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Civil Protection and
Humanitarian Aid



Global Solar and
Water Initiative

Terms of Reference

Provision of Consultancy Services to the Global Solar and Water Initiative

Project title	Evaluation of the Sustainability of Solar Powered Water Supply Systems in Kenya
Partner organizations	Global Solar and Water Initiative (IOM, Oxfam, NRC)
Geographical coverage	Kenya
Project duration	May – July 2017

1. Background and purpose of the evaluation

A Global Solar and Water Initiative, with funding from ECHO, has been set up in Kenya. The GSWI is working towards reduction of medium and long term recurrent costs of WASH projects by adoption of renewable energy. The project is aiming at promoting, advocating and mainstreaming the use of solar energy in WASH projects (mainly pumping) for refugee and IDP camps as well as local host communities.

One of the objectives of the Global Solar and Water Initiative is to improve the cost-effectiveness, efficiency, reliability and sustainability of existing and new solar water pumping schemes. In order to do this the team would like to engage the services of a private consultant to carry out an evaluation of existing solar schemes where different designs, approaches and use of energy are being used and document best practices, shortcomings, improvements and recommend models for sustainability of solar water schemes in refugee camps and communities.

2. Objectives of the evaluation

The GSWI's vision is to mainstream the use of solar energy in water projects and aims to improve the cost-effectiveness, efficiency, reliability and sustainability of existing and new solar water pumping schemes. The evaluation is expected to generate lessons and recommendations that could be applied to re-orienting or enhancing the sustainable development of refugee and community water supply schemes in Kenya. It is envisaged that more stakeholders will embrace solar pumping, donors will allocate funds for solar projects and that solar pumping will be entrenched in the strategies and plans of relevant stakeholders (government, donors, NGO's)

The evaluation will look at technical designs and O&M models of existing solar pumping schemes (if any), their effectiveness, efficiency and impact in order to determine whether the solar schemes are sustainable as well as improvements required for sustainability. Where O&M models are non-existent, the consultant will make recommendations of models for sustainability. In brief the evaluation aims to:-

- Determine the impact of solar water pumping in terms of :-
 - effectiveness of solar water pumping - quantity, accessibility, quality, acceptability, affordability
 - relevance
 - efficiency
- Determine the sustainability of solar water pumping in terms of:-
 - Technical design
 - Functionality
 - Local ownership – cost recovery mechanisms

- Establish and recommend models for sustainability
- Identify best practices of solar pumping
- Identify shortcomings and challenges of solar pumping and make recommendations for improvement

3. Scope of the evaluation, approach and methods

The evaluation will look at both technical designs and existing models for cost recovery, serviceability of the equipment availability of spare parts, accessibility of service providers, and reliability of the solar water systems and generally the impact of the systems on the users. The evaluation is expected to generate lessons learnt, findings, conclusions and recommendations with a focus on improving the sustainability of solar water schemes.

The consultant will investigate the following parameters:

- a) Functionality of the solar water schemes, average quantity of water delivered to each user, distance to water points and percentage reduction in the waiting time at water points
- b) The price per barrel of water produced by solar powered systems in comparison to other alternatives e.g. diesel powered systems, hand pumps, water vendors etc.
- c) Determine the acceptability and relevance of the solar system to the community it is serving
- d) Efficiency of the solar system and how it has contributed to the well being, health and livelihoods of the users
- e) Soundness of the technical design and system output in the worst months
- f) Reliability of the solar-powered water supply system in comparison with the system used prior to the installation of the solar system
- g) Percentage downtime and associated maintenance cost of solar powered water supply systems
- h) To what extent the solar powered system has resulted in reduced O&M costs and carbon emissions
- i) Existence of a module cleaning plan and frequency of cleaning and other regular maintenance carried out at community level
- j) Impact of vandalism or theft of solar powered water supply systems and development of prevention measures.
- k) Determine existence of a cost recovery mechanism or any other model for sustainability and whether the system has paid off the investment
- l) Existence of a service plan and accessibility to service providers and spare parts
- m) Challenges and shortcomings that are unique to solar systems and make recommendations for improvement

Additionally, the consultant will propose an O&M toolkit/ document that can be used as training and checklist for community members during future installations of solar pumping schemes.

