



Decentralized Soil Lab & Data Intelligence Node

By: **KEHAZ Agro Services PLC**

Arba Minch, South Ethiopia

1. Company Overview

1.1. Who is KEHAZ?

KEHAZ Agro Services PLC is a precision agriculture service company operating in Gamo Zone since 2024. The company delivers field-based soil testing, crop-specific nutrient recommendations, and farmer training to improve productivity, reduce input misuse, and enhance farm profitability.

KEHAZ operates a decentralized “**Soil Lab & Data Intelligence**” model that combines portable soil diagnostics, advisory services, and localized agronomic decision support.

1.2. What Has Been Achieved Since 2024?

- ✓ Operational presence in **Gamo Zone – South Ethiopia**
- ✓ Active service delivery in **more than 10 kebeles**
- ✓ **500+ farmers** served through soil testing, precision agriculture training & field demo
- ✓ Established relationships with public institutions, farmer groups, local traders, and input suppliers
- ✓ Field-validated service workflow and pricing model
- ✓ Early-stage brand recognition for precision-based advisory.

KEHAZ has moved beyond concept stage and is in active service deployment.

1.3. Why Mirab Abaya?

Mirab Abaya Woreda presents a commercially viable expansion opportunity due to:

- Large lowland farming population (estimated 150,000–200,000 people)
- Strong engagement in high-value cash crops (banana, mango, tomato, watermelon)
- Dense settlement pattern enabling efficient field operations
- Existing agricultural input market and active produce trade
- Established personal and professional networks within the woreda

The crop profile and market orientation align directly with KEHAZ’s soil-driven productivity model, increasing probability of fast adoption and revenue sustainability.

1.4. Funding Requirement

Total 6-month lean operational budget: **ETB 800,000**

Funding target through WegenFund (60%): **ETB 500,000**

The funding will cover:

- ✓ Establishment of the Mirab Abaya Soil Lab & Data Intelligence Node
- ✓ Portable soil testing equipment
- ✓ Field mobility and logistics
- ✓ Personnel support
- ✓ Operational costs for first 6 months

Remaining capital will be internally mobilized.

1.5. Expected 6-Month Impact

Within the first 6 months of operation in Mirab Abaya:

- ✓ 500+ farmers reached through direct service delivery & field training
- ✓ 300+ soil tests conducted
- ✓ Crop-specific fertilizer optimization advisories delivered
- ✓ Reduction in input waste and improved yield efficiency
- ✓ Establishment of one fully functional regional service node
- ✓ Strengthened data foundation for future scale into additional woredas

The **Mirab Abaya Node** will serve as a commercially sustainable expansion model and a replicable template for further regional growth.

2. Problem Statement

Farmers in rural Ethiopia still make fertilizer and soil decisions without knowing what their land truly needs. Inputs are purchased season after season, often based on general recommendations or quota based allocation rather than farm-specific soil testing. As a result, farmers spend scarce cash on inputs that may not match their soil conditions.

This leads to:

- Unnecessary input costs & resource waste
- Lower-than-potential yields & inconsistent productivity
- Gradual soil nutrient imbalance and/or environmental threats
- Financial stress at household level

Despite growing demand for better productivity, affordable soil testing and localized precision advisory services remain inaccessible to most smallholder farmers.

There is a clear gap between input access and informed decision-making. The Mirab Abaya Soil Lab & Data Intelligence Node is designed to close that gap at the grassroots level.

3. Solution Overview & Market Opportunity

KEHAZ proposes the establishment of the **Mirab Abaya Soil Lab & Data Intelligence Node**, a decentralized precision agriculture service hub designed to deliver affordable soil testing and evidence-based fertilizer advisory directly to smallholder farmers.

The node will provide:

- ✓ On-site soil sample collection
- ✓ Soil pH, salinity, humidity, and nutrient analysis
- ✓ Plot-crop-specific fertilizer recommendations
- ✓ Farmer training & field demo on optimized input application
- ✓ Data recording for long-term soil intelligence development

Unlike generic extension advice, KEHAZ delivers farm-level precision guidance. Farmers receive recommendations tailored to their specific soil condition and crop type.

