

Annex 1

Terms of Reference (TOR)

Developing a strategy for the certification of energy-efficient stoves and their support

1. Brief information on the project

Climate change impacts and the demand for fuelwood from rural population put significant pressure on Georgia's forests: up to 90% of rural households (1.43 million people) rely on fuelwood for their energy needs. The problem is exacerbated by the fact that households use obsolete technologies, such as traditional stoves with a lifetime of two years and an efficiency of 35% or less. Fuelwood demand exceeds sustainable harvesting levels, considering reduced productivity of many forests in the country because of extensive forest degradation. This forest degradation leads to a loss of carbon absorption capacity which is projected to decrease by five times between 1990 and 2030.

In order to address this negative development, the project "Enabling the Implementation of Georgia's Forest Sector Reform - ECO.Georgia" supports the Government of Georgia to implement its transformational forest sector reform agenda to put the entire nation's forests under the framework for sustainable forest management (SFM). It will do so by supporting the establishment of a nation-wide SFM system (Component 1) and in parallel promoting market development for energy efficient appliances and alternative fuels (Component 2) to address the main driver of forest degradation. The project will safeguard the reform implementation by diversifying livelihood opportunities and strengthening local self-governance in forest adjoining rural communities (Component 3).

The project is funded by the Green Climate Fund (GCF), the German Federal Ministry for Economic Cooperation and Development (BMZ), and the Swiss Development Cooperation (SDC) with GIZ being the project's accredited entity. The German contribution is part of the wider German support in the priority area "Environmental policy, conservation and sustainable use of natural resources in the South Caucasus", which aims at the sustainable use of natural resources, biodiversity conservation and climate protection, particularly for the benefit of the rural population. Similarly, both the share of renewables in the energy composition as well as the energy efficiency levels will increase.

Especially rural households using firewood as their source of heating energy will benefit from improved air quality and reduced fuelwood demand through eased access to energy efficient stoves. Forest-related small and medium-sized enterprises and their employees will receive support to improve economic efficiency and environmental sustainability of their business activities. Additionally, staff members of relevant public institutions (National Forestry Agency NFA, Department of Environmental Supervision DES, Environmental Information and Education Center EIEC, Rural Development Agency RDA, municipalities) will receive direct support through human capacity development measures and grant finance.

ECO.Georgia primarily contributes to achieving the SDG 15 (Protect, restore and promote sustainable use of terrestrial ecosystems) of the 2030 Agenda of the UN, but also to achieving SDG 7 (Ensure access to affordable, reliable, sustainable and modern energy for all), SDG 13 (Take urgent action to combat climate change and its impacts), SDG 1 (End poverty in all its forms everywhere), and SDG 5 (Achieve gender equality and empower all women and girls).

The duration of ECO.Georgia is from April 2021 until June 2028.

2. Description of the Assignment

2.1. Context

Under Component 2 – Market development for energy efficiency (EE) and alternative fuels (AF), the Rural Development Agency (RDA) in its role to promote rural development will serve as a driving force to provide the financial investment necessary to kick-start the local market for sustainable fuelwood supply but also to open up access to alternatives to fuelwood.

A challenge of the market development for EE and AF is that wood-burning stoves and upgraded solid biofuels (USB) currently available on the Georgian market are not subject to any mandatory standards. They are often of low quality, and their energy/environmental/health performance characteristics cannot be verified by consumers. This is particularly the case for domestically produced heat stoves. Additionally, there are quality control issues, which include the high cost and logistical challenges of accessing product (stoves) certification services, which are not available in Georgia.

Sub-activity A 2.1.1 of the project foresees for RDA to set-up a Technical Assistance and Investment Support Facility (TAISF) which intends to support EE-AF producers with the financial means to invest and broaden their production in terms of quantity and quality. Specifically, the availability of **“certified EE-AF products on the market in line with applicable international energy efficiency and environmental standards”**¹ should be ensured; and the **“certification of locally produced solid fuel-based space heaters and USB for compliance with EE and environmental standards set-forth by the EU Eco-design Directive”**² should be supported.

