



Date: 18<sup>th</sup> November 2021

## INDIVIDUAL CONSULTANT PROCUREMENT NOTICE

**TITLE OF CONSULTANT:** Individual Consultant (IC) to Develop A Bankable Project Proposal And Sector Roll-Out (BPSR) Proposal for the Solar Thermal Technology Roadmap (STTR) and Implementation Plan For Botswana

**COUNTRY:** Botswana

**DESCRIPTION OF ASSIGNMENT:** Develop A Bankable Project And Sector Role-Out (BPSR) Proposal Document For The Solar Thermal Technology Roadmap And Implementation Plan For Botswana

**PROJECT NAME:** Promoting the Production and Utilization of Biogas from Agro-Waste in South Eastern Botswana

**PROJECT NUMBER:** 00101976

**SUPERVISION:** Biogas Project Manager

Proposals with reference should be submitted in a sealed envelope clearly labelled, ***“Individual Consultant (IC) to Develop A Bankable Project And Sector Role-Out (BPSR) Proposal Document For The Solar Thermal Technology Roadmap And Implementation Plan For Botswana”*** should be submitted at the following address no later than **14th December 2021 at 12:00pm (Botswana Time)**, to:

*The Resident Representative  
United Nations Development Programme  
P.O. Box 54  
Gaborone*

or by email to: [procurement.bw@undp.org](mailto:procurement.bw@undp.org)

Any request for clarification must be sent in writing, or by standard electronic communication to the address or e-mailed to [enquiries.bw@undp.org](mailto:enquiries.bw@undp.org) UNDP Botswana will respond in writing or by standard electronic mail and will send written copies of the response, including an explanation of the query without identifying the source of the inquiry to all prospective facilitators.

**NOTE:** Consultancy firms/companies interested in applying for this assignment are free to do so provided they submit a CV of only one qualified consultant and present its bid in a

*manner that would allow for evaluation of the bid in accordance with the evaluation criteria specified in these solicitation documents. That is, the experience required is that of the individual whose CV would have been submitted by the company rather than that of the company. Further, if the submitted bid wins, the ensuing contract will be between the UNDP and the company/firm, not the individual.*

## 1.0 BACKGROUND

The Southern African Solar Thermal Training & Demonstration Initiative (SOLTRAIN) is a regional programme that focuses on capacity building and demonstration of solar thermal systems in the Southern African Development Community (SADC) region. The regional programme is implemented in Botswana, Lesotho, Mozambique, Namibia, South Africa and Zimbabwe with funding from the Austrian Development Agency (ADA). The programme, which has been implemented in these countries since 2009 is implemented in phases and currently is in Phase IV. In collaboration with respective relevant Ministries and Regulatory Authorities of Energy, the academia and other stakeholder, the programme has developed for each partner country, the “Solar Thermal Roadmap and Implementation Plan”

Phase IV of SOLTRAIN, which commenced in 2019 and is planned to run until 2022 will focus on five priority areas, namely:

- a) Support to political stakeholders in the implementation of the Solar Thermal Roadmaps and Implementation Plans,
- b) Increasing technical skills
- c) Awareness raising
- d) Strengthening of institutional structures, and
- e) Demonstration of solar thermal technology.

The Clean Energy Research Centre (CERC), University of Botswana developed a Solar Thermal Technology Roadmap and Implementation Plan in 2018, which was adopted by the Department of Energy, Ministry of Mineral Resources, Green Technology and Energy Security. According to the Botswana Roadmap document, deployment of solar thermal technology systems (STTSs) targeted the domestic sector; public sector applications in schools, hospitals, government infrastructure; Botswana Police; Botswana Defence Force; private sector including hotels and resorts; commercial and industrial sector. The roadmap provides for a development path for achieving an STTS target as follows:

- i. Achieve the installation of 910,000 m<sup>2</sup> of solar thermal technology collectors by 2030.
- ii. The target installation will be equivalent to having 0.3 m<sup>2</sup> of net solar thermal collector area for every member of the Botswana population by 2030.
- iii. This relates to an installed capacity of 637MW<sub>th</sub> and annual electricity savings of 659,000 MWh (using the pricing model as at 2018), avoiding 182,000 tons of CO<sub>2</sub> every year.

The Botswana solar thermal technology roadmap is driven and informed by the following applications:

- i. Thermo-syphon system for single family residential houses (High pressure residential\low pressure residential applications) (2-4 m<sup>2</sup> per systems): Residential houses.
- ii. Pumped solar thermal systems (10-20 m<sup>2</sup>): Multi-story residential houses and lodges in the tourism sector.
- iii. Pumped solar water heater (SWH) systems (20 -100 m<sup>2</sup> per systems) for government institutions: (hospitals and educational institutions) and multi-residential building.
- iv. Large pumped thermal systems (50-500 m<sup>2</sup> per system) for Industrial commercial and mining applications of solar thermal technology.
- v. Large Pumped SWH, Cooling and Air-conditioning (20-500 m<sup>2</sup> per system) for larger offices and hotels.

