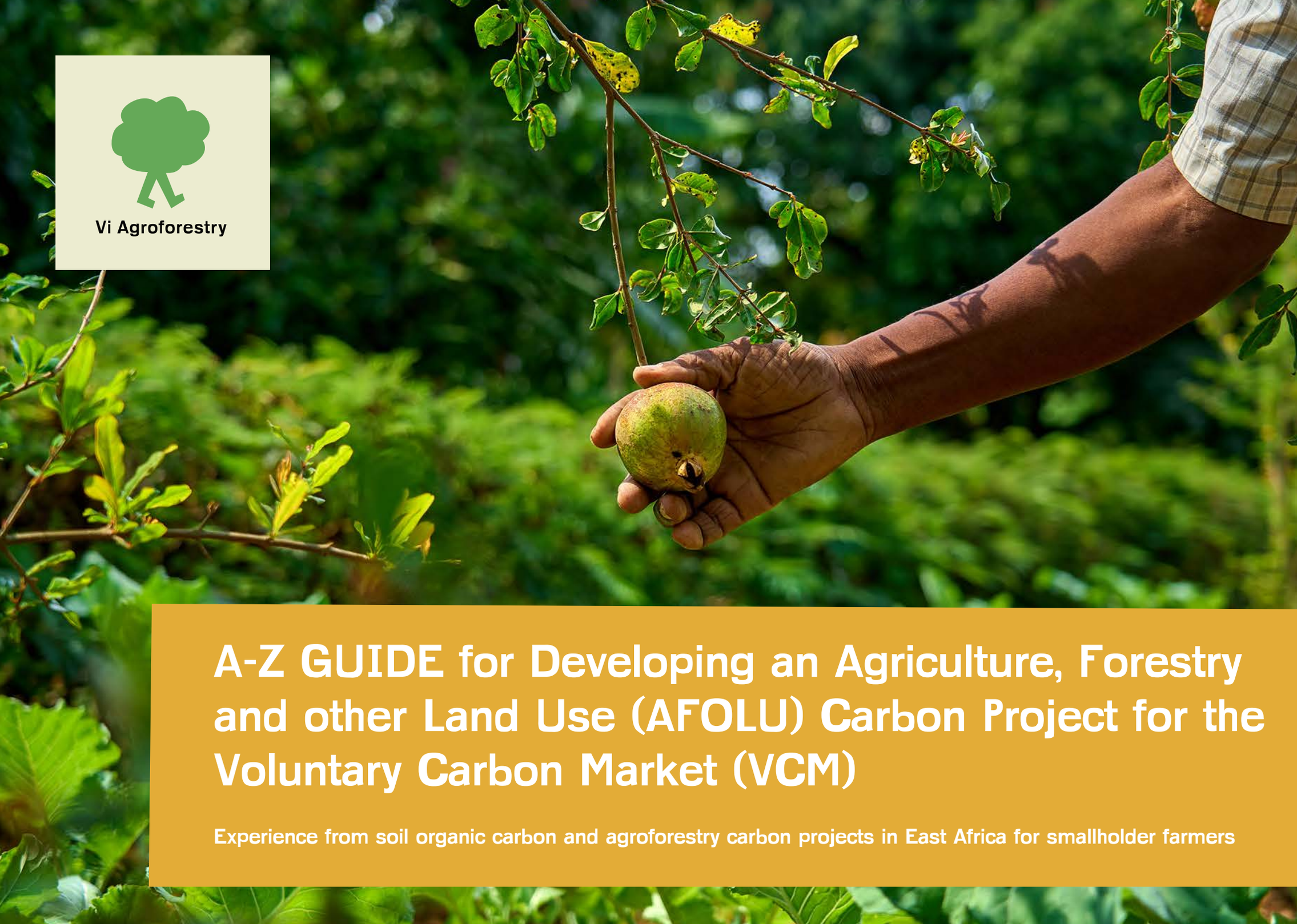

Vi Agroforestry

A-Z GUIDE for Developing an Agriculture, Forestry and other Land Use (AFOLU) Carbon Project for the Voluntary Carbon Market (VCM)

