REQUEST FOR EXPRESSIONS OF INTEREST

Country: Tanzania

Name of the Project: The Second Energy Small and Medium Enterprise Support Project, (referred to as Energy Business for Development Project)

Loan No./Credit No./Grant No.: P154495

Assignment Title: Pico-hydro market study in Tanzania

Reference No. (as per Procurement Plan): CS-08

The Energy 4 Impact, formerly GVEP International, has received financing from the World Bank toward the cost of the Second Energy Small and Medium Enterprise Support Project, (referred to as Energy Business for Development Project) and intends to apply part of the proceeds for consulting services.

The consulting services (“the Services”) include to identify and support local micro-businesses with a view to improving local economic activity. In order to plan and execute the project successfully, it will be important to undertake a feasibility study of the local opportunities in order set appropriate and achievable objectives.

The targeted businesses would likely be in the areas of agriculture given the development of that industry in the area, however in this feasibility report the consultant should use their independent judgement in recommending appropriate business activities to focus on. Where suitable the project should also investigate potential for larger enterprise. The assignment will be conducted in Tanzania during a period of 7 weeks from mid-May 2017.

Energy 4 Impact now invites eligible consulting firms (“Consultants”) to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The shortlisting criteria are: existing knowledge & experience in the market (20%), Interpretation of the TOR (15%), proposed methodology (15%), ability to meet the objectives of the study (30%), budget (10%) and timeline to provide the deliverables (10%).


Consultants may associate with other firms in the form of a joint venture or a sub consultancy to enhance their qualifications.
A Consultant will be selected in accordance with the Consultants Qualification (CQS) method set out in the Consultant Guidelines.

Further information can be obtained at the address below during office hours i.e. 0830 to 1700 hours.

Expressions of interest must be delivered in a written form to the address below or by e-mail to the addresses indicated below by 21st April 2017.

Energy for Impact

Attention: Abishek Bharadwaj

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TERMS OF REFERENCE
FOR CONSULTANCY SERVICE FOR

Pico-hydro power projects study in Tanzania
(Kenya/Tanzania Component)

Country:
Tanzania

Project Names:
The Second Energy Small and Medium Enterprise
Support project
(Referred to as Energy Business for Development Project)
1. **Project Background**

In 2007 the Russian Government pledged $30m to support programmes of energy access in sub-Saharan Africa under the programme Energy Small and Medium Enterprise (ESME). The initiative aims to strengthen the capacity of energy SMEs to provide power to poor communities. The funding is provided through a World Bank administered Trust Fund, and the programme design and implementation is supported by Energy 4 Impact, which is acting as a consultant to the Bank.

Energy 4 Impact is implementing Energy Business for Development (EBD) programme in the second phase of the ESME programme whose specific objectives are to provide access to energy to rural communities as well as to support them in productive uses of energy. The Programme is implemented in 4 countries namely Kenya, Tanzania, Uganda and Senegal and started in September 2015 and will end in August 2017.

The programme is divided into three main components namely:

- a) **Component 1**: Advisory Services and Capacity Building Support for Energy Sector Micro, Small and Medium Enterprises
- b) **Component 2**: Productive use support activities for SMEs in newly electrified villages
- c) **Component 3**: Programme Management

The Component 2 comprise the Projects Development Facilities (PDF) in Kenya and Tanzania. The PDF aims at supporting project developers implementing renewable energy (small hydro, wind and solar power) and mini-grid projects. Energy 4 Impact provides, among others, support in the development and implementation phases of these projects.

Energy 4 Impact, formerly GVEP International, is a non-profit organization working to increase access to affordable and sustainable energy services and reduce poverty in developing countries.

The objective of the assignment is an evaluation of technical feasibility, supply options and constraints and the required interventions in order to inform a sector strategy and accelerate the development of the sector in Tanzania.