Application of STTS will be in various sectors as shown in Figure 1.

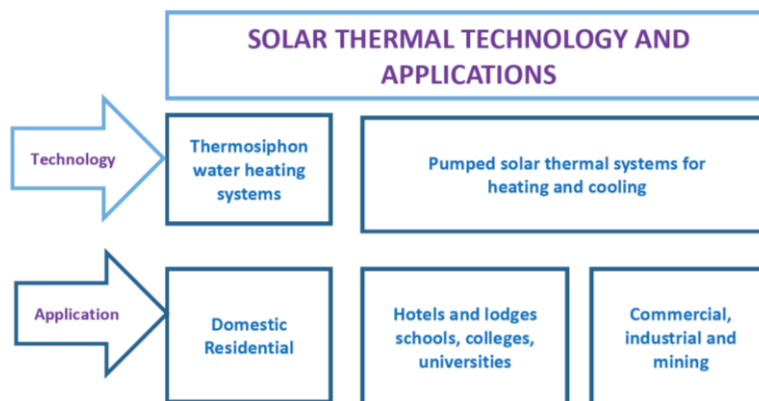


Figure 1: Roadmap Technology and Applications

Table 1 below presents the number of projected systems to be installed from 2018 - 2030. This table can be used as a guide for yearly target from any reference year.

**Table 1:** Targets for annual solar collector installations in Botswana

Year	Targets for annual solar collector installations [m <sup>2</sup> ]
Total estimated installed collector area by 2017	5,000
2018	500
2019	900
2020	1,500
2021	3,000
2022	5,000
2023	8,000
2024	14,000
2025	25,000
2026	44,000
2027	78,000
2028	137,000
2029	240,000
2030	348,000
<b>Total installed collector area by 2030</b>	<b>910,000</b>

Table 2 presents sector by sector targets of number of STTS to be installed from 2018 – 2030. It also indicates the total projected collector area to be installed towards achieving this target.

**Table 2:** Targets for Solar Thermal Systems by sector

Sector	Options of SWH and/or Cooling Technologies	Estimate of systems to be installed [units]	Projected levels of collector areas to be installed to meet target projection [m <sup>2</sup> ]	Projected Solar yields and electricity savings [MWh/year]	Estimated Cost [Mill. EURO]	CO <sub>2</sub> Emissions Avoided [10 <sup>6</sup> *kg]
Residential houses for single family (including replacement)	Thermo-syphon systems 2-4 m <sup>2</sup>	181,000	450,000	360,000	135	90,000
Multi-story Residential houses and Tourism Sector	Pumped Solar thermal -systems 10-20 m <sup>2</sup>	11,000	230,000	115,000	184	46,000
Government Institutions (Educational institutions and Hospitals)	Pumped SWH systems 20-100 m <sup>2</sup>	3,000	140,000	112,000	70	28,000
Industrial Commercial and Mining Sector	Large pumped SWH systems 50-500 m <sup>2</sup>	500	45,000	36,000	27	9,000
Solar Water Heating, Cooling and Air Conditioning for hotels & lodges, and large offices	Large Pumped Solar Water Heating, Cooling and Air-conditioning Systems 50-500 m <sup>2</sup>	500	45,000	36,000	45	9,000
<b>TOTALS</b>		<b>196,000</b>	<b>910,000</b>	<b>659,000</b>	<b>461</b>	<b>182,000</b>

Table 3 summarizes the annual implementation targets to be achieved. These are the figures that need to be transformed to monetary terms for the different financing options.

Table 3: Annual implementation targets

	Residential houses for single family (including replacement)	Multi-story Residential houses and Tourism Sector	Government Institutions (Educational institutions and Hospitals)	Industrial Commercial and Mining Sector	Solar Water Heating, Cooling and Air Conditioning for hotels and lodges, and large offices	Annual Installations	Cumulative
Year	[m <sup>2</sup> ]	[m <sup>2</sup> ]	[m <sup>2</sup> ]	[m <sup>2</sup> ]	[m <sup>2</sup> ]	[m <sup>2</sup> ]	[m <sup>2</sup> ]
<b>Carry over from previous installations</b>							5,000
2018						500	5,500
2019						900	6,400
2020						1,600	8,000
2021	3,000					3,000	11,000
2022	3,000	1,000			1,000	5,000	16,000
2023	5,000	1,000	500	500	1,000	8,000	24,000
2024	8,000	1,000	1,000	1,000	3,000	14,000	38,000
2025	10,000	3,000	3,000	3,000	3,100	25,000	63,000
2026	15,500	6,000	6,000	6,000	6,000	44,000	107,000
2027	40,000	15,000	10,000	6,500	6,500	78,000	185,000
2028	81,200	30,000	12,500	6,650	6,650	137,000	321,100
2029	106,300	67,800	51,400	7,250	7,250	240,000	562,000
2030	178,000	105,200	55,600	14,100	10,500	348,000	910,000
<b>Total</b>	<b>450,000</b>	<b>230,000</b>	<b>140,000</b>	<b>45,000</b>	<b>45,000</b>	<b>910,000</b>	

