



REQUEST FOR QUOTATION (RFQ)

RFQ Reference: Improving Rural Development in Georgia 00101419	Date: 14 July 2021
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SECTION 1: REQUEST FOR QUOTATION (RFQ) for Laboratory Testing of Two Solar Air Heaters

UNDP kindly requests your quotation for laboratory testing of two Solar Air Heaters.

This Request for Quotation comprises the following documents:

Section 1: This request letter

Section 2: RFQ Instructions and Data

Annex 1: Schedule of Requirements

Annex 2: Quotation Submission Form

Annex 3: Technical and Financial Offer

When preparing your quotation, please be guided by the RFQ Instructions and Data. Please note that quotations must be submitted using Annex 2: Quotation Submission Form and Annex 3 Technical and Financial Offer, by the method and by the date and time indicated in Section 2. It is your responsibility to ensure that your quotation is submitted on or before the deadline. Quotations received after the submission deadline, for whatever reason, will not be considered for evaluation.

Thank you and we look forward to receiving your quotations.

Issued by:

Signature: _____

Name: Nodar Kereselidze

Title: Project Manager

Date: 26 July 2021

SECTION 2: RFQ INSTRUCTIONS AND DATA

Introduction	<p>Bidders shall adhere to all the requirements of this RFQ, including any amendments made in writing by UNDP. This RFQ is conducted in accordance with the UNDP Programme and Operations Policies and Procedures (POPP) on Contracts and Procurement</p> <p>Any Bid submitted will be regarded as an offer by the Bidder and does not constitute or imply the acceptance of the Bid by UNDP. UNDP is under no obligation to award a contract to any Bidder as a result of this RFQ.</p> <p>UNDP reserves the right to cancel the procurement process at any stage without any liability of any kind for UNDP, upon notice to the bidders or publication of cancellation notice on UNDP website.</p>
Deadline for the Submission of Quotation	<p>02/08/2021 5:00 pm GMT +4</p> <p>If any doubt exists as to the time zone in which the quotation should be submitted, refer to http://www.timeanddate.com/worldclock/.</p>
Method of Submission	<p>Quotations must be submitted as follows:</p> <p><input checked="" type="checkbox"/> Dedicated Email Address</p> <p>Bid submission address: stephan.schmitt-degenhardt@undp.org; natia.gobejishvili@undp.org</p> <ul style="list-style-type: none"> ▪ File Format: PDF ▪ File names must be maximum 60 characters long and must not contain any letter or special character other than from Latin alphabet/keyboard. ▪ All files must be free of viruses and not corrupted. ▪ Max. File Size per transmission: 10 MB ▪ Mandatory subject of email: laboratory testing of two Solar Air Heaters ▪ Multiple emails must be clearly identified by indicating in the subject line “email no. X of Y”, and the final “email no. Y of Y”. ▪ It is recommended that the entire Quotation be consolidated into as few attachments as possible. ▪ The bidder should receive an email acknowledging email receipt. <p>Quotations that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation.</p>
Cost of preparation of quotation	<p>UNDP shall not be responsible for any costs associated with a Supplier’s preparation and submission of a quotation, regardless of the outcome or the manner of conducting the selection process.</p>
Supplier Code of Conduct, Fraud, Corruption,	<p>All prospective suppliers must read the United Nations Supplier Code of Conduct and acknowledge that it provides the minimum standards expected of suppliers to the UN. The Code of Conduct, which includes principles on labour, human rights, environment and ethical conduct may be found at: https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct</p> <p>Moreover, UNDP strictly enforces a policy of zero tolerance on proscribed practices, including fraud, corruption, collusion, unethical or unprofessional practices, and obstruction of UNDP vendors and requires all bidders/vendors to observe the highest standard of ethics during the procurement process and contract implementation. UNDP’s Anti-Fraud Policy can be found at http://www.undp.org/content/undp/en/home/operations/accountability/audit/office_of_audit_and_investigation.html#anti</p>

