Pre-Survey Report for the Project: Empowering Women Smallholder Farmers in Usambara Mountains, Tanzania Through Climate-Smart Agriculture and Carbon Sequestration

Implemented By:

Global Kilimo Smart

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CFLI/FCIL
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1. Introduction

This pre-survey report summarizes the findings from the initial assessment of smallholder farmers' conditions for the project titled "Empowering Women Smallholder Farmers in Usambara Mountains, Tanzania Through Climate-Smart Agriculture and Carbon Sequestration," funded by the High Commission of Canada in Tanzania through the Canada Fund for Local Initiatives (CFLI).

The primary objective of the project is to build resilience in agricultural livelihoods by introducing regenerative and sustainable farming practices aimed at improving soil health, reversing land degradation, and mitigating climate impacts. This pre-survey was conducted in the villages of Migambo, Kwefingo, Kwaboli, and Milungui in the Usambara Mountains region, setting a baseline for measuring the project's future impact.

2. Project Overview

The project focuses on introducing sustainable farming practices to address the pressing challenges of soil erosion, declining soil fertility, and poor agricultural yields in the Usambara Mountains. Specifically, the project will introduce **Elephant Grass** along with **Greenleaf Desmodium** as part of an integrated soil management strategy to rehabilitate degraded lands.

These plants will help control soil erosion, increase soil fertility, and provide fodder for livestock. Global Kilimo Smart aims to rehabilitate degraded lands and build resilient agricultural livelihoods through innovative techniques like **push-pull intercropping** and **syntropic farming**. In collaboration with Organic Hill Farming, the project will introduce nitrogen-fixing Greenleaf Desmodium and soil-renaturalizing elephant grass to depleted farmlands.

This nature-based approach imitates natural forest regeneration processes to restore critical ecosystem services and create economically viable agroecological systems resilient to climate shocks. The project will also incorporate farmer training, digital extension services, and cooperative models to empower farming communities to autonomously replicate these techniques long-term.

3. Objectives of the Pre-Survey

The pre-survey aimed to:

1. **Assess current farming practices**: Identify crop varieties cultivated and examine agricultural methods, including issues related to soil fertility and erosion.
2. **Document environmental challenges**: Understand the severity of soil degradation, pest problems, and crop diseases such as Crop Wilting.
3. **Investigate resource gaps**: Evaluate farmers' access to fertilizers, seeds, and support systems available for sustainable farming.
4. **Explore interest in climate-smart practices**: Assess farmers' knowledge and interest in regenerative agriculture practices, particularly the use of Greenleaf Desmodium, Elephant Grass.
5. **Establish baseline conditions**: Set baseline agricultural conditions for future impact measurement against a post-survey after project completion.

4. Methodology

The pre-survey employed a mixed-method approach, combining qualitative and quantitative data collection techniques:

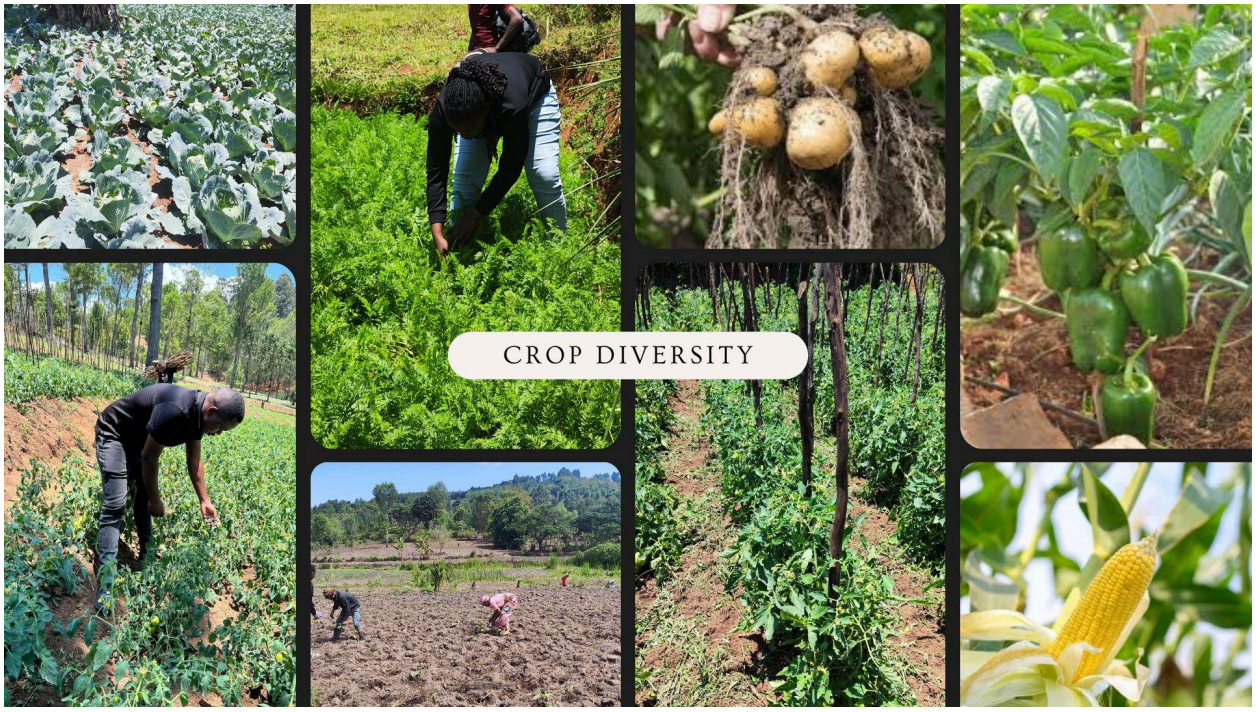
- **Household Surveys**: A sample of **100 smallholder farmers** was surveyed from the villages of Migambo, Kwefingo, Kwaboli, and Milungui to gather information on farming activities, challenges, and resource needs.
- **Focus Group Discussions (FGDs)**: FGDs were conducted with **60 participants** (10 men and 50 women) to capture gender-specific challenges and perspectives.
- **Key Informant Interviews (KIIs)**: Interviews with **15 local agricultural extension officers, school representatives, and community leaders** provided broader insights into the region's farming systems and challenges.

5. Key Findings from the Pre-Survey

The pre-survey revealed several important insights regarding current agricultural practices, challenges, and opportunities in the project area:

5.1 Crop Diversity

- **Crop Variety**: Farmers primarily grow **tomatoes (35%)**, **cabbage (25%)**, **green peppers (15%)**, **maize (15%)**, **carrots (5%)**, and **Irish potatoes (5%)**.
- **Yield Decline**: Approximately **70%** of farmers reported significant yield reductions, citing soil fertility issues and increased vulnerability to climate impacts as major concerns.



5.2 Soil Erosion and Degradation

- **Erosion Impact**: **85%** of farmers indicated that soil erosion is a critical issue, with many fields experiencing rapid soil degradation, which is reducing crop productivity.
- **Adoption of Soil Conservation Techniques**: Only **15%** of farmers currently utilize Elephant Grass, emphasizing the need for further training and outreach on these practices.

5.3 Pests and Crop Diseases

- **Major Diseases**: **60%** of farmers identified Crop Wilting (Gojo) as a significant problem affecting crops, particularly tomatoes and green peppers.
- **Pest Issues**: Farmers reported challenges with pests like snails and aphids, which have led to yield losses of **30-50%** in affected crops.

5.4 Fertilizer and Seed Use

- **Fertilizer Confusion**: **65%** of farmers expressed uncertainty about the proper application of fertilizers.
- **Seed Quality Concerns**: Inconsistencies in seed quality, particularly for tomatoes, were reported by **40%** of farmers.

5.5 Interest in Sustainable Practices

- **Desire for Knowledge**: **75%** of farmers showed strong interest in learning about regenerative practices, including push-pull intercropping and the use of Greenleaf Desmodium and Elephant Grass.

6. Solutions Proposed by the Project

Based on the findings of this pre-survey, the project will focus on the following interventions:

6.1 Introduction of Climate-Smart Techniques

- Promote the use of Elephant Grass and **Greenleaf Desmodium** for their benefits in soil conservation, erosion control, and nutrient replenishment.