Under sub-activity A 2.2.1, RDA will provide financial support to households in order to facilitate the purchase of energy efficient stoves by firewood consumers. A result-based financial incentive instrument in the form of a subsidy/co-financing (so-called “voucher program”) for the purchase of EE **stove “from certified suppliers”**³ for up to 30% of the market price (but not more than GEL300) will be elaborated. –**“Only certified products (meeting the energy saving and safety standards) will be eligible for participation in the GCF-supported financial incentive scheme”**.⁴

To start implementation of the sub-activities described above, the following problems/barriers need to be addressed:

1. Certification/Verification/Conformity check

There is no accredited entity that can issue certificates on conformity of the product or producer or process with the requirements of the applicable standards (i.e., EU Eco-design Directive).

2. Non- or unclear existence of stoves produced in Georgia that meets EU/international requirements

The Georgian National Agency for Standards and Metrology has registered EN 13240 standard “Room heaters fired by solid fuel - Requirements and test methods”. However, the

¹ Funding proposal v8 (par.90, p28)

² Funding proposal v8 (par.95, p29)

³ Funding proposal v8 (par.103, p30)

⁴ Funding proposal v8 (par.95, p29) and Project proposal, RDA (note12, p16)

production of EN and Eco-design compliant stoves in Georgia might not be able to compete with imported already EU-certified products in terms of price.

Although several manufacturers have attempted to manufacture high efficiency stoves, both manufacturers and consumers did not have adequate information on the basic parameters of firewood and household stoves (firewood moisture, wood stove energy efficiency and heat capacity). Consumers do not know what characteristics to look for when choosing and buying a stove, especially since stoves are manufactured in small workshops with limited technical capabilities, and most manufacturers themselves do not know how to improve the efficiency of stoves they produce. Moreover, to date there has been no laboratory for testing the efficiency of wood stoves in Georgia, nor an accredited group of experts, a scientific program or a national methodology for thermal calculation, and no testing has been conducted to confirm the effectiveness of stoves.

In 2020, considering the need for large-scale introduction of energy efficient household stoves in Georgia, in the frame of a local subsidy contract of the GIZ/ECOserve project with Georgian Technical University (GTU), the "Scientific-Engineering Center for High-Temperature Thermophysical Processes" located at the Department of Thermal Energy and Energy Efficiency of the Faculty of Energy and Telecommunications, elaborated a methodology of testing the thermal procedures of wood stoves based on the international and European standards ISO / DIS 13336⁵ and CEN / prEN 13240. A calorimetric chamber/stand was constructed for measuring main/basic parameters – energy efficiency and thermal capacity.

Despite a country-wide call, only seven stoves made by four manufacturers were presented for testing. In addition to energy efficiency, several criteria were used to evaluate the stoves (their heating capacity, baking capacity, fire chamber dimensions, their production development and safe operation capabilities as well as price). Results are summarized in GTU's reports to GIZ (Methodology⁶ and Testing results⁷). Three of the stoves were qualified to be piloted 41 households (HHs) in Akhmeta municipality and were monitored during the heating season. Monitoring data were calculated, and results summarized⁸.

According to the Grant Agreement with RDA, ***“the setup of the official certification system according to int./nat. standards will take time to establish. Until the official system is in place, GIZ and other relevant partners will develop an interim solution system to ensure that only stoves matching the requirements are supported via the support scheme”***⁹; and:

“In the absence of national regulations on EE product certification, organizations which are accredited against international standards and EU Directive can carry out such certification”¹⁰

The role of the RDA is to support EE stove producers to comply with the respective product standards and to support them in gaining the respective certification once the standard and certification system is in place. The RDA will ensure that these requirements are set as a contractual obligation for the beneficiaries.