Gifts and Hospitality	Bidders/vendors shall not offer gifts or hospitality of any kind to UNDP staff members including recreational trips to sporting or cultural events, theme parks or offers of holidays, transportation, or invitations to extravagant lunches, dinners or similar. In pursuance of this policy, UNDP: (a) Shall reject a bid if it determines that the selected bidder has engaged in any corrupt or fraudulent practices in competing for the contract in question; (b) Shall declare a vendor ineligible, either indefinitely or for a stated period, to be awarded a contract if at any time it determines that the vendor has engaged in any corrupt or fraudulent practices in competing for, or in executing a UNDP contract.
Conflict of Interest	<p>UNDP requires every prospective Supplier to avoid and prevent conflicts of interest, by disclosing to UNDP if you, or any of your affiliates or personnel, were involved in the preparation of the requirements, design, specifications, cost estimates, and other information used in this RFQ. Bidders shall strictly avoid conflicts with other assignments or their own interests, and act without consideration for future work. Bidders found to have a conflict of interest shall be disqualified.</p> <p>Bidders must disclose in their Bid their knowledge of the following: a) If the owners, part-owners, officers, directors, controlling shareholders, of the bidding entity or key personnel who are family members of UNDP staff involved in the procurement functions and/or the Government of the country or any Implementing Partner receiving goods and/or services under this RFQ.</p> <p>The eligibility of Bidders that are wholly or partly owned by the Government shall be subject to UNDP's further evaluation and review of various factors such as being registered, operated and managed as an independent business entity, the extent of Government ownership/share, receipt of subsidies, mandate and access to information in relation to this RFQ, among others. Conditions that may lead to undue advantage against other Bidders may result in the eventual rejection of the Bid.</p>
General Conditions of Contract	<p>Any Purchase Order or contract that will be issued as a result of this RFQ shall be subject to the General Conditions of Contract</p> <p>Select the applicable GTC:</p> <ul style="list-style-type: none"> ✓ General Terms and Conditions for de minimis contracts (services only, less than \$50,000) <p>Applicable Terms and Conditions and other provisions are available at UNDP/How-we-buy</p>
Special Conditions of Contract	<ul style="list-style-type: none"> ✓ Cancellation of PO/Contract if the delivery/completion is delayed by [30 days]
Eligibility	<p>A vendor who will be engaged by UNDP may not be suspended, debarred, or otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization. Vendors are therefore required to disclose to UNDP whether they are subject to any sanction or temporary suspension imposed by these organizations. Failure to do so may result in termination of any contract or PO subsequently issued to the vendor by UNDP.</p> <p>It is the Bidder's responsibility to ensure that its employees, joint venture members, sub-contractors, service providers, suppliers and/or their employees meet the eligibility requirements as established by UNDP.</p> <p>Bidders must have the legal capacity to enter a binding contract with UNDP and to deliver in the country, or through an authorized representative.</p>
Currency of Quotation	Quotations shall be quoted in USD
Joint Venture, Consortium or Association	<p>If the Bidder is a group of legal entities that will form or have formed a Joint Venture (JV), Consortium or Association for the Bid, they shall confirm in their Bid that : (i) they have designated one party to act as a lead entity, duly vested with authority to legally bind the members of the JV, Consortium or Association jointly and severally, which shall be evidenced by a duly notarized Agreement among the legal entities, and submitted with the Bid; and (ii) if they are awarded the contract, the contract shall be entered into, by and between UNDP and the designated lead entity, who shall be acting for and on behalf of all the member entities comprising the joint venture, Consortium or Association.</p> <p>Refer to Clauses 19 – 24 under Solicitation policy for details on the applicable provisions on Joint Ventures, Consortium or Association.</p>

Only one Bid	<p>The Bidder (including the Lead Entity on behalf of the individual members of any Joint Venture, Consortium or Association) shall submit only one Bid, either in its own name or, if a joint venture, Consortium or Association, as the lead entity of such Joint Venture, Consortium or Association.</p> <p>Bids submitted by two (2) or more Bidders shall all be rejected if they are found to have any of the following:</p> <p>a) they have at least one controlling partner, director or shareholder in common; or b) any one of them receive or have received any direct or indirect subsidy from the other/s; or</p> <p>b) they have the same legal representative for purposes of this RFQ; or</p> <p>c) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about, or influence on the Bid of, another Bidder regarding this RFQ process;</p> <p>d) they are subcontractors to each other's Bid, or a subcontractor to one Bid also submits another Bid under its name as lead Bidder; or</p> <p>e) some key personnel proposed to be in the team of one Bidder participates in more than one Bid received for this RFQ process. This condition relating to the personnel, does not apply to subcontractors being included in more than one Bid.</p>
Duties and taxes	<p>Article II, Section 7, of the Convention on the Privileges and Immunities provides, inter alia, that the United Nations, including UNDP as a subsidiary organ of the General Assembly of the United Nations, is exempt from all direct taxes, except charges for public utility services, and is exempt from customs restrictions, duties, and charges of a similar nature in respect of articles imported or exported for its official use. All quotations shall be submitted net of any direct taxes and any other taxes and duties, unless otherwise specified below:</p> <p>All prices must:</p> <p><input checked="" type="checkbox"/> be exclusive of VAT and other applicable indirect taxes</p>
Language of quotation	<p>English</p> <p>Including documentation including catalogues, instructions and operating manuals.</p>
Documents to be submitted	<p>Bidders shall include the following documents in their quotation:</p> <p><input checked="" type="checkbox"/> Annex 2: Quotation Submission Form duly completed and signed</p> <p><input checked="" type="checkbox"/> Annex 3: Technical and Financial Offer duly completed and signed and in accordance with the Schedule of Requirements in Annex 1</p> <p><input checked="" type="checkbox"/> Company Profile</p> <p><input checked="" type="checkbox"/> Registration certificate;</p> <p><input checked="" type="checkbox"/> Statement of satisfactory Performance (Certificates) from the top 2 clients in terms of Contract value in similar field;</p> <p><input checked="" type="checkbox"/> Bank details (Bank Account Requisites for US Dollar, issued on a recipient Bank's blank page)</p> <p><input checked="" type="checkbox"/> At least 2 years of experience in testing of solar energy water and air heaters or similar devices</p>
Quotation validity period	<p>Quotations shall remain valid for 90 days from the deadline for the Submission of Quotation.</p>
Price variation	<p>No price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted at any time during the validity of the quotation after the quotation has been received.</p>
Partial Quotes	<p><input checked="" type="checkbox"/> Not permitted</p>
Alternative Quotes	<p><input checked="" type="checkbox"/> Not permitted</p>
Payment Terms	<p><input checked="" type="checkbox"/> 100% within 30 days after receipt of services and submission of payment documentation.</p>
Conditions for Release of Payment	<p><input checked="" type="checkbox"/> Written Acceptance of Services, based on full compliance with RFQ requirements</p> <p><input checked="" type="checkbox"/> Acceptance of 2 Solar Air Heaters back to Georgia after testing</p>