6.2 Push-Pull Intercropping and Syntropic Farming

- Train farmers on advanced techniques such as **push-pull intercropping** and **syntropic farming** to enhance crop diversity and control pests.

6.3 Training and Capacity Building

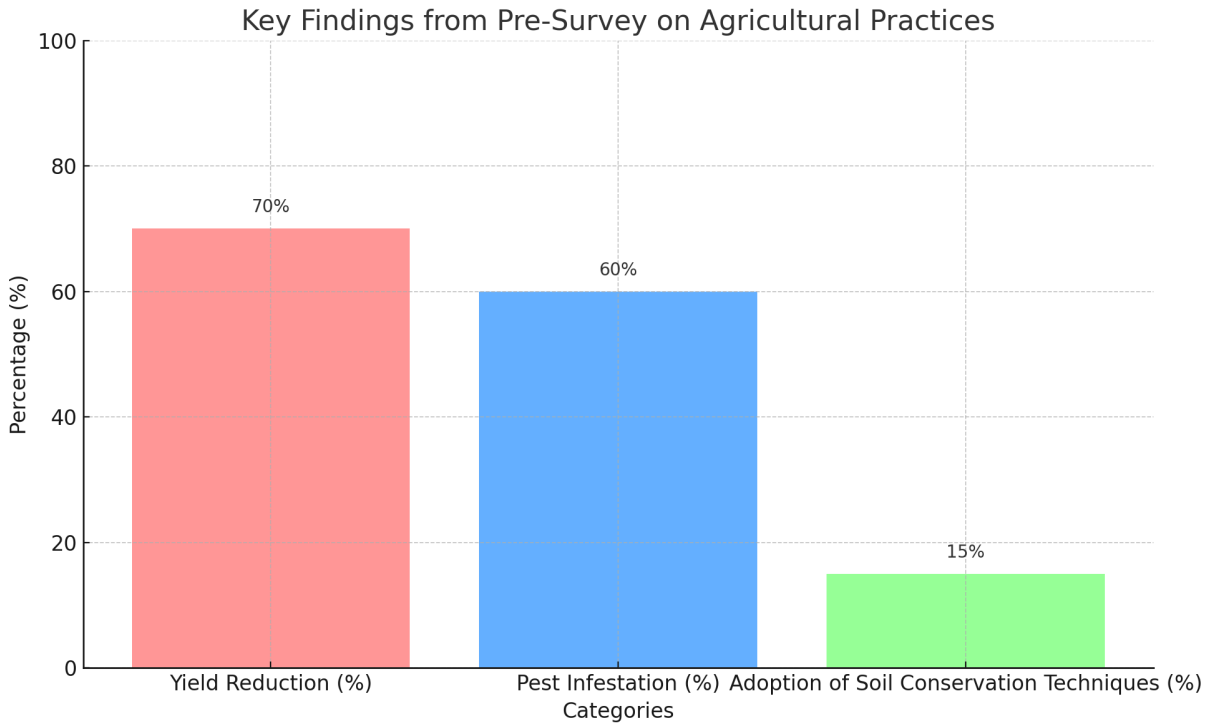
- Establish farmer groups to facilitate collective learning and provide training on sustainable farming techniques, including proper fertilizer use and organic pest control methods.

6.4 Digital Extension Services

- Implement digital extension services to provide ongoing support and advice to farmers through mobile platforms, addressing challenges in real time.

7. Graph of Key Findings

Below is a summary visualization of the key findings from the pre-survey.



8. Next Steps

The project will commence with the establishment of **five demonstration plots** by **September 2024**, showcasing climate-smart agriculture techniques using **Push-Pull methods**. An awareness campaign will follow, training **160 women farmers** in cultivating **Irish Potatoes, Maize, and Tomatoes**.

A **Training of Trainers** workshop will equip **25 participants**, including lead farmers and extension officers, with advanced knowledge on sustainable practices. Monthly mentorship visits will support farmers in implementing these techniques. In **Year 2**, an additional **160 women** will be trained in horticultural crops, including cabbage, followed by the formation of **seven women's farmer groups** for ongoing support and collective action.

Throughout the project, regular monitoring and evaluations will be conducted, culminating in a comprehensive final report in early **2026**.