The UNDP/GEF funded Biogas Project aims to support development of an enabling environment in so far as the increment of use of renewables in Botswana. To that end, a green certification framework is being developed by the project to incentivise industries using energy efficient systems such as solar water heaters in efforts to encourage uptake of renewables. Development of a roll-out plan for solar thermal systems would support implementation of this framework as well as support the increased use of renewables in Botswana. UNDP is therefore seeking the services of an individual consultant to develop a bankable project proposal for realisation of the Botswana roadmap and determination of sector roll-out proposal documents that will support the implementation of the national Solar Thermal Technology Roadmap and Implementation Plan.

## 2.0 OBJECTIVE OF THE ASSIGNMENT

This assignment is aimed at

1. developing a bankable proposal to secure funding from international donor organisations, non-governmental agencies, and local funding institutions.
2. developing a sector roll-out proposal to integrate technology, commercial, and social aspects of the roadmap to the short-, medium- and long-term plans of relevant government ministries, agencies and/or parastatals; and

3. developing a costed action plan for the 2 proposals

All these steps are geared towards achieving the objectives of national Solar Thermal Technology Roadmap and Implementation Plan.

### **3.0 SCOPE OF WORK AND RESPONSIBILITIES**

The consultant's work will consist of the following tasks:

- i. Conduct a desktop review on financing of solar thermal roadmaps or programs from other countries' experiences and undertake a comprehensive analysis, review and assessment of policies on solar water heating from local, regional and international countries;
- ii. Evaluate the impact of the solar thermal proposals in reducing greenhouse gas emissions annually in line with vision 2036;
- iii. Consult key stakeholders such as Ministry of Minerals Resources, Green Technology and Energy Security (MMGE), Ministry of Local Government and Rural Development (MLGRD), Botswana Housing Corporation (BHC), National Development Bank (NDB), Stanbic Bank, First National Bank (FNB), SOLTRAIN, SADC Centre for Renewable Energy and Energy Efficiency (SACREEE), Botswana Power Corporation (BPC), Botswana Energy Regulatory Authority (BERA), among others. Consultations must be carried out with other relevant stakeholders from the private sector, government and consumers;
- iv. Develop a bankable proposal for solar thermal project proposals in Botswana taking into consideration different financing options such as Green Climate Fund (GCF).
- v. Develop a sector roll-out proposal for relevant institutions of government in Botswana.
- vi. Develop a costed action plan with clear, structured and interactive roles for the key stakeholders and institutions including but not limited to financing, policy & regulatory, quality assurance, training and capacity building, supply chains, barriers to uptake identification.
- vii. Develop a monitoring and evaluation framework for the action plan.

The Consultant must ensure that documents are of high quality and accuracy including accuracy of the terminology before submission. Further, the Consultant is to complete the work within the agreed timelines and submit the final documentation in both hard and soft copy to the Biogas Project.

#### 4.0 DELIVERABLES

DELIVERABLE	TIME FRAME
<p><b>Deliverable 1: Inception Report</b> Comprising of a comprehensive assignment workplan, detailed methodology demonstrating Consultant's understanding of the assignment and timelines shown in form of a Gantt chart.</p>	<ul style="list-style-type: none"> <li>• Submission of inception report: 1 week after contract signing.</li> <li>• Presentation of inception report: 1 week after submission of inception report.</li> </ul>
<p><b>Deliverable 2: Interim Report</b> Comprising of items i. to iii. in the scope of works.</p>	<ul style="list-style-type: none"> <li>• Submission of interim report: 2 weeks after approval of inception report.</li> <li>• Presentation of interim report: 1 week after submission of review report</li> </ul>
<p><b>Deliverable 3: Draft Proposal</b> Comprising of items iv. To vii in the scope of works.</p>	<ul style="list-style-type: none"> <li>• Submission of draft proposal 3 weeks after approval of interim report</li> <li>• Presentation of draft proposal 1 week after submission</li> </ul>
<p><b>Deliverable 4: Final Proposal</b> Comprising of all items and comments shared by steering committee</p>	<ul style="list-style-type: none"> <li>• Submission of final proposal 1 week after approval of draft report</li> </ul>

#### NOTE

The consultant is expected to set out in the technical proposal the methodology that will be adopted for each item in the Scope of Works. It is also expected that the methodology will follow global best practices for such work.