Contact Person for correspondence, notifications and clarifications	E-mail address: natia.gobejishvili@undp.org ; Attention: Quotations shall not be submitted to this address but to the address for quotation submission above. Otherwise, offer shall be disqualified. Any delay in UNDP's response shall be not used as a reason for extending the deadline for submission, unless UNDP determines that such an extension is necessary and communicates a new deadline to the Proposers.
Clarifications	Requests for clarification from bidders will not be accepted any later than 2 days before the submission deadline. Responses to request for clarification will be communicated via e-mail by 31 July 2021
Evaluation method	<input checked="" type="checkbox"/> The Contract or Purchase Order will be awarded to the lowest price substantially compliant offer
Evaluation criteria	<input checked="" type="checkbox"/> Full compliance with all requirements as specified in Annex 1 <input checked="" type="checkbox"/> Full acceptance of the General Conditions of Contract
Right not to accept any quotation	UNDP is not bound to accept any quotation, nor award a contract or Purchase Order
Right to vary requirement at time of award	<input checked="" type="checkbox"/> The Contract or Purchase Order will be awarded to the lowest price substantially compliant offer. At the time of award of Contract or Purchase Order, UNDP reserves the right to vary (increase or decrease) the quantity of services and/or goods, by up to a maximum twenty-five per cent (25%) of the total offer, without any change in the unit price or other terms and conditions.
Type of Contract to be awarded	Contract Face Sheet (Goods and-or Services)
Expected date for contract award.	16 August 2021
Publication of Contract Award	UNDP will publish the contract awards valued at USD 100,000 and more on the websites of the CO and the corporate UNDP Web site.
Policies and procedures	This RFQ is conducted in accordance with UNDP Programme and Operations Policies and Procedures
UNGM registration	Any Contract resulting from this RFQ exercise will be subject to the supplier being registered at the appropriate level on the United Nations Global Marketplace (UNGM) website at www.ungm.org . The Bidder may still submit a quotation even if not registered with the UNGM, however, if the Bidder is selected for Contract award, the Bidder must register on the UNGM prior to contract signature.

ANNEX 1: SCHEDULE OF REQUIREMENTS

Terms of Reference

Within the framework of the third phase of ENPARD (ENPARD III), UNDP Georgia is implementing the project “Improving Rural Development in Georgia” (IRDG). The project contributes to improved governance in rural development, rural economic diversification and environment protection.

One of the objectives of the IRDG project is to improve energy efficiency (EE) and enhance the application of renewable energies (RE) in rural households and business. To achieve this objective, direct financial support and incentives will be provided to local households and businesses to undertake energy efficiency improvements and increase the use of renewable energy sources.

Georgian Technical University (GTU) has already identified EE/RE technology packages which will be offered to households. Based on GTU recommendations 4 EE/RE technologies were chosen as suitable by IRDG project. Those selected technologies are: Insulation, Industrial Solar Water Heater and Simple Solar Water and Solar Air Heaters.

Based on the original designs developed and approved by GTU and due to the fact that Simple Solar Air Heaters are not available on local market, IRDG project hired a civil engineer who further elaborated suitable drawings for the prototypes.