GIZ and respective partner institutions (MoESD) will develop standards and certification requirements, which will govern the stove products eligible under the project. Details on

⁵ https://www.ieabioenergy.com/wp-content/uploads/2018/11/IEA_Bioenergy_Task32_Test-Methods.pdf

⁶ Georgian Technical University (2020). ECOserve Environmental program - The Methodology for measuring the energy efficiency and thermal capacity of wood stoves

⁷ Georgian Technical University (2020). ECOserve Environmental program - The energy efficiency and thermal capacity measurement (testing) results

⁸ Georgian Technical University (2020). ECOserve Environmental program - Energy audit of residential buildings in Akhmeta Municipality and monitoring of household wood stoves

⁹ Project proposal, RDA (note12, p16)

¹⁰ Funding proposal v8 (note 63 to par.95, p29) and Project proposal, RDA (note13, p16)

applicable standards and certification process and timeline have to be developed in the ECO.Georgia project inception phase which covers the first six months of the project duration.

2.2. Objective(s) of the assignment and work packages/tasks

The objective of the assignment is:

Supporting the verification/certification of EE stoves, defining eligibility criteria for stoves to be included in the RDA “Voucher program” as an Interim solution, as well as developing step-by step approach for long-term (Final) solution to meet EE and environmental standards set-forth by the EU Eco-design Directive.

The consultant shall fulfil the following tasks:

Work package 1 - Characteristics/parameters of eligible room heaters / wood burning stoves (anticipated up to 31 working days)

- Analyse relevant national primary and subsidiary legislation, strategic documents, as well as applicable international EE and environmental standards related to room heaters fired by solid fuel (EE stoves) and provide a report with all relevant references and links; – (5 working days)
- Compare energy efficiency, environmental and safety requirements for EE stoves between the EU Ecodesign directive and registered standards (EN) in the Georgian database, as well as other potentially relevant standards; - (5 working days)
- Conduct “Market study” to collect information on local production as well as on imported products; review the database developed by RDA on existing stoves on Georgian market (local producers, imported EE stoves their stated parameters, sales, prices...), and compare with requirements; - (5 working days)
- Set-up a roundtable discussion with stove producers to comment on the different technical parameters and their impact on the production and possible price development (estimation of price ranges) of EE stoves (3 working days)

Based on these assessments

- Prepare a list of mandatory characteristics/parameters of the EE stoves according to Eco-design and EN standard requirements to be eligible for co-financing in the context of “Voucher program” – (1 working days)
- As a step-by step approach is to be offered by governmental entities to fulfil requirements, from entire list feasible parameters have to be selected and suggested for EE stoves to be included in “Voucher programme” for the initial step (e.g., in years 2022-2023). These parameters should be set in a way that allows for some EE stoves to be subsidised from the beginning of the “Voucher programme” – (1 working days)
- Develop a step-by-step approach to improve parameters to reach and meet international energy and environmental standards. Prepare technical calculations for production according to different sets of parameters (estimate needed resources, timing, etc...) to estimate the financial impact on the stove production and potential retail prices – (7 working days)
- Review and reassess feasibility of the offered “result-based financial incentive

instrument” - co-financing 30% of the stove price (but no more than 300 GEL) and develop recommendations accordingly – (2 working days)

- Arrange all information in ppt (or any relevant) format and present during relevant workshops/meetings (2 working days)

Work package 2 – Certification process (24 working days)

- Review existing practice of product verification in Georgia (legal basis, standard procedures) – (1 working days)
- Consult consulting firms working in the direction of the implementation of the production and management related standards (coordination by RDA) – (2 working days)
- Review and provide information on existing international practice of product verification, in particular EE stoves, against declared technical characteristics, (e.g., frequency of tests, method of assessing, other...) – (4 working days)
- Review and describe procedures needed for conformity check by international assessor/certifier; provide information on existing practice in Central and/or East European countries and/or Black Sea basin countries (with rough cost-estimation) – (5)
- Explore other options for certification/verification/conformity check – (3 working days)
- Research laboratories in Georgia, having the capacity of testing/measuring different equipment/tools in regards with energy efficiency and can adapt to testing wood burning room heaters – (3 working days)
- Estimate costs and compare different options from the point of view of feasibility and cost-efficiency: accredited lab, sending models abroad for certification, as well as inviting international certifiers or experts for confirmative check- (4 working days)
- Arrange all information in ppt (or any relevant) format and present on relevant workshops/meetings (2 working days)