Experience from soil organic carbon and agroforestry carbon projects in East Africa for smallholder farmers



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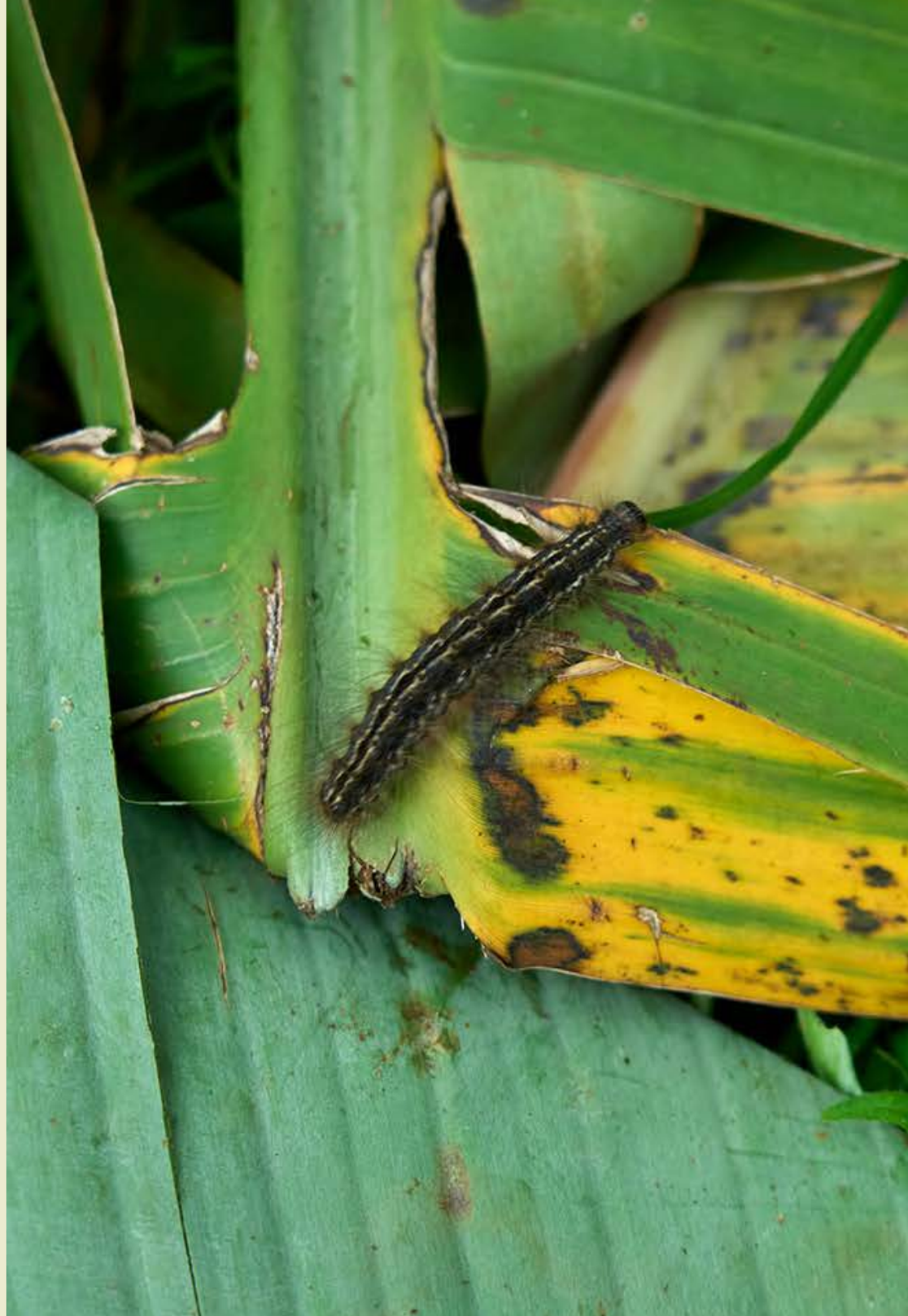