The test of Two Solar Air Heaters need to be conducted by a reputable and knowledgeable laboratory.

UNDP wishes to obtain quotations from qualified contractors with experience on Laboratory Testing of Solar Air Heaters or similar devices.

Upon signing of the contract, the prototypes will be posted to the contractor by UNDP Georgia. After the test, the contractor shall deliver the prototypes at own cost on the following address: 3 Arakishvili street, first dead end, Tbilisi, Georgia.

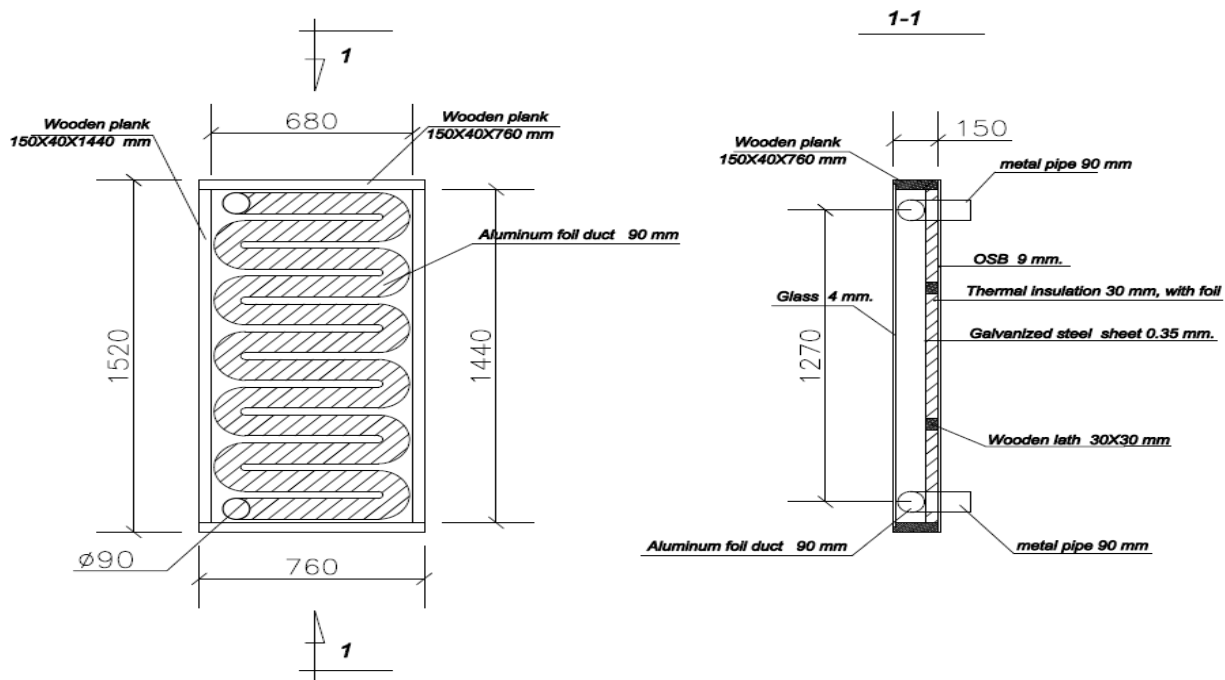
The following tasks are to be performed:

- 1) Laboratory testing of 2 Solar Air Heaters The Laboratory tests should cover at least, but not be limited to, the following key parameters: **visual inspection, thermal performance testing, exposure test, rain penetration, freeze resistance, internal pressure test, rupture or collapse test (proposal: only for internal hoses), final inspection.**
- 2) Check and document the technical capacities of each prototype. Include especially data related to each prototype’s efficiency, using as much as possible conditions that resemble those in rural areas of Georgia (climate zone II and III – see attachment #4).

The technical Details of Solar Air Heaters:

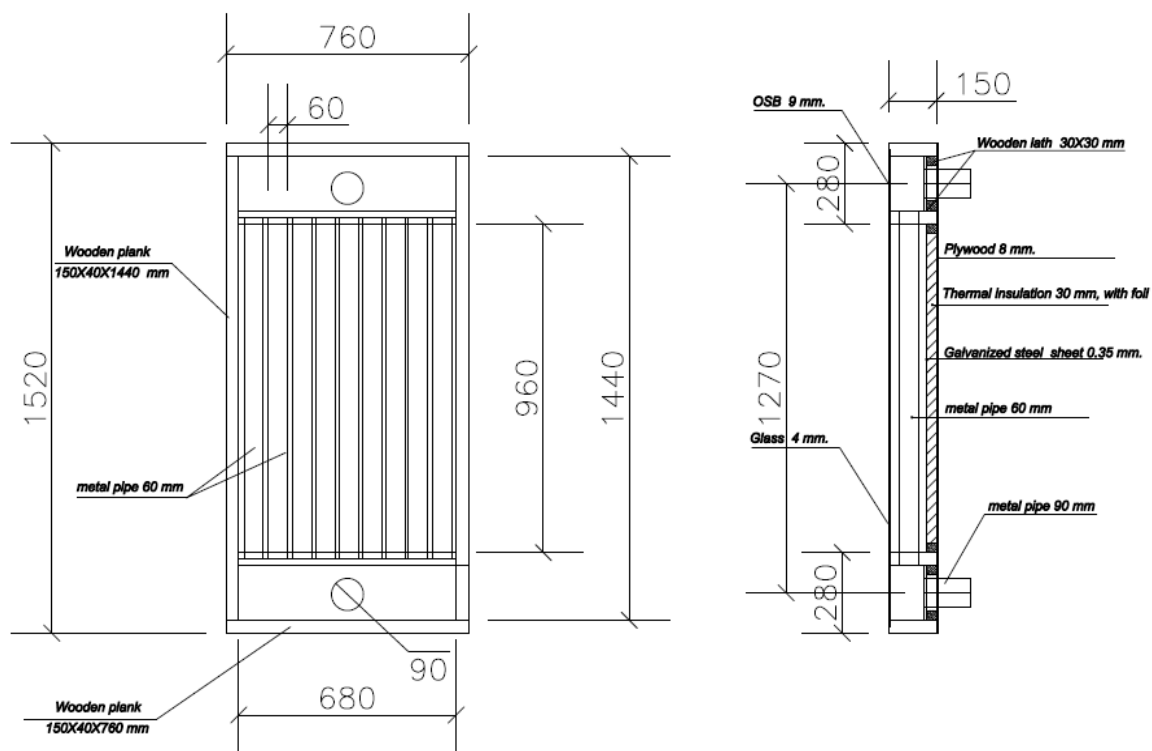
1. SAH with Aluminium foil duct pipe 90 mm, absorber area 1.15 m²

Solar air heater with aluminum foil duct



2. SAH with metal pipe 80 mm, absorber area 1.15 m²

Solar air heater with metal pipe, absorber 1.15 m²



Duration of work

The work should be finalized within 2 months period after signing the contract. The implementation period of the activities is 16 of August– 15 October 2021.

Deliverables

The contractor will report to IRDG's Environmental Co-ordinator under the direct supervision of the Project Manager and the Project Technical Leader of the "Improving Rural Development in Georgia" project and in consultation with the UNDP Economic Development Team Leader.

The contractor shall submit the following deliverables:

Due by	DELIVERABLE	% of lump sum
15.10.2021	Report/data sheet for each prototype covering test criteria, results of testing, technical capacities, shortcomings and recommendations for improvement (if applicable). Recommendation of the better suitable prototype for use in rural areas of Georgia. Official attesting of the results. Tested 2 prototypes delivered Back to Tbilisi	100 %

Delivery Requirements

ITB seqcia 29 INCOTERM SIP – savaraudod es iqneba

Delivery Requirements	
Delivery date and time	Bidder shall deliver the goods 2 months after Contract signature.
Delivery Terms (INCOTERMS 2020)	CIP
Customs clearance (must be linked to INCOTERM)	<input type="checkbox"/> Not applicable Shall be done by: <input type="checkbox"/> Name of organisation (where applicable) <input checked="" type="checkbox"/> Supplier/bidder <input type="checkbox"/> Freight Forwarder
Exact Address(es) of Delivery Location(s)	3 Arakishvili street, first dead end, Tbilisi, Georgia.
Distribution of shipping documents (if using freight forwarder)	N/A
Packing Requirements	Wrap all items separately
Training on Operations and Maintenance	N/A
Warranty Period	N/A

After-sales service and local service support requirements	N/A
Preferred Mode of Transport	Land

ANNEX 2: QUOTATION SUBMISSION FORM

Bidders are requested to complete this form, including the Company Profile and Bidder's Declaration, sign it and return it as part of their quotation along with Annex 3: Technical and Financial Offer. The Bidder shall fill in this form in accordance with the instructions indicated. No alterations to its format shall be permitted and no substitutions shall be accepted.

Name of Bidder:	Click or tap here to enter text.	
RFQ reference:	Click or tap here to enter text.	Date: Click or tap to enter a date.