2. **Pico-hydro power sector background**

The development of the pico-hydro sector in Tanzania is important for a number of reasons including

- a) There is significant under-exploitation of the micro scale hydro power to address the gap in access to electricity which is currently reported at 18.4%. The Micro-hydro inventory studies funded by the Ministry of Energy and Minerals (MEM) and carried by TANESCO identified a total of 131 micro-hydro sites (including pico-hydro) with a total of 250 MW capacity. Probably a low estimate.
- b) Studies show that 12 out of 21 administrative regions of mainland Tanzania are blessed with micro-hydropower resources but only 3 regions (Mbeya, Iringa, and Kilimanjaro) have managed to develop them

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2 National Environmental Management Council
c) According to a study done by GIZ in 2009, the sector is still in early stage of development and not much attention has been accorded to pico-hydro sites that potentially have a generation potential between 10 to 100 kW. Some of the pico-hydro power projects being considered by the Government of Tanzania are rehabilitation projects.

d) According to UNIDO 2013 Small Hydropower Development Report in Tanzania and based on our experience from working with pico-hydro developers in East Africa, the following are the main barriers that hampers the development of the sector:
- Limited technical skills in hydropower engineering among pico-hydro power developers, turbine manufacturers and installers. Inappropriate designs result in low quality installations, waste of available hydropower potential and funds. Safety standards are often neglected.
- In addition, developers often lack business skills to operate the projects as an enterprise, as well as information on how to seek the necessary licenses to operate the project legally.
- Furthermore, our experience shows that pico-hydro developers lack access to the necessary capital to develop their projects. There are three problems here:
  o The capital investment for these projects is high compared to energy demand and revenues projections
  o Usually the availability of bank finance is rather limited, due to banks’ perceptions of high risks, and, when it is available, is accompanied by large equity and collateral requirements.
  o The financial capacity of most developers is quite small, so they often struggle to come up with sufficient equity/collateral on their own.

3. **Scope of Work**

The consultant will undertake a study to assess the potential commercial market for pico-hydro power plants in Tanzania with a generation capacity of less than 150kW.

The following tasks will be undertaken:

i. **Evaluation of the pico-hydro power development status**

   - Review existing reports, publications, etc
   - Evaluate the pico-hydro development history by, among others, areas, type of technology deployed, ownership models, sources of investment capital, technical, business and financial performance
   - Identify barriers that exist to the development of the sector and the challenges faced by pico-hydro developers
   - Identify the key factors for a successful implementation of a pico-hydro project

ii. **Pico-hydro business opportunities**

   To interview a representative sample of pico-hydro projects developers in different geographical areas of the country. Key parameters to assess:
   - Identify at least 50 pico-hydro sites with high potential (this could include existing sites that need rehabilitation), including information on the owners and their capability and interest to operate the sites,
   - Business case including cost, revenues and expenditure
Challenges with the investment finance, project design and development, operations, maintenance,
- Capacity/willingness to use 3rd party financing to invest in the projects

iii. Other key stakeholder consultation

Consultation with other key stakeholders who have direct or indirect influence over the pico-hydro development. This is critical to understand the business challenges and the market opportunities.

- To visit other project stakeholders including government agencies and local offices
- To visit and conduct interviews with funding agencies such as financial institutions, donor/government supported programmes such as results based financing (RBF), matching grants, performance grants, etc
- To visit and conduct interviews with at least 1 pico-hydro equipment and machinery supplier

4. Responsibilities

**Consultant**
The Consultant will be responsible for organizing the work and delivering the outputs of the assignment. They will work closely with the Energy 4 Impact during different stages, and report on the progress of key activities. The milestones and reporting mechanisms will be determined upon the start of the assignment in coordination with Energy 4 Impact. Prior to the completion of the assignment, the Consultant will hand over the study and data behind it to Energy 4 Impact.

**Energy 4 Impact**
Energy 4 Impact will oversee and monitor overall progress, ensure that deliverables are completed to a high standard, and provide input and guidance on the final report. Energy 4 Impact may also accompany the consultant in a few stakeholder meetings and field visits.

