

**Terms of Reference for the company/laboratory to collect soil samples and conduct laboratory analyses for SOC calculations for further comparison**

**Local company/laboratory to assist to collect soil samples and conduct laboratory analyses services for soil organic carbon (SOC) calculations within the “Sustainable Land and Forest Management in Greater Caucasus Landscape” project.**

<b>Position:</b>	Local company/laboratory to organize below listed activities within the project
<b>Project title:</b>	“Sustainable Land and Forest Management in Greater Caucasus Landscape” project
<b>Expected duration:</b>	October 2018-November 2018
<b>Duty station:</b>	Baku-Ismayilli-Shamakhi, Azerbaijan
<b>Office:</b>	UNDP Azerbaijan

**1. Background:**

The objective of the GEF-funded project ‘Sustainable Land and Forest Management in the Greater Caucasus Landscape’ is that the sustainable land and forest management in the Greater Caucasus Landscape secures the flow of multiple ecosystem services, including carbon storage and sequestration and water provisioning services, while ensuring ecosystem resilience to climate change.

The project will engineer a paradigm shift from the current unsustainable practices to sustainable land and forest management practice. The project will address barriers to sustainable pasture and forest management. In doing so it will support measures to mitigate CC such as managing natural forests to emphasize natural regeneration through improved grazing and wood collecting in forests. It will avoid GHG emissions caused by degradation, increase sequestration through enhanced biomass and improve the productivity of forests and pasturelands. This would result in short and long-term global benefits.

Project intends to compare previous SOC data in pastures with new SOC data. Since rehabilitation activities have been implemented in pastures, an increase in SOC is expected. New soil samples will be collected from the previous locations and additional soil samples will be collected from rehabilitated areas.

**2. Scope of assignment**

Local Company/Laboratory is obliged to take soil samples for laboratory analyses to calculate SOC according to following details in following directions:

- 1) Soil Organic Carbon (SOC) by subtraction- In this case, Total Soil Carbon (TSC) is determined, inorganic carbon in carbonates is determined by gas chromatography method and SOC is calculated by extracting inorganic carbon from TSC (based on IPCC 2006 Guidelines for National GHG Inventories, the guideline will be submitted by the project).
- 2) Based on taken soil samples to analyze the below listed main elements in the soil:
  - Soil structure: PH, sand, silt, and clay rates, grades of soil structure, classes and types of soil structure;

- Macronutrients: Calcium (Ca), Calcium Oxide (CaO), Phosphorous (P), Potassium (K), Magnesium (Mg), Nitrogen (N), Sulphur (S);
- Micronutrients: Boron (B), Iron (Fe), Zinc (Zn), Copper (Cu), Manganese (Mn), Chlorine (Cl), Molybdenum (Mo);

**Note:**

***Necessary Equipment for elements samples***

- Stainless-steel corer, cylinder, soil auger, soil probe or shovel (take note of diameter of the corer for bulk density calculations)
- Ruler or tape measure to measure soil depth
- Bucket (plastic or non-galvanized metal)
- Boxes from the soil test lab or Ziploc bags (record site, plot number, soil depth, date and any other relevant information)
- Waterproof marker for labelling box or bag
- GPS for coordinates records
- Camera

***Soil Sample Collection***

- Soil samples will be collected from previous locations (Coordinates of the area and sample locations will be provided by UNDP)
- Additional sufficient number of new soil samples will be collected from rehabilitated areas, if any (coordinates of the rehabilitated areas will be provided by UNDP)
- Distribute old and new sample locations on a map with assorted colors; map will also include rehabilitated areas and coordinates of sample locations/points
- Remove the vegetation and organic litter from the surface before sample collection
- Use stainless-steel corer, cylinder, soil auger, soil probe or shovel to collect soil samples
- Once an undisturbed soil core is extracted, use a ruler or tape measure to determine the soil depth
- Upon collection, pack the soil samples without air inside the pack and record the site, plot number, soil depth, date and any other relevant information
- Mix the soil samples at each location from individual cores thoroughly to make a composite sample to be sent to the lab for analysis
- Estimate rock, stone content of the samples
- The composite sample for lab analyses should be about 500 grams of soil
- Soil samples should be air-dried, thoroughly mixed, and sieved to pass a 2-mm screen for pH measurements. Exclude foreign materials (such as twigs or rocks) with dimensions exceeding 2mm
- Soil samples should be stored at 4°C and analyzed within 15 days of collection.

***Sampling Location***

- Samples should NOT be taken near roads, fence rows, or highly eroded and burnt areas (the area should be representative)
- Areas of non-uniform slope, color, texture, drainage, and cropping practice should be sampled separately (3 % ha from the total area allocated under the crop production (khasil))

Number of sample: 700 samples

**Sampling Depth**

- 0-30 cm

**Sampling Time**

- Ideally after harvest, but samples may be obtained at any time of the year (for monitoring purposes the samples should be taken at the same time of any season). The selected company will be responsible for all expenses within the assignment including travels, publishing of training materials, video shootings and others.