Why Mirab Abaya?

Mirab Abaya Woreda in Gamo Zone, South Ethiopia, is a high-potential agricultural district known for:

- ✓ Commercial banana production
- ✓ Expanding horticulture (tomato, watermelon)
- ✓ Dense rural settlements
- ✓ Strong cash-crop orientation

Farmers in the area are market-linked and input-active, meaning they already invest substantially in fertilizers and inputs. However, these investments are rarely guided by plot-level soil diagnostics.

This creates a clear market opportunity: Farmers are already spending on inputs — but without precision.

By **introducing localized soil testing services**, KEHAZ converts existing fertilizer spending into smarter, more efficient investment decisions.

The initial six-month pilot aims to serve at least 500 farmers, establishing operational sustainability through **service-based revenue** while building a scalable model for replication in neighboring woredas.

4. Business Operations & Revenue Model

The Mirab Abaya Soil Lab & Data Intelligence Node will operate as a service-based, revenue-generating unit within KEHAZ Agro Services PLC.

4.1. Operational Structure

The node will be staffed by:

- 1 Senior Coordinator (Team Leader)
- 2–3 Field Agronomists / Soil Sampling Agents
- Community Agents
- Digital record & data management system

Field teams will conduct scheduled soil sampling campaigns across kebeles, prioritizing cluster-based outreach to maximize efficiency and reduce travel costs.

Samples will be analyzed on the spot using portable lab-kits, and farmers will receive the standard “**KEHAZ Soil Slip**” (KSS) which states and advise on:

- ✓ Basic parameter analysis
- ✓ Soil nutrient status
- ✓ Crop-specific fertilizer dosage & recommendations
- ✓ Guidance on optimal input application & soil care

4.2. Revenue Model

The node generates income through:

1. **Soil Testing Service Fees:** Farmers pay an affordable, standardized fee per plot for soil analysis and recommendation services.
2. **Precision Farming Tools Distribution:** Organized farmer sensitization programs to enable farmers adapt precision tools
3. **Training & Group Advisory Sessions:** Organized farmer groups may pay service fees for precision agriculture training sessions.
4. **Commission from Input Facilitation (PFFA Framework):** As the node matures, it will support demand aggregation and precision fertilizer facilitation, strengthening both farmer outcomes and system efficiency.

4.3. Financial Sustainability

The six-month pilot aims to reach at least 500 farmers. With an average service fee per test, the node is designed to progressively cover:

- Field operational costs
- Staff compensation

- Transport and mobility
- Basic administrative overhead

The goal is for the node to approach operational breakeven within the pilot period, establishing a self-sustaining **Precision Agriculture Service Model** that can be replicated in other woredas.

5. Conclusion & Call to Action

For years, smallholder farmers have navigated agricultural decisions with limited farm-level data. Inputs were adopted, risks were taken, and productivity remained uncertain — not due to lack of effort, but lack of precision.

KEHAZ Agro Services is building a practical, decentralized solution: bringing soil intelligence directly to the farm through a mobile, community-embedded model. The Mirab Abaya pilot node is the first step toward a scalable system that aligns farmers, input suppliers, financial actors, and markets around evidence-based decisions.

This fundraising campaign supports the infrastructure and operational setup required to launch and validate this model. The requested 500,000 ETB enables field mobility, equipment, office setup, and logistics necessary for the first six months of structured implementation. Staff compensation is covered internally, reflecting the company's long-term commitment to sustainability beyond the pilot phase.

By contributing, you are not donating to a temporary intervention — you are participating in the establishment of a self-sustaining rural precision service layer designed to operate independently of donations after validation.

We invite individuals, professionals, and members of the diaspora who believe in practical agricultural transformation to join this foundational phase.

Let us move from generic inputs to informed decisions. From assumption to data. From vulnerability to accountability.

The pilot begins now.