1. Introduction

Practical Action is a global innovator, inspiring people to discover and adopt ingenious, practical ways to free themselves from poverty and disadvantage.

We are an international development agency with more than 50 years’ experience in the development and scaling of a range of technologies appropriate to the needs of the poor. Working throughout Africa, Asia and Latin America, Practical Action improves the lives of around one million people every year through access to energy, sustainable agriculture, water, sanitation, hygiene and waste management, and disaster risk reduction.

We are a trusted partner of many communities, governments, development agencies and the private sector. We are uniquely placed as a knowledge broker with a breadth of capacities which enable us to capture and share knowledge in relevant ways for our diverse audiences. We are influential at national level where we work, and globally and considered a “go-to” agency by those seeking to improve lives for men and women living in or vulnerable to poverty.
Transforming Rural Economies and Youth Livelihoods (TREYL) Project is being implemented in Kenya by Practical Action to establish vibrant and inclusive rural economies in East Africa by promoting agricultural livelihoods for the youth underpinned by agro-ecological principles and practices. The project aims to break the cycles of low productivity and increasing rural poverty, through a holistic and gendered approach which will enable young men and women to increase their income through agri-business.

**Goal:** To achieve a vibrant & inclusive rural economy for young women and men that doesn’t degrade the environment.

**Outcome Areas:**

1. Increased income of young men and women employed and self-employed in sustainable eco-agrological or circular business
2. Natural capital conserved and restored
3. Strengthened enabling environment for young men and women to engage in agribusiness.

The project seeks to hire a service provider – Firms to carry out soil sampling, laboratory analysis and provided targeted advice to farmers on how to improve soil organic matter using Agroecology practices for 1000 farmers in both Kisumu and Homa Bay counties. The farmers will mainly be engaged in three selected value chains i.e. Tomatoes, Groundnuts and Poultry.

2. **Objectives of Terms of reference (ToR)**

   a) *The objectives of this ToR are:*
      
      - To assess and understand dynamics and variations in soil quality (Soil fertility) and characteristics (organic matter content) in the farms of about 1,000 plus, farmers in both Kisumu and Homa Bay counties.
      - To develop and deliver simple doable recommendations of agro-ecological practices that farmers with poultry, tomatoes and groundnuts as the main enterprise can implement immediately to improve soil organic matter.
      - To provide recommendation on what different stakeholders including county governments can do to support farmers to improve soil organic matter and reduce use of synthetic chemicals.

   b) *Scope*
      
      These specifications cover the procedure for recruiting and training of farmers, soil sampling and processing procedures, soil analyses and results interpretations and mitigation process (recommendations) i.e. soil investigations. The coverage will be all sub counties in Kisumu and Homa bay. The first batch of soil analysis will cover 1,000 farmers and the subsequent additional farmer will be decided by the TREYL project management.

   c) *Technical Requirements*
      
      The purpose of the proposed subsoil investigation activity is to provide adequate and detailed information on sub-surface and surface conditions of the soils for the suitable farm activities and crops to be grown by farmers under TREYL project, leading to their economical and safe designs. The planning of the work, choice of the method of sampling, selection of the type of samples and procedure for sampling should be well illustrated in the
work. Bidder, however, shall furnish his tentative programme to take into account the site conditions and time schedule for completing the work, on-site tests, sampling, visual observations and laboratory tests of samples, reporting of the test results, including discussions, correlating the field and the laboratory test values and commendations. These specifications cover the work pertaining to subsoil investigations and recommendations for economical and safe design of the work for the proposed project sites.

3. **General Requirements from Bidder**

- The bidder shall have well equipped laboratory to carry out effective soil sampling, samples processing, analysis, and proper interpretation of the results with modern recommendations.
- The bidder shall have well qualified personnel to carry out capacity building / training of farmers on the simple steps of farm survey, selection of suitable sampling methods, how to carry out actual sampling, sample composite, sample processing and labelling for the further analysis in the laboratory.
- The bidder shall set out the base lines and the locations of farmers and field tests with reference to the GPS coordinates with the help of the TREYL project field officers on the ground. At each location of farmers, the bidder shall be introduced and shown the farm where soil sampling will be carried out, and establish the ground level prior to commencing of the operations.