Company Profile

Item Description	Detail
Legal name of bidder or Lead entity for JVs	Click or tap here to enter text.
Legal Address, City, Country	Click or tap here to enter text.
Website	Click or tap here to enter text.
Year of Registration	Click or tap here to enter text.
Legal structure	Choose an item.
Are you a UNGM registered vendor?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, insert UNGM Vendor Number
Quality Assurance Certification (e.g. ISO 9000 or Equivalent) (If yes, provide a Copy of the valid Certificate):	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does your Company hold any accreditation such as ISO 14001 or ISO 14064 or equivalent related to the environment? (If yes, provide a Copy of the valid Certificate):	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does your Company have a written Statement of its Environmental Policy? (If yes, provide a Copy)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does your organization demonstrate significant commitment to sustainability through some other means, for example internal company policy documents on women empowerment, renewable energies or membership of trade institutions promoting such issues (If yes, provide a Copy)	<input type="checkbox"/> Yes <input type="checkbox"/> No

Is your company a member of the UN Global Compact	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Bank Information	Bank Name: Click or tap here to enter text. Bank Address: Click or tap here to enter text. IBAN: Click or tap here to enter text. SWIFT/BIC: Click or tap here to enter text. Account Currency: Click or tap here to enter text. Bank Account Number: Click or tap here to enter text.			
Previous relevant experience: 3 contracts				
Name of previous contracts	Client & Reference Contact Details including e-mail	Contract Value	Period of activity	Types of activities undertaken

Bidder's Declaration

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Requirements and Terms and Conditions: I/We have read and fully understand the RFQ, including the RFQ Information and Data, Schedule of Requirements, the General Conditions of Contract, and any Special Conditions of Contract. I/we confirm that the Bidder agrees to be bound by them.
<input type="checkbox"/>	<input type="checkbox"/>	I/We confirm that the Bidder has the necessary capacity, capability, and necessary licenses to fully meet or exceed the Requirements and will be available to deliver throughout the relevant Contract period.
<input type="checkbox"/>	<input type="checkbox"/>	Ethics: In submitting this Quote I/we warrant that the bidder: has not entered into any improper, illegal, collusive or anti-competitive arrangements with any Competitor; has not directly or indirectly approached any representative of the Buyer (other than the Point of Contact) to lobby or solicit information in relation to the RFQ ;has not attempted to influence, or provide any form of personal inducement, reward or benefit to any representative of the Buyer.
<input type="checkbox"/>	<input type="checkbox"/>	I/We confirm to undertake not to engage in proscribed practices, , or any other unethical practice, with the UN or any other party, and to conduct business in a manner that averts any financial, operational, reputational or other undue risk to the UN and we have read the United Nations Supplier Code of Conduct : https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct and acknowledge that it provides the minimum standards expected of suppliers to the UN.
<input type="checkbox"/>	<input type="checkbox"/>	Conflict of interest: I/We warrant that the bidder has no actual, potential, or perceived Conflict of Interest in submitting this Quote or entering a Contract to deliver the Requirements. Where a Conflict of Interest arises during the RFQ process the bidder will report it immediately to the Procuring Organisation's Point of Contact.
<input type="checkbox"/>	<input type="checkbox"/>	Prohibitions, Sanctions: I/We hereby declare that our firm, its affiliates or subsidiaries or employees, including any JV/Consortium members or subcontractors or suppliers for any part of the contract is not under procurement prohibition by the United Nations, including but not limited to prohibitions derived from the Compendium of United Nations Security Council Sanctions Lists and have not been suspended, debarred, sanctioned or otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization.
<input type="checkbox"/>	<input type="checkbox"/>	Bankruptcy: I/We have not declared bankruptcy, are not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against them that could impair their operations in the foreseeable future.

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Offer Validity Period: I/We confirm that this Quote, including the price, remains open for acceptance for the Offer Validity.
<input type="checkbox"/>	<input type="checkbox"/>	I/We understand and recognize that you are not bound to accept any Quotation you receive, and we certify that the goods offered in our Quotation are new and unused.
<input type="checkbox"/>	<input type="checkbox"/>	By signing this declaration, the signatory below represents, warrants and agrees that he/she has been authorised by the Organization/s to make this declaration on its/their behalf.

Signature: _____

Name: Click or tap here to enter text.

Title: Click or tap here to enter text.

Date: Click or tap to enter a date.

ANNEX 3: TECHNICAL AND FINANCIAL OFFER - SERVICES

Bidders are requested to complete this form, sign it and return it as part of their quotation along with Annex 2 Quotation Submission Form. The Bidder shall fill in this form in accordance with the instructions indicated. No alterations to its format shall be permitted and no substitutions shall be accepted.

Name of Bidder:	Click or tap here to enter text.	
RFQ reference:	Click or tap here to enter text.	Date: Click or tap to enter a date.

