
Project Title: Enabling the Implementation of Georgia's Forest Sector Reform (ECO.Georgia)

Project/Activity Number: 20.2275.4-002.00/C1A5

Title of the assignment: Definition of basic national wood density for the main tree genera of Georgian forests

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 Sustainable Development Goal (SDG) SDG 15 (Protect, restore and promote sustainable use of terrestrial ecosystems) of the 2030 Agenda of the UN (United Nations), 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 March 2029.

2. Description of the assignment

2.1. Objectives of the assignment and work packages/tasks

Objectives of the consultancy to be tendered under these Terms of Reference are:

- Carrying out research activities needed to support short-term objectives of the forest sector MRV system (Monitoring, Reporting and Verification), including for the transition to higher Tier methodologies under the 2006 IPCC Guidelines¹, in particular defining Basic wood density (WD) for the following main woody genera of Georgian forests: *Fagus*, *Carpinus*, *Picea*, *Abies*, *Quercus*, *Castanea*, *Pinus*, *Alnus* and *Tilia*.

The contractor is responsible for providing the following services, as per Work Packages (WP):

Work Package 1. Inception Phase

a. Kick-off:

- Ensuring a common understanding of project activities, their timing and internal communication among the project team, GIZ and key counterparts in Georgia (this might require an internal kick-off event among the consultant team and GIZ as well as a larger kick-off event including the key counterparts).
- Ensuring a common understanding of relevant framework conditions and on-going developments which could lead to the need for updating of project activities and their timing.

b. Desk Study:

- Study of the distribution of key forest genera in the Georgian forests, to specify the typical distribution range m.a.s.l. for each targeted genus per climatic zones Cfa (West Georgia) and Dfb (East Georgia) (e.g., *Fagus* distribution range is 1000-1600 m.a.s.l. in Cfa) and to identify recommendable site conditions based on National Forest Inventory data.
- Screening of sampling sites of forest soil inventory works (provided separately by GIZ) for their suitability for carrying out the field works under the services of the present terms of reference. These sites shall be considered for the WD sampling, wherever possible.
- Detailed description of the most suitable methodological approaches based on sampling of tree bore cores to study WD for the main woody genera of Georgian forest listed above.
- Development of a study protocol which should include operations (activities) at field and laboratory study stages. Study should be carried out separately by climate zones, including Humid subtropical climate (Cfa, Western Georgia) and Warm continental climate (Dfb, Eastern Georgia). Field study should be conducted at least in four study sites of each climatic zone.

¹ <https://www.ipcc-nggip.iges.or.jp/public/2006gl/>

Work Package 2. Field Study

Implementation of field activities based on the study protocol (WP1), which should include the following:

Tasks	Variables	Comments
Selection of sampling sites and mapping them	Identified sites with recommendable conditions within the distribution range of targeted genera.	Primary identification based on inventory data (NFI and soil inventory).
Assessment of the sampling sites	Defined by the study protocol elaborated under WP1 (coordinates, stand composition, DBH, etc.)	Visual description and measurement of stand parameters (e.g., Height (m) and DBH (cm)) according to the study protocol.
Selection and measurement of sample trees	According to study protocol	Likely to include DBH, moisture content at breast height, height, and more
Core sampling, storage, and coding	Core samples from each sample tree (at BH, 1.3 m.) according to study protocol. Minimum bore core diameter: 10 mm	Core samples for age should be more than half the diameter assuming they reach the center.
Determination of green (fresh) volume and weight of core samples.	Volume in cm ³ Weight in g	Green volume and weight should be measured immediately on the site or in the lab within 24 hours of collection (only in exceptional cases). Precision and tolerances to be defined in the study protocol (WP1).

Works Package 3. Laboratory Study

Implementation of laboratory studies based on the study protocol (WP1), which should include the following activities:

Tasks	Variables	Comments
Determination of green (fresh) volume and weight of core samples (If it is not determined in the field).	Volume in cm ³ Weight in g	Volume determination for example via dimensional (geometrical) or water-displacement method.
Preparation of core samples for drying and for age determination.		
Determination age of sample trees		Appropriate software to be described in the study protocol
Carrying out laboratory works		E.g., Drying of samples to 12% moisture content for subsequent measurements. Drying of samples to 0% moisture content for subsequent measurements.

Determination of volume and weight of core samples according to protocol	Volume Weight	The samples should be weighed immediately after being taken out of the drying oven at different stages as required by the study protocol. Precision and tolerances to be defined in the study protocol (WP1).
Calculation of WD based on volume and weight assessments	WD per strata (genera; climate zones)	Calculation scheme according to international standards as described in study protocol.
Data analysis (including statistical analyses) and reporting		Statistical description of data analysis results, e.g., ANOVA. Results to be provided in Excel-compatible format

2.2. Output(s)/deliverable(s)

The main output of the assignment is a **high-quality study** that includes:

- Determination of **basic wood density (WD)** and other variables for targeted genera listed above.