List of Abbreviations

- **AFOLU**
  Agriculture, Forestry and Other Land Use
- **ARR**
  Afforestation, Reforestation and Revegetation
- **DOE**
  Designated Operational Entity
- **ERPA**
  Emission Reduction Purchase Agreement
- **FPIC**
  Free, Prior and Informed Consent
- **GHG**
  Greenhouse Gas
- **GRM**
  Grievance Redress Mechanism
- **KACP**
  Kenya Agricultural Carbon Project
- **MIS**
  Monitoring Information System
- **MRV**
  Monitoring, Reporting and Verification
- **NDC**
  Nationally Determined Contribution
- **PDD**
  Project Design Document
- **PIN**
  Project Idea Note
- **SALM**
  Sustainable Agricultural Land Management
- **SOC**
  Soil Organic Carbon
- **VCM**
  Voluntary Carbon Market
- **VCS**
  Verified Carbon Standard
- **VER**
  Verified Emission Reduction
- **VVB**
  Validation and Verification Body

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Introduction and purpose of this guide

This guide will take the reader through the fundamental steps and prerequisite conditions of developing a land-based carbon project, from project design to issuance of carbon credits. It will explain concepts and provide hands-on experiences from Vi Agroforestry's different carbon project's cycles.

Vi Agroforestry's projects follow different standards and procedures, offering a tangible lens through which to understand complex theoretical concepts. By highlighting lessons learned and challenges encountered over years of engagement with the voluntary carbon market (VCM), this guide serves as both a step-by-step roadmap and a good practice reference for those navigating the carbon market space.

Targeted at project developers, proponents, financiers, and approval bodies, the guide also supports engagement with project beneficiaries such as farmers - helping them better understand the carbon project lifecycle and their role in it. Unlike other guidelines that provide general recommendations, this guide is built on Vi Agroforestry's direct experience as both a project developer, implementer and seller of carbon credits.

The guidebook is structured around key project design features (see flowchart), ensuring practical applicability for those looking to develop high-quality, farmer-centred carbon projects.