The field work assessment and consultation will cover the solar powered schemes in at least 40 community solar powered water supply schemes in Kenya. The communities will be chosen taking as criteria the following: combination of stand-alone and hybrid schemes, longevity of the solar system of 3 years or more, location of communities in Turkana, Wajia and either Makueni or another county open to discussion.

4. Schedule and responsibilities

The evaluation is expected to be completed within **12 weeks** from the date of signing to the exit workshop and final report. It is expected to commence in May The consultant will be expected to

sign a contract, by 15th May 2017, which will commit the firm to undertake the actual assessment and provide the agreed upon services on agreed upon dates falling between 15th May and 31st July 2017.

In their offer, the consultant shall be expected to confirm availability within this time frame and respond to the work plan and schedule provided below, indicating whether and how they can adhere to or improve on it. The consultants may propose alternative approaches to collecting information and to carrying out the activities. The proposed number of weeks for each task includes travel to the respective locations.

Task	Time line in weeks	Location	Stakeholders
Desk Review of existing documentation relevant for the defined activities and preparation of a report including information on manufacturers of submersible solar-powered pump	2	Consultant's office	GSWI
Submission of Inception Report defining the methodology to be followed for each key activity, phasing of the activities, and an action plan, for undertaking the assignment.		IOM Office	GSWI
Consultation with GSWI, Government, project partners/ stakeholders, counterparts /community leaders		Field Offices	GSWI, Partners, Govt, Community
Consultation and data collection in the field.	6	Field	Partners, Community
Preparation of draft reports linked to the different activities, and sharing of findings with different stakeholders	2	Nairobi	GSWI
Finalization of the reports	2	Consultant's office	
Presentation and agreement on the findings with GSWI		IOM Office	GSWI

5. Reporting and deliverables

The consultants will present a final report of not more than 25 pages (including a two page executive summary, excluding annexes), within eight (8) weeks, after field work has been finalized. The final report will set out the findings, interpretations and conclusions of the data/information collected and recommendations regarding the steps to be taken in order to make solar systems sustainable. The report shall be in simple English. The report shall be submitted to GSWI electronically and in hard copies. The report shall be in MS word format and data shall be MS Excel sheet. Additionally, a Power Point document will be produced in order to present the evaluation to third parties.

Following is the suggested layout of the final report:

- 1) Cover page - evaluation title, Project title, Geographical coverage, Date that the evaluation report was finalized, Evaluator's name

The following text should appear on the front cover:

"This report is financed by the ECHO and is presented by [consulting firm] for GSWI and ECHO. It does not necessarily reflect the opinion of GSWI or ECHO".

- 2) Table of contents
- 3) Glossary
- 4) List of abbreviations
- 5) Executive summary (max 2 pages) - Summarizes the report in plain English. The Executive Summary should be able to be read and understood independently of the main body of the report. It is often easiest to write after completing the rest of the report.
- 6) Introduction stating objectives of the evaluation (max 2 pages) - The introduction should briefly describe the principal features of the project as at the time of the assessment (including objectives, components, location, and any working hypotheses important dates, timetable)
- 7) Methodology - This chapter assesses the planning and design phases of the assessment from the initial interpretation of the terms of reference to the final financing proposal. It establishes the type of data/information that were collected, how the data/information were collected (what instruments were used), how data/information were analyzed, limitations of the evaluation (for example cautions about the findings and conclusion and how to use the findings and conclusions).
- 8) Data Analysis (Presentation of the findings and their analysis) – An outline of how the data obtained from sampling were analysed, including details of any statistical tests undertaken and their assumptions and limitations.
- 9) Results - A description of the results obtained without any explanation or interpretation of them. Visual aids such as graphs, tables and maps may be used to summarise the results. If raw data is to be included in the report, it should be placed in an appendix rather than in the results section
- 10) Discussion - The results of the evaluation are interpreted and implications of these results in terms of the objectives of the assignment are discussed.
- 11) Conclusions - The section summarises specific conclusions drawn from the results in terms of the study objectives and working hypotheses.
- 12) Recommendations - Recommendations as to immediate, medium and longer term models for sustainable solar water supply.
- 13) References - Lists the literature cited in the report.
- 14) Appendices - Contains detailed information such as data tables, maps, graphs, GPS tagged photographs, list of persons consulted, workshop participation, map showing the locations of all existing systems in the target areas, terms of reference, a list of sampled sites, interviewees, places visited, equipment technical specifications, evaluation instruments such as questionnaires and interview guides

Separately, the consultant will produce a visual O&M toolkit/ document that can be used as training and/ or checklist for community members during future installations of solar pumping schemes.

