovoltaic (SPV) systems

The consultant should Propose the Optimal RE solution specifying the Total Costs Investment, optimal sizing of the RE system Capacity, Energy Production Capacity, Renewable Fraction, Grid usage, Annual Monetary Savings, payback period, considering the bellow listed factors:

- The availability of sunlight (and wind) throughout the year and the area available of the land (that should be assessed through a topographical survey that will be conducted by the consultant) to calculate the power that can be generated and inform the steel structure design exercise.
- The orientation of the land towards the sun, considering the exposure towards the south for the panels.
- The angle facing south for placing the panels that receive the maximum possible sunlight.
- Local regulations pertaining to solar PV.
- Checking if the installed pumps are VFD compatible and propose the needed precautions in the design (once needed).
- The consultant is expected to design the system according to the water needs as defined by the donor and Solidarites International.

B. Prepare technical specifications and tender documents of the Renewable Energy system, including bill of quantities, calculation and drawings (soft and hard copies) notes.

The technical specifications should include description of individual actions and unit's measures (bill of quantities and costs estimates, (specifications should not indicate brands or names).
The technical specifications should include details as follows, but not limited to:

- Solar Photovoltaic Modules or Wind Power Modules
- Specification of the International Electro technical Commission (IEC) qualification test of the PV, requirements for construction, testing and safety.
- Adequate protective devices against surges at the PV module.
- Qualification of the module frames.
- Tolerance rate of output power of any supplied module.
- Variation of the peak-power point voltage and the peak-power point current of any supplied module and/or any module string.
- Junction box for module, such as terminal connection, type, arrangement, lid, cable gland entry points, etc.
- (current-voltage characteristic) curves at STC (Standard Test Conditions).
- Design, drawings, and technical specifications for the steel structures.
- Design, drawings, and technical specifications for the civil works and fence work.
- Design, drawings, and technical specification for all needed electrical works, including lightning protection and earthing.
- Design and technical specifications of anti-theft and an online control and monitoring system.
- Design drawings for the RE system.

C. Supervise completion and acceptance/commissioning of the PV implementation contract.

The consultant is expected to provide technical assistance in the form of site supervision and contract administration during the construction period of the assigned supervision contract; this shall include the following but not limited to:

- Supervise the implementation of the works.
- Prepares the site reports.

- Monitoring construction progress to ensure compliance with the agreed construction schedules and proposing measures to expedite implementation.
- Evaluate on the completion and testing of the project, confirming its compliance with the approved design. In case of any changes of the initial design, justification of the differences and evaluation of consequences in terms of compliance of the project with the eligibility criteria of the Facility. Before issuing the Handing-Over Certificate the Consultants will enforce any obligation placed on the Contractor to remove from that part of the Site to which the Certificate relates all obstructions, surplus materials, plant, wreckage, rubbish, and Temporary works. Upon completion of the whole of the works the Consultant will require the Contractor to remove all plant, equipment, and materials except those required to complete any outstanding or remedial works and facilities required by the Consultants during the Defects Notification Period. The Consultant shall prepare the final inspection and acceptance meeting, thereafter, prepare the Performance Certificate with the approval of NLWE (with guiding and support from SI team) and submit after the expiry date of the Defects Notification Period, to the Water Establishments.
- Assigning a delegate to attend and actively participate in the meetings, where follow up, approvals, and review of contractors' submittals should be undertaken by the consultant's representative.
- Assigning a delegate to attend bilateral meetings with stakeholders, to review, approve and sign off contractor's submittals and other coordination requirements.
- Identifying potential problem areas and obstacles that may affect the works and progress and recommending appropriate actions.
- Reviewing the Contractor's work program for compliance with major planning standards and techniques.
- Tentative schedule as follow : 1-3 field visits before the designing, 12-14 days for designing , 1- 2 visits for the site visits with the contractors ,at least 1 field visit per week to monitor the implementation (Inspection visits for the civil works , Inspection visits for steel works , Inspection visits for electrical works , Inspection for the complete solar system to be compatible with the approved submitted documents and drawings) and final visit for the capacity building and handover of the system , 3 field visits to monitor the functionality of the system after completion the work (monthly visits).
- SI Engineer will support the weekly field visits and inspection in coordination with the consultant.
- Being available and represented on the site during critical times of implementation (milestones), and this should not exclude weekends and holidays (Upon request from SI team).
- Approving the materials supplied by the Contractor, based on the specifications.

- Approving the as-built drawings prepared by the Contractor during construction.
- Approving the operation and maintenance manuals prepared by the Contractor during construction.
- Supervising the commissioning of the works and handover to the Water Establishments.
- Signing off provisional and final taking-over certificates and preparing contract closure
- Preparing Bi-monthly or monthly progress reports to be submitted at the beginning of each subsequent month, in addition to a completion report at the end of the project.
- Any other works deemed necessary.

Annex 2. Financial Proposal

Solidarités International has the right to choose to contract any of the items to the Consultant below at the price provided herein and is not bound to the whole list of items provided below.

Item No.	Description of Service	Unit (e.g., Day, Lump Sum, etc.)	Unit Price (all taxes included) for pump size under 50 KWP (USD)	Unit Price (all taxes included) for pump size 51-100 KWP (USD)	Unit Price (all taxes included) for pump size 101-200 KWP (USD)	Unit Price (all taxes included) for pump size 201-350 KWP (USD)	Unit Price (all taxes included) for pump size above 350 KWP (USD)
1	Initial Site Assessment and Report	Per Site	$ [ ]	$ [ ]			
2	Design of Solar Water Pumping System with necessary documentation	Lump Sum	$ [ ]	$ [ ]			
3	Preparation of Tender Documents	Lump Sum	$ [ ]	$ [ ]			

4	Supervision of Installation	Lump Sum	$ [ ]	-			
5	Training and Capacity Building with necessary materials	Per Session	$ [ ]	-			
6	Environmental Impact Assessment (if requested as standalone activity. Otherwise, a rapid environmental impact assessment should be part of Item No. 2)	Lump Sum	$ [ ]	$ [ ]			
7	Progress Reporting	Per Report	$ [ ]	-			

8	Final Comprehensive Report	Lump Sum	$ [ ]	$ [ ]			
9	Additional Consultancy Services (Specify)	[Specify Unit]	$ [ ]	-			