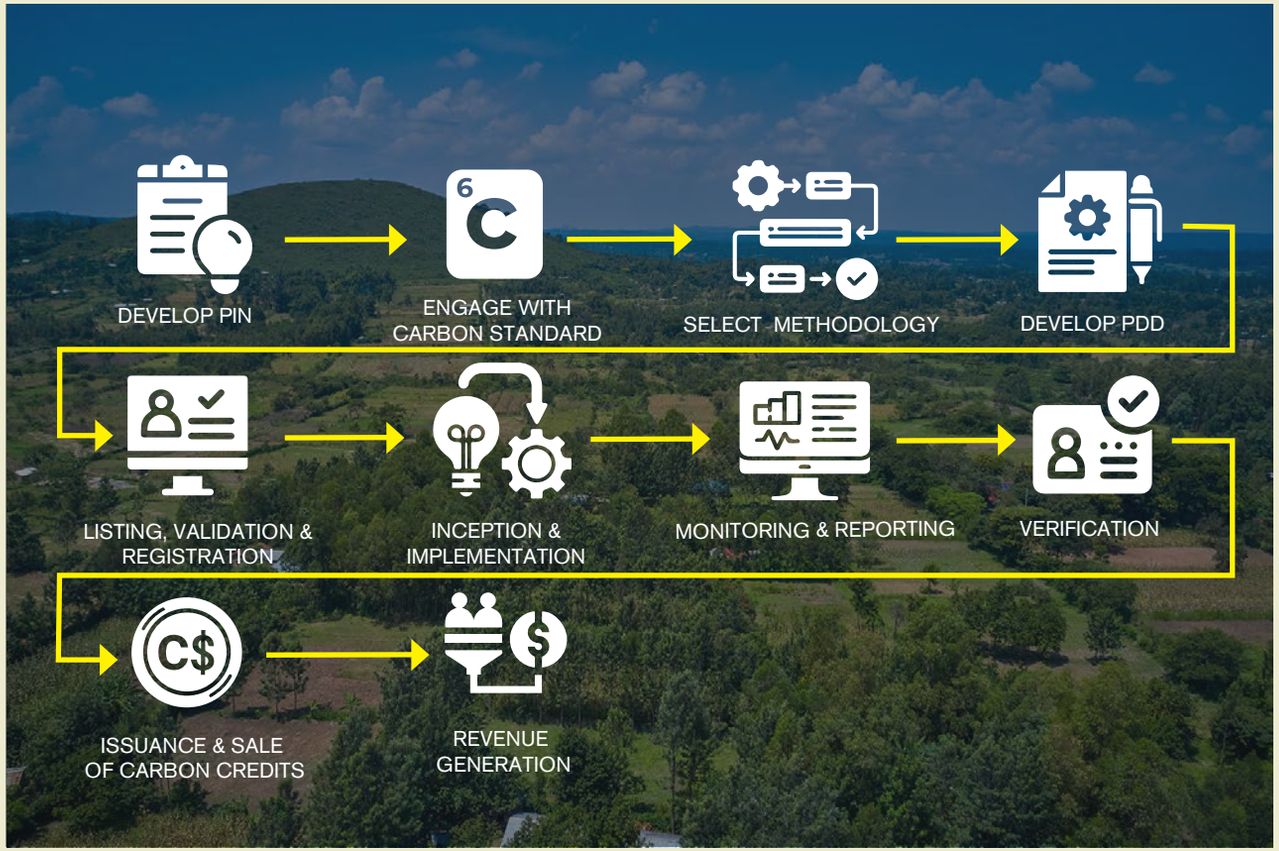


Figure 1. Lifecycle of AFOLU carbon projects.



Overview of Vi Agroforestry's Carbon Projects

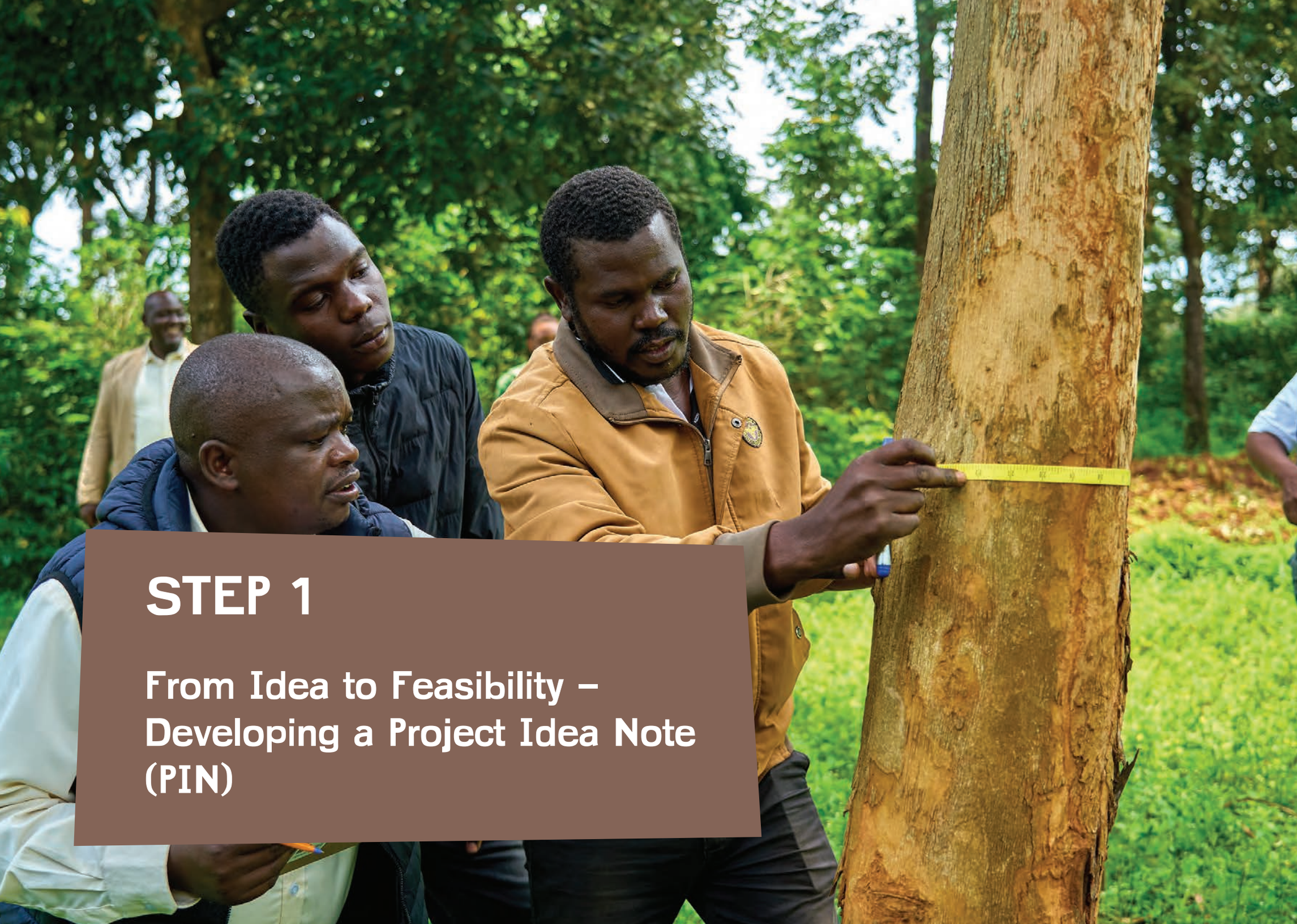
Throughout this guidebook, there are insights from Vi Agroforestry's three active carbon projects. Table 1 is a brief overview to highlight their key differences.