Technical Offer

Provide the following:

- a brief description of your qualification, capacity and expertise that is relevant to the Terms of Reference.
- a brief methodology, approach and implementation plan;

Financial Offer

Provide a lump sum for the provision of the services stated in the Terms of Reference your technical offer. The lump sum should include all costs of preparing and delivering the Services. All daily rates shall be based on an eight-hour working day.

Currency of Quotation: USD

Ref	Description of Deliverables	Price
1.	Report/data sheet for each prototype covering test criteria, results of testing, technical capacities, shortcomings and recommendations for improvement (if applicable).	
2.	Recommendation of the better suitable prototype for use in rural areas of Georgia. Official attesting of the results.	
3.	Tested 2 prototypes delivered Back to Tbilisi	
4.		
5.		
Total Price		

Breakdown of Fees

Personnel / other elements	UOM	Qty	Unit Price	Total Price
Personnel				
e.g. Project Manager/Team Leader	day			

Other expenses				
Total				

Compliance with Requirements

	You Responses		
	Yes, we will comply	No, we cannot comply	If you cannot comply, pls. indicate counter - offer
Delivery Lead Time	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Validity of Quotation	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Payment terms	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Other requirements [pls. specify]	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.

I, the undersigned, certify that I am duly authorized to sign this quotation and bind the company below in event that the quotation is accepted.	
<i>Exact name and address of company</i> Company Name Click or tap here to enter text. Address: Click or tap here to enter text. Click or tap here to enter text. Phone No.: Click or tap here to enter text. Email Address: Click or tap here to enter text.	Authorized Signature: Date: Click or tap here to enter text. Name: Click or tap here to enter text. Functional Title of Authorised Signatory: Click or tap here to enter text. Email Address: Click or tap here to enter text.

Annex 4

Description of the climatic conditions in the target municipalities

Akhalkalaki, Climate Zone 3

Latitude 41°25', longitude 43°29'; Elevation above sea level 1717 m; Climatic I b subregion; Average total solar radiation on the horizontal surface at 4.48 kWh / day / m²; Average total solar radiation on the vertical surface at 3.49 kWh / day / m²; According to European standard of heating: baseline heating temperature of 18 °C; threshold temperature 15,5 °C; HDD 15.5 = 4570 degrees / day; Duration of heating season 334 days; Calculated heating temperature -16 °C, average temperature of the heating season -1.2 °C. Absolute minimum air temperature -38 °C; Absolute maximum air temperature +37 °C; Average annual air temperature +4.9 °C; Highest wind speed of to 10 year period 26 m / s; Annual air relative average humidity 73%; Snow cover weight 60 kg/m²; Annual rainfall amount 542 mm.

Will be used U value for zone 3. Normalized energy specific losses during heating season (kWh / m²): 36.6 from walls; 222.6 from windows; 24.5 from the roof; 27.7 from the overlap and 171.2 from the vertical window.

Borjomi, Climate Zone 2

Latitude 41°25', longitude 43°29'; Elevation above sea level 789 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 4.03 kWh / day / m²; Average total solar radiation on the vertical surface at 2,98 kWh / day / m²; According to European standard of heating: baseline heating temperature of 18 °C; threshold temperature 15,5 °C; HDD 15.5 = 3230 degrees / day; Duration of heating season 243 days; Calculated heating temperature -11 °C, average temperature of the heating season 1.1 °C. Absolute minimum air temperature -28 °C; Absolute maximum air temperature +37 °C; Average annual air temperature +9,1 °C; Highest wind speed of to 10 year period 19 m / s; Annual air relative average humidity 77%; Snow cover weight 50 kg/m²; Annual rainfall amount 653 mm

Will be used U value for zone 3. Normalized energy specific losses during heating season (kWh / m²): 36.6 from walls; 197,6 from windows; 20.3 from the roof; 23,1 from the overlap and 166,8 from the vertical window.

Dedoplistskaro, Climate Zone 2

Latitude 41°50', longitude 43°24'; Elevation above sea level 800 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 4.08 kWh / day / m²; Average total solar radiation on the vertical surface at 3,03 kWh / day / m²; According to European standard of heating: baseline heating temperature of 18 °C; threshold temperature 15,5 °C; HDD 15.5 = 3230 degrees / day; Duration of heating season 243 days; Calculated heating temperature -11 °C, average temperature of the heating season 1.1 °C. Absolute minimum air temperature -26 °C; Absolute maximum air temperature +35 °C; Average annual air temperature +10,1 °C; Highest wind speed of to 10 year period 30 m / s; Annual air relative average humidity 76%; Snow cover weight 50 kg/m²; Annual rainfall amount 648 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m²): 36.6 from walls; 197,6 from windows; 20.3 from the roof; 23,1 from the overlap and 166,8 from the vertical window.