Work package 3 – Strategy and action plan (20 working days)

- Conduct interviews and discussions with all relevant institutions/stakeholders, including, but not limited to RDA, MoESD (Energy Efficiency and Renewable Energy Policy and Sustainable Development Department), The Unified National Body of Accreditation, Georgian National Agency for Standards and Metrology, Academia, laboratories, stove producers, businesses, consulting firms working in the direction of implementation of production and management related standards, etc., - (6 working days)
- Suggest and develop strategy:
 - for short-term “Interim solution” in the context of the “voucher program” to define eligibility criteria of stoves (technical parameters and their verification tool for conformity check) – (2 working days)
 - long-term strategy for certification of EE stoves against approved/agreed

standard – (4 working days)

- Discuss with relevant stakeholders, and based on agreed strategy develop an action plan with all required steps, indicating roles and responsibilities of all institutions to be involved – (6 working days)
- Arrange all information in ppt (or any relevant) format and present on relevant workshops/meetings (2 working days)

2.3. Outputs/deliverables

Expected outputs are:

Work package 1: (31 working days)

- Output 1 - report on national and international requirements with all relevant references and links (with ppt presentation or in other agreed format)
- Output 2 - environmental and safety requirements for EE wood burning stoves set in Ecodesign directive and registered standards (EN) or other relevant standards (with ppt presentation or in other agreed format)
- Output 3 - feasible parameters of the EE stoves to be included in “Voucher programme” in the initial step (e.g., in years 2022-2023), including price range; argued proposal if changes in “result-based financial incentive instrument” is inevitable (with ppt presentation or in other agreed format)
- Output 4 – steps to reach and meet international energy and environmental standards, technical calculations for production/estimate price according to different set of parameters (with ppt presentation or in other agreed format)

Work package 2: (24 working days)

- Output 5 - Compilation/review on certification/conformity check practice; (cost estimation, different options) with recommendations (pros and cons to each option) (with ppt presentation or in other agreed format)

Work package 3: (20 working days)

- Output 6 – “Interim solution” for “voucher program”, incl. eligibility criteria of stoves (technical parameters and their certification/verification/conformity check process) (with ppt presentation or in other agreed format)
- Output 7 – strategy and action plan for certification of EE stoves against approved standard (with ppt presentation or in other agreed format)

Final report preparation: (2 working days)

- Output 8 – Final report (describing/putting all tasks and results together annexed by all relevant references, calculations and minutes of stakeholder discussions/agreements)

Consultant will prepare and deliver presentations upon request of GIZ and partners agreed with GIZ (up to 10 presentations – PIU, GCF, BMZ, etc....)

Some additional tasks not listed in the Terms of Reference, could be applied with relevant amendments to the contract.

2.4. Schedule and timeframe

	Deadline	Number of experts	Number of days per expert
Working package 1:			up to 31 expert days in total* *(number of experts and working days to be defined according to each output)
• Output 1	Month 2/ End of May		
• Output 2	Month 1/ End of April		
• Output 3	Month 1/ End of April		
• Output 4	Month 2/ Mid of May		
Working package 2:			up to 24 expert days in total *
• Output 5	Month 3/ Mid of June		
Working package 3:			up to 20 expert days in total *
• Output 6	Month 3/ Mid of June		
• Output 7	Month 6/End of September		
Output 8	Month 6/End of September		up to 2 expert days in total *
Travel expenses (if applicable, pls describe)			Number of days/night (in person days/night)
• Overnight allowance in country of assignment			
• Travel costs (train, private vehicle)			
Other costs (if applicable, pls describe)			
Note:			
<i>If restrictions are introduced to combat coronavirus/COVID-19 (restrictions on air travel and travel in general, entry restrictions, quarantine measures, etc.), GIZ and the contractor are obliged to make adjustments to their contractual services to reflect the changed circumstances on the basis of good faith; this may involve changes to the service delivery period, the services to be delivered and, if necessary, to the remuneration.</i>			

The contract period is longer than the deadlines of the individual tasks in order to allow time for refining data and answering possible questions and deliver requested presentations. The maximum total working days for the Consultant to develop the above-listed deliverables is **up to 77 working days**.