6. Plan and responsibilities for sharing and using the findings

The findings of this evaluation will form part of the final outputs of the GSWI and will be documented and shared with relevant stakeholders. The GSWI team will put in place avenues of making it accessible to all relevant stakeholders after the end of the project.

7. Administrative issues

- The consulting firm shall arrange all necessary equipment (e.g. computers, cameras, GPS device, measurement equipment etc.) during the assignment for all team members.

- The cost of the consultancy should be inclusive of all the costs and arrangements of the assignment, including logistics, DSA, flight tickets, visa fees, security, and translation/interpretation, training costs etc.
- GSWI will support the contracted firm with logistical arrangement regarding booking of venues, inviting participants for consultative meetings and workshops.
- GSWI will support with the selection of participants to be consulted from amongst the partner organizations and local authorities as appropriate.
- The consulting firm shall be responsible for all office equipment and supplies such as computers, laptops, telephone charges, access to Internet etc. Limited office space can be provided while in the target areas at the Partner field offices. In Nairobi, the consultant shall be responsible for office and other facilities required. In addition, the consultant shall be responsible for ground transport while in Nairobi.
- The consulting firm is responsible for his/her own insurance including that of the members of the team while under contract. Prior to taking up the assignment, the consulting should provide documentary proof that they have the appropriate health and other insurance, for staff involved in execution of the consulting services. The firm shall, upon request, provide GSWI with satisfactory evidence of the assurance required hereunder.
- The consulting firm will be accountable for the mentioned deliverables. The payments will be authorized only based on the deliverables as stipulated in the agreement. The method of payment will be confirmed between GSWI and the firm (e.g. bank transfers to account of the firm).
- In the case of security issues, the consulting firm will be solely responsible for the security, including repatriation of its staff, including covering costs of security measures.
- Changes in the security situation may require delaying assignments or evacuation of consultant's expert(s). If such situations significantly delay the service contract either contract partner can request cancellation or postponement of the contract. In case of premature cancellation of the contract GSWI reserves the right to hold payments for work assignments that have not been carried out.

8. Call for consultancy

The Global Solar and Water Initiative is an ECHO-funded inter-agency (IOM, Oxfam, NRC) project that is working towards reduction of medium and long term recurrent costs of WASH projects by mainstreaming the use of renewable energy in refugee/IDP camps in the region. In order to build a case for solar energy in WASH, the GSWI team intends to carry out evaluations of existing solar schemes in order to build a case for its viability. A key objective of the Global Solar and Water Initiative is to improve the cost-effectiveness, efficiency, reliability and sustainability of existing and new solar water pumping schemes. In order to do this the team would like to engage the services of a private consultant to carry out an evaluation of existing solar schemes where different designs, approaches and use of energy are being used and document best practices, shortcomings, improvements and recommend models for sustainability of solar water schemes in refugee camps and communities.

The terms of reference for the consultancy can be accessed at www.reliefweb.int

The consulting firm shall have the following expertise:

- The consultant should have accredited professional academic credentials and have at least five years of expert experience in solar pumping

- Familiarity with industry trends, product developments, and emerging technologies in the solar industry
- Documents written by the consultant showing comprehensive understanding of the consultant in the field of solar PV
- A specialist in issues of sustainable development, with strong understanding of institutional and policy themes and the building of institutional capacity and sustainable rural water supply management
- Experienced in socio-economics, planning and managing projects, including but not restricted to budget management
- Experience in the evaluation of projects
- Strong and proven facilitation skills to ensure participation in the evaluation process
- Experience in issues of water and sanitation, with a sound understanding of private sector participation and social-economic aspects (in particular human rights aspects) of water and sanitation
- Experience and knowledge of best practices in water, sanitation and hygiene.
- Capacity to involve locals for field work
- Two client references evidencing the consultant's expertise in Solar PV
- Knowledge of and familiarity with Kenya
- Professional experience of the team leader should be at least 8 years with proven experience in similar assignments, with a Master's Degree relevant to sustainable development.

Individual consultants/firms fulfilling the mentioned qualification criteria and agreeing with the terms of reference may submit their application xxxx@xxx.xxx within **fifteen days** after publication of this advertisement.