Kazbegi, Climate Zone 3

Latitude 42°40', longitude 44°39'; Elevation above sea level 1747 m; Climatic I g subregion; Average total solar radiation on the horizontal surface at 4.65 kWh / day / m²; Average total solar radiation on the vertical surface at 3,78 kWh / day / m²; According to European standard of heating: baseline heating temperature of 18 °C; threshold temperature 15,5 °C; HDD 15.5 = 4777 degrees / day; Duration of heating season 365 days; Calculated heating temperature -14 °C, average temperature of the heating season - 0,2 °C. Absolute minimum air temperature -34 °C; Absolute maximum air temperature +32 °C; Average annual air temperature +4.9 °C; Highest wind speed of to 10 year period 21 m / s; Annual air relativity average humidity 68%; Snow cover weight 84 kg/m²; Annual rainfall amount 786 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m²): 37,3 from walls; 225,6 from windows; 25,0 from the roof; 28,3 from the overlap and 171,4 from the vertical window.

Keda, Climate Zone 3

Latitude 41°36', longitude 44°57'; Elevation above sea level 257 m; Climatic III b subregion; Average total solar radiation on the horizontal surface at 3,87 kWh / day / m²; Average total solar radiation on the vertical surface at 2,67 kWh / day / m²; According to European standard of heating: baseline heating temperature of 18 °C; threshold temperature 15,5 °C; HDD 15.5 = 2117 degrees / day; Duration of heating season 212 days; Calculated heating temperature -5 °C, average temperature of the heating season 4,6 °C. Absolute minimum air temperature -15 °C; Absolute maximum air temperature +42 °C; Average annual air temperature +12.7 °C; Highest wind speed of to 10 year period 22 m / s; Annual air relativity average humidity 77%; Snow cover weight 130 kg/m²; Annual rainfall amount 1652 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m²): 23,7 from walls; 164,5 from windows; 15,6 from the roof; 17,8 from the overlap and 154.1 from the vertical window.

Khulo, Climate Zone 3

Latitude 41°39', longitude 44°19'; Elevation above sea level 914 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 4,11 kWh / day / m²; Average total solar radiation on the vertical surface at 3,06 kWh / day / m²; According to European standard of heating: baseline heating temperature of 18 °C; threshold temperature 15,5 °C; HDD 15.5 = 2676 degrees / day; Duration of heating season 243 days; Calculated heating temperature -5 °C, average temperature of the heating

season 3,3 °C. Absolute minimum air temperature -18 °C; Absolute maximum air temperature +39 °C; Average annual air temperature +10.4 °C; Highest wind speed of to 10 year period 19 m / s; Annual air relativity average humidity 70%; Snow cover weight 169 kg/m²; Annual rainfall amount 1228 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m²): 27,5 from walls; 183,1 from windows; 18,2 from the roof; 20,7 from the overlap and 162,1 from the vertical window.

Lagodekhi, Climate Zone 2

Latitude 41°49', longitude 46°18'; Elevation above sea level 435 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 3,91 kWh / day / m²; Average total solar radiation on the vertical surface at 2,86 kWh / day / m²; According to European standard of heating: baseline heating temperature of 18 °C; threshold temperature 15,5 °C; HDD 15.5 = 2421 degrees / day; Duration of heating season 212 days; Calculated heating temperature -8 °C, average temperature of the heating season 3,3 °C. Absolute minimum air temperature -23 °C; Absolute maximum air temperature +38 °C; Average annual air temperature +12.6 °C; Highest wind speed of to 10 year period 24 m / s; Annual air relativity average humidity 72%; Snow cover weight 50 kg/m²; Annual rainfall amount 1076 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m²): 25,9 from walls; 175,2 from windows; 17 from the roof; 19,4 from the overlap and 159 from the vertical window.

Tetritskaro, Climate Zone 2

Latitude 41°33', longitude 44°28'; Elevation above sea level 1143 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 4,2 kWh / day / m²; Average total solar radiation on the vertical surface at 3,1 kWh / day / m²; According to European standard of heating: baseline heating temperature of 18 °C; threshold temperature 15,5 °C; HDD 15.5 = 3434 degrees / day; Duration of heating season 212 days; Calculated heating temperature -11 °C, average temperature of the heating season 1,7 °C. Absolute minimum air temperature -26 °C; Absolute maximum air temperature +34 °C; Average annual air temperature +8.6 °C; Highest wind speed of to 10 year period 31 m / s; Annual air relativity average humidity 71%; Snow cover weight 50 kg/m²; Annual rainfall amount 742 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m²): 31,7 from walls; 202,2 from windows; 21 from the roof; 23,9 from the overlap and 168 from the vertical window.