2.3. Schedule and timeframes for deliverables

Outputs / Deliverables	Deadline	Number of experts (up to)	Number of working days (WD) per expert (up to)
Work package 1 • Output 1/Deliverable 1 Inception report, including the detailed description of the methodology and study protocol to be applied, that shall include (but not restricted to) the following: approach, list of genera with the typical distribution range, study sites for each climate zones, number of samples etc.	1 month after the kick-off meeting.	5	Team leader 15 WD GIS specialist 4 WD Forestry expert 17 WD 2 Laboratory workers 4+4=8 WD Totally up to 44 WD
Work package 2 • Output 2/Deliverable 2 Field study report (overview and description of assessed sites; documentation of research activities, map(s) of sampling sites)	7 months after the project start	7	Team leader 5 WD GIS specialist 1 WD Forestry expert 7 WD 2 Field group leaders 10+10=20 WD 2 Specialist 10+10=20 WD Totally up to 53 WD

Work package 2 <ul style="list-style-type: none"> Output 3/Deliverable 3 Database of field data, including (but not restricted to) spatial data of sampling locations.	7 months after the project start	7	Team leader 4 WD 2 Field group leaders 15+15=30 WD 2 Specialist 15+15=30 WD 2 Assistants 10+10=20 WD Totally up to 84 WD
Work package 3 <ul style="list-style-type: none"> Output 4/Deliverable 4 Laboratory report, including respective database.	9 months after the project start	5	Team leader 6 WD 2 Laboratory workers 10+10=20 WD 2 Assistants 10+10=20 WD Totally up to 46 WD
Work package 3 <ul style="list-style-type: none"> Output 5/Deliverable 5 Final study report, including a description of the conducted methodology, a table with information, such as volumes and masses of wood for different tree genera by sampling sites for each climate zones together with the resulting values for WD and key data on their statistical reliability.	11 months after the project start	5	Team leader 15 WD GIS specialist 1 WD Forestry expert 6 WD 2 Laboratory workers 1+1=2 WD Totally up to 24 WD
Travel expenses		Number of experts	Number of days/nights per experts
<ul style="list-style-type: none"> Overnight allowance in country of assignment 		8 experts	19
<ul style="list-style-type: none"> Travel costs (train, private vehicle) * 			For 12 travel days
Other costs		Number of experts	Amount per experts
Flexible remuneration	15000 GEL (needs GIZ approval before using)		
<i>*Experts are to travel by (own or rental) car; for reimbursement of the cost, lump sum rate per day can be agreed, but this applies only for one car. It is expected that the experts travel together in one car.</i>			

3. Concept

In the tender, the tenderer is required to show *how* the objectives of respective Work Packages defined in Chapter 2 (Tasks to be performed by the contractor) are to be achieved, if applicable under consideration of further method-related requirements (technical-methodological concept). In addition, the bidder must describe the project management system for service provision.

The technical proposal will be evaluated in accordance with the assessment grid which

consists of followings:

(2.1) Concept (technical approach / methodological procedures)

- a. interpretation of the objective
- b. description of key processes
- c. a work plan in a visual form

Technical-methodological concept

Strategy: The bidder is required to consider the tasks to be performed with reference to the objectives of the services put out to tender (see Chapter 1). Following this, the bidder presents and justifies the strategy with which it intends to provide the services for which it is responsible (see Chapter 2).

The bidder is required to describe the key **processes** for the services for which it is responsible and create a schedule (draft work plan) that describes how the services according to Chapter 2 are to be provided. In particular, the bidder is required to describe the necessary work steps and, if applicable, take account of the milestones and contributions of other actors in accordance with Chapter 2.

The bidder is required to draw up a **personnel assignment plan** with explanatory notes that lists all the experts proposed in the bid; the plan includes information on assignment dates (duration and expert days) and locations of the individual members of the team complete with the allocation of work steps as set out in the schedule.

4. Company and Experts' profiles

Company

The bidder is required to provide evidence of the company fulfilling the below-listed criteria:

- (1.1) Years of operation – 3 years.
- (1.2) Execution of similar assignment described in this ToR within the last two years.

Personnel concept

The tenderer is required to provide personnel who are suited to filling the positions described, on the basis of their CVs, the range of tasks involved and the required qualifications.

The CVs of the personnel proposed meeting the requirements below must be submitted using the format specified in the terms and conditions for application. The CVs shall not exceed 4 pages each. They must clearly show the position and job the proposed person held in the reference project and for how long.

It is possible that an individual expert fulfils more than one qualification requirement described below and the expert pools are formed accordingly.

The below specified qualifications represent the requirements to reach the maximum number of points.

Team Leader

Tasks of the team leader:

- Overall responsibility for the project implementation (quality and deadlines),
- Coordinating and ensuring communication with GIZ, partners and others involved in the project,
- Personnel management, in particular identifying the need for short-term assignments within the available budget, as well as planning and steering assignments and supporting short-term experts,
- Technical backstopping and quality assurance,
- Regular reporting in accordance with deadlines.