3. Experts' profile

Qualification requirements for the consultant

The consultant(s) shall have the qualification and experience in energy and energy efficiency technology, policy development/planning and financial calculations.

In its bid, the bidder shall propose and describe an Expert or Experts Team capable of performing the necessary tasks.

Below, a 'standard' – generic requirement is presented. The bidder can, if he/she wishes, use this 'standard template'; alternatively, he/she can, with justifications, present alternative structure. However, the main competencies and tasks have to be covered by the suggested structure.

- Energy Policy Specialist - Responsible for the policy-related issues such as certification, different requirements of ECO design directives, as well as overall findings, reports, annexes and other supporting documents, as well as coordination of the Team members, liaison with GIZ and project stakeholders, quality control and version control.
- Energy Engineering and Energy Efficiency Technical Specialist - Responsible for the technical aspects of the assignment (e.g. technical requirements for wood / USB burning heaters set-forth in international standards, etc)
- Financial Specialist - Responsible for the economic and financial calculations and feasibility assessment of different technical calculations and financial schemes

Where the 'standard' team structure is proposed, the Consultants shall have the following minimum qualification profiles:

Energy Policy Specialist

Education/ General qualification:

- Master's degree or higher in energy, engineering or environment or another subject relevant for the tasks laid out in the ToR
- At least 10 years of professional experience in the energy sector

Professional experience/Specific qualification:

- Professional working experience (minimum 7 years) in energy policy and in/with sector institutions in Georgia.
- Successful track record in energy policy analysis and/or design and/or advice
- Demonstrated professional experience with energy efficiency and renewable energy topics in Georgia

Language skills:

- Excellent English language skills (i.e. full proficiency in understanding, speaking and writing)

Energy Engineering and Energy Efficiency Technical Specialist

Education/ General qualification:

- Master's degree or higher in engineering (energy, architecture, civil or related fields)
- At least 7 years of professional experience in energy efficiency technologies, high temperature processes

Professional experience /Specific qualification:

- Professional working experience (minimum 5 years) with energy efficiency technologies and energy efficiency advisory services in national context
- Successful track record in conducting technical and technology analyses in energy efficiency field

Language skills:

- Good English language skills (i.e. good proficiency in understanding, speaking and writing)

Financial Specialist

Education/General qualification:

- Master's degree or higher in finance or related field
- At least 7 years of professional experience in Georgia's financial sector

Professional experience /Specific qualification:

- Professional working experience (minimum 3 years) with the financial sector: products for SMEs/households
- Successful track record in financial analysis, preferably of energy efficiency projects

Language skills:

- Good English language skills (i.e. good proficiency in understanding, speaking and writing)

4. Timing and duration

Anticipated from April 2022 to November 2022

5. Place of assignment

Georgia

6. Reporting

- Reports are to be prepared according to the GIZ template to be provided by the project with ppt (or any other format) presentations
- All documents shall be delivered electronically (text files) in English and in Georgian.
- The consultant shall report - GIZ.
- The consultant is expected to coordinate very closely with GIZ

7. Other provisions

Travel expenses will be included in the contract.

In case if meetings/discussions, workshops, trainings, study tours are organized outside Tbilisi or Georgia, is not included in the contract and requested by GIZ, travel expenses will be covered by GIZ.

- GIZ will buy and ensure translation of the EU standard for wood-burning space heaters registered in Georgia.
- Reports developed by GTU under ECOserve project (2020-2021), as well as by EEGG (2019) are available for the consultant.
- Funding proposal to GCF could be seen [here](#).