#### 5.0 COORDINATION OF THE CONSULTANCY

With the support of DOE, CERC and UNDP, the project steering committee will oversee the work of the consultancy from start to finish. The consultant will be required to submit all submissions to the Project Manager – Biogas Project. The technical work of the consultancy submitted will be shared with the steering committee for review and approval. The consultant will present all submissions of the assignment to the committee. The committee will provide comments and approval on whether to proceed to the next stage on all reports within one (1) week of submission.

#### 6.0 DUTY STATION

Gaborone, Botswana

#### 7.0 QUALIFICATIONS AND EXPERIENCE

- i. A degree in Engineering, Economics, Finance, Social Sciences or equivalent.
- ii. An advanced degree will be an added advantage.
- iii. Knowledge of financing options for Renewable Energy Projects



- iv. Familiarity with Green Climate Fund and other funding institutions' policies and proposals formulation
- v. Professional experience with track record in developing bankable project proposals of similar nature that have reached financial closure.
- vi. At least 5 years' experience in having carried out similar assignments.
- vii. Fluency in oral and written English is required.
- viii. Female candidates are encouraged.

## **8.0 DOCUMENTS TO BE INCLUDED WHEN SUBMITTING THE PROPOSALS**

### **8.1 Technical Proposal**

Provide a brief concise methodology on how they will approach and conduct the proposed assignment.

### **8.2 Financial Proposal**

The financial proposal will specify the daily fee of the individual consultant based on the number of days worked, cost of travel and daily subsistence fees. Each action item must be clearly costed. The financial proposal shall specify a total lump sum amount, and payment terms around specific and measurable (qualitative and quantitative) deliverables. Payments are based upon output, i.e. upon delivery of the services specified in the Terms of Reference (TOR). In order to assist the requesting unit in the comparison of financial proposals, the financial proposal will include a comprehensive breakdown of this lump sum amount (including professional fees, travel, per diems, accommodation, and number of anticipated working days).

### **8.3 Personnel CV**

Detailed personnel CV including past experiences in similar projects. Names and traceable contacts of three (3) referees should be included.

## **9.0 DURATION OF THE WORK**

The consultancy work shall be done in a period to be proposed by Consultant but not exceeding **8 weeks** from the date of contract signing.

## **10.0 TRAVEL**

All envisaged travel costs must be included in the financial proposal. This includes all travel to join duty station/repatriation travel. In general, UNDP should not accept travel costs exceeding those of an economy class ticket. Should the Expert/Individual Consultant wish to travel on a higher class he/she should do so using their own resources. In the case of unforeseeable travel, payment of travel costs including tickets, lodging and terminal expenses should be agreed upon, between the respective business unit and Individual Consultant, prior to travel and will be reimbursed.

Should the consultant be based outside Botswana, most of the work will be done remotely. Most of the communication will be done via email and/or skype. The consultant will only be required to travel to the duty station for field data collection if required.

## 11.0 EVALUATION

Only those candidates who obtained at least **70%** in each of the steps of the technical evaluation process will be considered for financial proposal evaluation.

- **Stage 1:** Preliminary evaluation of the proposals will be based on [yes/no] response as per the table below. If the response is ‘no’ for any of the 3 criteria, the consultant will be disqualified from further evaluation.
- **Stage 2:** Technical capability of the Consultant to deliver the required consultancy outputs evaluated on a scale of 0-100 points wherein the qualifying mark is **70%**. The criteria to be used are shown below:

<b>Criteria</b>	<b>Weight</b>
<b>Technical Evaluation</b>	
<i>Criteria A:</i> Relevant qualifications	YES/NO
<i>Criteria B:</i> Adequate relevant work and/or professional experience	YES/NO
<i>Criteria C:</i> Complete Consultancy package submitted (Technical and Financial Proposal)	YES/NO
<i>Criteria D: Context</i> – Comprehensive, clear understanding and concise renewable energy financing mechanism globally	20
<i>Criteria E: Relevant Professional /Work Experience</i> – Demonstrate extensive relevant work experience in solar thermal systems especially development of financing models	40
<i>Criteria F: Technical Competence/ Methodology/Approach</i> – Clear and detailed methodology of how the assignment will be undertaken. Demonstrable competence on the subject matter and clear responsiveness to the Terms of Reference (TORs)	40

## 12.0 PAYMENT SCHEDULE

Payment shall be made following the schedule as below:

<b>Deliverable 1: Inception Report</b>	0%
<b>Deliverable 2: Interim Report</b>	20%
<b>Deliverable 3: Draft Proposal</b>	50%
<b>Deliverable 4: Final Proposal</b>	30%