The locations are based on the color coding that has been used to derive the maximum replication of the areas based on those colors. They are spread across the region within the pasturelands, it's advised to take 3-4 samples from each sample plot with the center point being the GPS coordinate and other points spread out in a random angle on the compass within 50 m from the center location.

The selected company also will submit photos, video materials from the field works.

**3) Deliverables**

Deliverable outputs	Minimum requirements on consultants to be engaged	UNDP Input
<p><b>Local</b> <b>Company/Individual/Laboratory is responsibly to deliver the followings:</b></p> <p>1) SOC calculation including carbon concentration, bulk density, soil depth and percent coarse fragments in the sample plots, analyzing soil samples and report first figures because of lab analysis; (should be referred to IPCC 2006 Tier 2). SOC analyses in previous locations and new locations should be reported separately. SOC analyses should be reported in tonne/hectare.</p> <p>2) Analysis for elements indicated in the scope in the soil with the accompanying <i>final</i></p>	<p>1 Task Leader:</p> <ul style="list-style-type: none"> <li>- University degree in natural resources, soil science, economy or other related;</li> <li>- At least 5 years' experience in the related field;</li> <li>- Fluent in written and oral communication in Azerbaijani, knowledge of English will be an asset</li> </ul> <p>2 senior experts for lab analyses:</p> <ul style="list-style-type: none"> <li>- University degree in soil science, natural resources and other related field, scientific degree will be an asset;</li> <li>- At least 3 years working experience;</li> <li>- Fluent in Azerbaijani, knowledge of English will be an asset</li> </ul> <p>4 field carbon experts:</p>	<p>UNDP shall provide access to the all reports prepared by the experts within the project in the past</p>

<p><i>report</i></p> <p>All documents should be sent in electronic form (Microsoft Word and PDF and, if applicable, other relevant formats) in English.</p> <p><b>Note: company/laboratory will be provided with the maps, coordinates of the areas in .kml and .shp format for the taking of the samples for SOC analysis.</b></p>	<ul style="list-style-type: none"> <li>- University degree in environmental sphere, soil sciences and other related field;</li> <li>- At least 3 years of working experience in the field measurements and knowledge of carbon measurements;</li> <li>- Fluent in Azerbaijani, knowledge in English will be an asset;</li> </ul> <p>1 GIS expert:</p> <ul style="list-style-type: none"> <li>- University degree in geographic information systems will be an asset;</li> <li>- At least 3 years of working experiences;</li> <li>- Fluent in Azerbaijani, knowledge of English will be an asset</li> </ul>	
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#### 4) General qualification Requirements

The company/ laboratory should provide:

- a) Business license or registration form, Tax Payment Certification, etc
- b) At least 4 years of previous experience in related sector;
- c) Acceptance of General Terms Conditions;
- d) Profile of the company/ laboratory
- e) Track Record – list of clients for similar services as those required by UNDP, indicating description of contract scope, contract duration;
- f) CVs of experts to be involved within the assignment
- g) Written Self-Declaration that the company is not in the UN Security Council 1267/1989 List, UN Procurement Division List or Other UN Ineligibility List
- h) VAT exclusive
- i) At least two reference letters from business partners (if available)

#### 5) Payment Terms

Outputs	Percentage	Timing	Condition for Payment Release
Advance payment upon signature of the contract	15%	Latest by 26 <sup>th</sup> of October, 2018	<b>Within thirty (30) days from the date of meeting the following conditions:</b>

<p>SOC calculation in the sample plots;          Analysis for the elements indicated in the scope in the soil with the accompanying <b>FINAL REPORT</b></p>	<p>85%</p>	<p>Latest by 30<sup>th</sup> of November, 2018</p>	<p>a) <b>UNDP's written acceptance (i.e., not mere receipt) of the quality of the outputs; and</b>          b) <b>Receipt of invoice from the Service Provider.</b></p>
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**6) Criteria for the Assessment of Proposal**

- Proven track of experience in implementing similar services in the past (30 points);
- Proposed approach/methodology to the work (40 points)
- Suitability of the proposed consultants (30 points)

**Note 1:** offers that are rated 70% and above will participate in the next stage of evaluation

**Note 2:** The Contractor will be responsible for all issues connected to the implementation of tasks, including payment of lump sum for local field workers.

Offer should include lump sum with taking into consideration all visits of experts to pilot zone (field trips/works, professional fees, interviews, transportation, field measurements in forests, soil laboratory analysis and all other related etc.).