5. Required qualifications

The project is seeking a reputable firm to undertake the market study. The preferred firm will have strong background in hydro power projects, particularly, the pico and micro-hydro power, in Tanzania and have at least 5 years of relevant experience. In addition it should demonstrate expertise in the following areas:

- Pico-hydro projects feasibility assessment and appraisals
- Understanding of pico-hydro technology, regulations, etc
- Rural electricity supply
- Strong skills in conducting market assessment
Strong analytical and drafting skills
Fluency in English and Swahili
Knowledge of Tanzania

The study team should comprise three key experts

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<th>Expert</th>
<th>Qualification</th>
<th>Experience (years)</th>
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<tr>
<td>Pico/Micro-hydro power expert (team leader)</td>
<td>At least bachelor's degree in relevant field, Conversant with rural power generation based on hydro resources, rural electrification projects in the country and the applicable technologies, Stakeholders engagement and consultation, Management of market studies</td>
<td>10 years</td>
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<tr>
<td>Business Development Expert</td>
<td>At least bachelor's degree in relevant discipline, Business development, Conducting market studies, Stakeholders engagement and consultation</td>
<td>5 years</td>
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<td>Finance expert</td>
<td>At least bachelor's degree in relevant discipline, Investment analysis, Business financing</td>
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6. **Expected deliverables**

The primary outcome sought from this assignment is a full study containing recommendations and action plan for an implementation project to enhance the development of pico-hydro projects in Tanzania.

Key dates for the submission of deliverables are as follows:

8 May 2017: Commencement of the project
12 June 2017: Submission of the draft study report
19 June 2017: Submission of the final version of the study report

The summary of the study report is provided below

a) Introduction – Purpose, project background, etc
b) Methodology – Approach, Primary & secondary data collection activities and techniques
c) An inventory of 50 pico-hydro sites (in various stages of development- green field or rehabilitation sites) and identification of project developers from the target communities. Collected data from pico-hydro sites will include: information on the site (such as river name, location, GPS coordinates, site category – green Field vs rehabilitation of existing sites - estimated power in kW, flow m3/s, etc.) and technical data (on intake Dam, canal, Reservoir etc.) as well as estimate costs, indicative demand and purchasing power analysis of the target communities.
d) Ranking of sites in order of suitability based on criteria such as viability of the project, the quality of the project developer, and the developer’s interest/commitment in developing the site and working with development partners.

e) Business, technical and financial need assessment of pico-hydro developers to understand the barriers/challenges faced by each developer that the implementation project will then seek to address.

f) An overview of success factors of established pico-hydro markets and assess typical investment, operation and maintenance costs in Tanzania.

g) Assessment of different supply models (local manufacturing and imports of equipment such as turbines) considering constraints to businesses and their capacity.

h) Recommendations on the key areas of intervention and a suitable management model for a private sector oriented pico-hydro programme in Tanzania, e.g. awareness raising in target communities, provision of credit/subsidies to encourage take up, capacity building of suppliers or output-based incentives.

i) Design of the implementation project that will include action plan and detailed activities plan, procurement process, access to finance needs, identification and engagement with key stakeholders (such as Rural Energy Agency (REA), Ministry of Energy and Minerals (MEM), Ministry of Water, local authorities, target communities etc.)

7. **Duration of the assignment**

The timeframe for the study is estimated at 7 weeks, expected to start 15 May with the duration of key activities as follows:

a) Desk reviews, data collection and meetings – 3 weeks
b) Analysis – 2 week
c) Report writing and finalization – 2 week

It is estimated that this study will take 54 person days.

8. **Submission of the EoI**

Please submit the proposal by 28 April 2017 at the following emails: 
abishek.bharadwaj@energy4impact.org; info.tanzania@energy4impact.org. The subject in your email should include “Pico-hydro market study in Tanzania”.