Table 1. Overview of Vi Agroforestry's carbon projects.

Project name & abbreviation	Location	Standard & methodology	Year of Inception
Kenya Agricultural Carbon Project (KACP).	Kenya	Verified carbon standard (VCS) VM0017 Sustainable Agricultural Land Management (deactivated) Since 2024: VM0042	2009
Livelihoods Mount Elgon project.	Kenya	Verified carbon standard (VCS) VM0017 Sustainable Agricultural Land Management (deactivated) Since 2024: VM0042 Gold Standard (GS) Gold Standard Agriculture Smallholder Dairy Methodology: Methodology for GHG Emission Reductions from Smallholder Dairy Production Systems.	2016
Emiti Nibwo Bulora (Trees sustain life).	Tanzania	PV Climate Standard - Agroforestry.	2008





STEP 1

From Idea to Feasibility – Developing a Project Idea Note (PIN)

A Project Idea Note (PIN) is the first step in starting a carbon project. It evaluates the viability of the project by outlining objectives, location, expected emissions reductions, and alignment with eligibility criteria. The process involves assessing policy frameworks, market and financial feasibility, and social and environmental safeguards. The PIN helps attract initial interest from investors, stakeholders or standard-setting bodies during the early development stage. As much as it is not compulsory for all standards, it is a very useful step used to for feasibility and for gauging interest before significant resources are committed to full project development[1].

On the other hand, a Project Design Document (PDD) is a detailed and comprehensive document that lays out the full technical, environmental, and social design of a carbon project. The PDD is a mandatory requirement under most carbon standards (e.g., VCS administered by Verra, Gold Standard) and is used in the validation and registration process. It includes detailed baseline and project scenarios, methodologies for calculating emissions reductions, monitoring plans, stakeholder consultations, and risk assessments. The PDD forms the basis for third-party validation and later verification of emissions reductions[2].