The bidder shall be expected to collect the following details of the following from each farm before carrying out sampling procedures:

- a) The Name of the farmer,
- b) Location and geographical area of the farm e.g. village, location, sub-county, county – GPS coordinates
- c) Date, season and time of soil sampling
- d) The size of the farm sampled in terms of acreages
- e) History of the farm sampled
- f) The previous crops that have been grown on the farm in the previous two season,
- g) Type of input (manure, fertilizer and chemicals, bio pesticides etc.) the farmer has been applying in the farm for the last two year
- h) Topography of the farm and suitable sampling procedure/method selected to be applied each particular farm
- i) The depth of the soil at which samples are drawn

**NB:** All these details should be on the label of the composite sample taken to the lab for analysis

The bidder shall mobilise adequate equipment, instruments and personnel (skilled and unskilled) required to carry out the soil investigation work.

The bidder is expected to show time frame required to carry out the work in place, with a well elaborated budget indicating how much funds will be utilized to carry out the work in place effectively. After soil sampling and analysis procedures, the bidder shall be ready to
discuss and communicate with farmers, in case of need, for further clarification on parameters analysed with respect to results and recommendations on each soil sample.

The bidder shall be able to develop a simple skill set technology on how to track soil organic matter accumulation in the soil over a period of time.

4. **Deliverables:**

   a) A brief inception report detailing approach, sample selection, methodology, expected outputs and outcomes.
   b) A report of the findings of the soil tests and profiles as guided by the TOR including a summary PPT presentation.
   c) Work plan on dissemination of the findings to stakeholders and recommendation notes for improving soil fertility using Agroecology principles.
   d) Summarised recommendations on practices that can be implemented to improve soil organic matter by farmers.

5. **Bidder eligibility criteria**

   For the purpose of this task (soil sampling, analysis and advisory), the bidder should be an organization whose core business is soil testing services with the lead staff on this assignment having at least Master’s Degree in Soil Science, Agricultural /Agribusiness/ Forestry, Agriculture and Biotechnology or related field background, and extensive experience and knowledge in Soil analysis and understands the dynamics of soil variations in Kenya.

   Some of the desirable qualifications for lead soil analyst include:
   
   - A good understanding of Agroecology practices that farmers can adopt to improve soil organic matter.
   - Knowledge and understanding of Kenyan soil maps especially soil distributions in Kenya.
   - Have a functional plant tissues and soil analysis laboratory with modern scientific equipment.
   - Practical soil analysis experience with key emphasis on soil fertility and nutrients restoration skills.
   - Strong experience in soil and crops Research in Kenya especially along Lake Victoria basin.
   - A good command of the English, Swahili and Luo language.
   - Demonstrated experience in Agriculture, soil fertility improvement through organic farming technologies, food security and nutrition promotion, community empowerment, working with farmer groups.
   - Strong experience in networking and collaboration work.
   - Highly developed interpersonal and oral communication skills.
   - Creative and strong problem solving skills.
   - Report writing experience.
   - Experience directly working with young people in Agriculture and soil science research.

**Duration of Service**

The task should not take more than 60 days from the date of contracting in 2020 and is expected to commence by 15th August 2020. *The successful bidder will be retained*
on the list of prequalified service providers for future assignments that will be based on specific contract agreements.

**Management**
The Technical Consultant will be report to the TREYL Senior Project Agroecologist

6. **Guidelines for submission of expression of interest and Terms of payment**
A bidder who meets the above requirements and is available to take up the task should submit the following:

- Proposal highlighting his/her understanding of the assignment and proposed methodology.
- Capability statement with at least two (2) reports highlighting similar work in the past 5 years.
- Detailed financial proposal in Kenyan Shillings including all field level logistics.
- Annexed to the proposal should be a CV of the lead staff for the assignment.

**Payment schedule**

*First tranche:* 30% on provision of a comprehensive inception report highlighting methodology including bundling od testing and Agroecology advise to farmers

*Second tranche:* 40% on providing successful report on farmer profiles soil testing results and agreed actions for each farmer to improve their soil organic matter

*Third and final tranche:* 30% on provision of final report having incorporated stakeholder’s feedback – the report should include recommendation on what different actors can do to support farmers to improve soil organic matter.