Qualifications of the team leader:

- General qualification / experience (3.1.1):
 - Education / training (3.1.1.1): Master's Degree or equivalent in forestry or a field related to environmental policy and management, or climate policy and protection,
 - Professional experience (3.1.1.2): 7 years of professional experience in the environmental policy and management, or forest policy and management, or climate policy and protection sector.
- Specific qualification (3.1.2):
 - Specific professional experience (3.1.2.1): 5 years in natural resource assessment, GHG inventory related to the land use sector.
 - Leadership/management experience (3.1.2.2): 5 years of management/leadership experience as a long-term project team leader or manager in a company.
- Regional experience / knowledge of Georgia/South Caucasus (3.1.3): 5 years of experience in projects in the Caucasus region and 3 year of work experience in Georgia, related to the forest sector,
- Development Cooperation (DC) experience (3.1.4): 3 years of experience in DC projects,
- Language skills (3.1.5): Excellent business language skills in English and Georgian.

Expert pool 1 with minimum 3, maximum 7 members

Tasks of the expert pool 1

- Providing technical expertise in carrying out the work packages 1-3, e.g., study design, field works, laboratory works.
- Preparing reports

Qualifications of the expert pool 1

- General qualification / experience (3.2.1) (required for each of the proposed experts):
 - Education/training (3.2.1.1): University degree or enrolled student in natural science (applies to each team member individually)
- Specific qualification (3.2.2) (required combination of qualifications for the team):
 - professional experience in the forestry or related sectors (3.2.2.1): 10 years,
 - professional experience in laboratory analyses of natural resources (3.2.2.2): 10 years,
 - professional experience in the field sampling of forest characteristics (3.2.2.3): 3 years,
 - professional experience in design, planning and coordination of forest sampling activities (3.2.2.4): 5 years,
 - professional experience in calculation of wood density values of trees based on their sampling and (laboratory) analyses (3.2.2.5): 5 years,
 - professional experience in remote sensing-based forest assessment (3.2.2.6): 3 years.
- Regional experience (3.2.3): 5 years of work experience in Georgia,
- Development Cooperation (DC) experience (3.2.4): 6 years of experience in DC,

- Other (3.2.5):
 - knowledge of Georgian legal and administrative culture/setup (3.2.5.1),
 - experience in working with key stakeholders in Georgia's forest sector (3.2.5.2): 3 years.

Expert pool 2 with minimum 3, maximum 5 members

Tasks of the expert pool 2

- Providing technical expertise in carrying out the work packages 2-3, e.g., field works, laboratory works.
- Preparing reports

Qualifications of the expert pool 2

- General qualification / experience (3.3.1) (required for each of the proposed experts):
 - Education/training (3.3.1.1): University degree or enrolled student in natural science (applies to each team member individually)
- Specific qualification (3.3.2) (required combination of qualifications for the team):
 - professional experience in the forestry or related sectors (3.3.2.1): 5 years,
 - professional experience in laboratory analyses of natural resources (3.3.2.2): 5 years,
 - professional experience in the field sampling of forest characteristics (3.3.2.3): 3 years,
 - professional experience in calculation of wood density values of trees based on their sampling and (laboratory) analyses (3.3.2.4): 5 years.
- Regional experience (3.3.3): 5 years of work experience in Georgia,

Flexible remuneration item

The project includes a flexible remuneration item of 15 000.- GEL.

The fixed, unalterable budget given above is earmarked in the price schedule for flexible remuneration. Flexible remuneration is intended to facilitate the flexible management of the contract by the officer responsible for the commission at GIZ. The contractor can make use of the funds in accordance with section 3.1.3.2 of the General Terms and Conditions (GIZ Georgia).

5. Timing and duration

Contract terms are envisaged to be from **April 2024** to **January, 2025**. This includes implementation of the tasks described by this ToR as well as administration of the Contract.

6. Place of assignment

Assignment is about the determination of basic wood density for Georgia. Consequently, the fieldworks shall take place in Georgia's forests.

7. Reporting

- Reports are to be prepared according to the GIZ template to be provided by the ECO.Georgia project.

- All documents shall be delivered electronically (text files) in English;
- The final report shall be delivered electronically (text files) in English and in Georgian;
- The contractor shall report to Head of Component 1.
- The contractor is expected to coordinate very closely with GIZ.ECO.Georgia's advisors for general and ToR-related questions.
- The contractor shall keep a time sheet (8 hours = 1 working day) for each expert).

8. Other provisions

8.1. Inputs of GIZ or other actors

GIZ and/or other actors are expected to make the following available:

- Data of GIZ-supported forest-related inventories (e.g. NFI, forest soil, etc.)

9. Requirements on the format of the bid

The structure of the bid must correspond to the structure of the ToRs. In particular, the detailed structure of the concept (Chapter 3) is to be organised in accordance with the positively weighted criteria in the assessment grid (not with zero). It must be legible (font size 11 or larger) and clearly formulated.

The complete bid shall not exceed 15 pages (excluding CVs).

Please calculate your price bid in line with the costing requirements. The specifications for pricing are defined in the attached price schedule which is required to be used for the preparation of the financial offer.