The primary difference between a PIN and a PDD lies in their depth, purpose, and timing. The PIN is a short, high-level document used for early-stage communication and interest generation, whereas the PDD is a fully developed, technically robust document necessary for the formal approval and implementation of the project. While the PIN may help attract support or funding, the PDD is the foundation upon which the project is assessed and validated for the issuance of carbon credits.

Below are key areas that need to be assessed:

☐ Basic project information

Location, stakeholders involved, project participants, project type etc.

☐ Selection of carbon standard and accounting methodology

Most climate projects adhere to international standards like the Verified Carbon Standard (VCS), Gold Standard, and Plan Vivo, which establish the rules and requirements that all climate projects must meet to be recognized as a proven method of reducing CO2 emissions. The accounting methodology is a specific approach within the chosen standard, detailing how to measure, report, and verify the project's impact.



Mapping farm boundary using digital tools and systems.



Vi Agroforestry staff conducting farm measurement exercise.



Digitized farm boundary mapping.

☐ Estimated carbon benefit from project activities

Provide the projected GHG reduction/removals (tCO_2e/year and total over crediting period) and a brief explanation of the approach for estimation.

☐ Estimated carbon benefit from project activities

Provide the projected GHG reduction/removals (tCO_2e/year and total over crediting period) and a brief explanation of the approach for estimation.

☐ Key eligibility criteria

Permanence

Ensuring the long-term durability of carbon reductions without risk of reversal

Baseline

Establishing a reference scenario to measure the project's emissions reductions or avoidance.

Additionality

Demonstrating that the project delivers emissions reductions beyond what would occur without it.

Leakage

Assessing and minimizing emissions displaced to areas outside the project boundaries.

☐ Deciding on the Project boundaries

Defining the geographical, sectoral, and temporal scope of the project.

☐ Financial feasibility

Evaluating if the project can be economically sustainable over its lifetime. Potential sources of funding and expected costs and revenues.

☐ Carbon financing structure

Structuring funding mechanisms, such as carbon credit sales, to support the project.



Farmer using simple tilling tools to support minimum tillage.



Vi Agroforestry field officer ensuring informed consent.

☐ **Stakeholder mapping and seeking Free Prior & Informed Consent (FPIC)**

Identifying key stakeholders and ensuring they voluntarily agree to the project with full understanding.

☐ Benefit sharing mechanism

Designing a system to equitably distribute monetary or non-monetary benefits to stakeholders involved.

☐ Ascertaining the land and carbon rights

Clarifying ownership of the land and the rights to carbon credits generated by the project.

☐ Cost benefit analysis

Comparing the project's costs against its expected economic, social, and environmental benefits.

☐ Community impact

Assessing how the project affects local communities, focusing on benefits and avoiding harm.

☐ Monitoring plan

Establishing a system to track, verify, and report the project's progress and outcomes

☐ Governance and policy alignment

Ensuring compliance with national and international legal frameworks, land tenure, environmental, and carbon market regulations. For the PDD, many standards (like VCS and Gold Standard) require a regulatory and policy section. Even if not explicitly required, including this information strengthens the credibility and sustainability of the project as well as eligible for support under Paris Agreement or future compliance frameworks. Nationally Determined Contributions (NDCs) are central climate policy instruments under the Paris Agreement and therefore carbon projects must demonstrate alignment with their host country's NDCs to ensure climate integrity by avoiding double counting. Also to improve regulatory approvals such as letters of no objection. This section should give details of relevant laws and policies, project alignment with climate and development goals and institutional stakeholders.



Adverse climatic changes in rainfall turning land into swamp areasunsuitable for agriculture.

Case Example: Vi Agroforestry

For KACP, Vi Agroforestry started with project preparation which involved the preparation of the PIN and the Carbon Finance Document (CFD) which were reviewed by the BioCarbon Fund. The Kenya National Environmental Management Authority (NEMA), the current Designated National Authority endorsed the project and issued a Letter of no-objection after conducting an Environmental and Social Impact Assessment showcasing that the project produced positive impacts. The project directly supports Kenya's updated 2020 NDC, which commits to reducing GHG emissions by 32% by 2030.

Also, while Kenya's Climate Change (Carbon Markets) Regulations, 2024 came into force recently, KACP is already complying with the regulation. This is a prerequisite for validation and verification by VCS approved third-party auditors.

While the original PIN is not presented as a standalone document in this guide, its core elements - such as project description, scope, and feasibility - are fully expanded upon in the PDD described in Step 3. Readers seeking a comprehensive understanding of the project's early design and justification will find those details embedded there.



Stakeholder engagement at participating farmer's land.



Alley cropping system in KACP



STEP 2

Engaging with Standards and Selecting Methodologies

The project proponent must:

1) Contact the selected standard to understand the requirements, processes, and documentation needed for project approval to ensure all criteria are met (initial inquiry).

An increasing number of standards and methodologies are being developed for different agricultural project types under the VCM. The three major independent certification standards are the Verified Carbon Standard (VCS), Gold Standard and Plan Vivo who all have methodologies for agricultural projects with agroforestry and adapted to smallholder farmers. Gold standard rarely certifies within the agricultural sector but has methodologies for zero-tillage and smallholder dairy.[3]

2) Select the methodology for the quantification of verified emission reductions.

Standard programs provide methodological frameworks for measuring the GHG benefits of various project types. Each project must adhere to the requirements of its selected methodology, which differ in terms of data collection intensity and quantification processes. The choice of methodology depends on the applicability, and the requirements for data and quantification. In some cases, projects may use methodologies or approaches that are not directly linked to a specific crediting standard.

3) Develop a project design document (see Step 3)

4) Contact the selected standard to be admitted for listing and registration of the carbon project (see Step 4)[2]



Alley agroforestry implemented in a farmland.

[1] GIZ. (2023). *Guidebook for Project Developers: Best Practice for Agricultural Carbon Project Development Targeting Voluntary Carbon Markets.*



Integrated farming methods through livestock keeping implementation in farmland.



Farmers tend to a compost pit in a farm.



Implementation of intercropping of fruit trees and fodder



Implementation of composting in a farm.



Improved fodder management by farmer





Implementation of minimum tillage using simple tilling tools.

Table 2. Methodologies of the three major VCM standards applicable to smallholder agricultural activities Adapted and updated from GIZ publication.

Standard	Methodology	Applicable practices	Further Description
Plan Vivo.	SHAMBA Tool (Smallholder Agriculture Monitoring and Baseline Assessment)[5]	Agroforestry, intercropping, composting, mulching, cover cropping.	Designed for smallholder contexts; combines empirical and modelled soil carbon estimates
	ACORN (Agroforestry CRUs for the Organic Restoration of Nature)[6]	Agroforestry	Developed by Rabobank, certified by Plan Vivo. ACORN enables smallholder farmers to generate Carbon Removal Units (CRUs) through agroforestry. It uses remote sensing to monitor tree growth and carbon sequestration. CRUs are only issued once carbon is demonstrably stored in biomass removals.
Gold Standard.	Soil Organic Carbon (SOC) Framework Methodology[7]	Zero tillage, improved tillage, biostimulants, compost application.compost application.	A modular framework that allows projects to quantify changes in SOC stocks and GHG emissions from improved agricultural practices

Gold Standard.	**SOC Module: Zero Tillage[8]**	**No-till farming**	**Focuses on growing crops or pasture without mechanically disturbing the soil. Benefits include increased SOC, reduced erosion, improved water retention, and lower fossil fuel use. Only SOC pool benefits are credited. Requires direct SOC measurements or project-specific models..**
	SOC Module: Biostimulants[9]	**Organic soil amendments.**	**Targets soil revitalization through biostimulants that stimulate microbial activity, especially fungi, enhancing SOC sequestration. Applicable to a wide range of farming systems. Requires evidence of biostimulant efficacy and includes GHG accounting for production and application.**
	Smallholder dairy[10]	**Dairy farming.**	**Aims to reduce GHG emissions intensity from milk production in smallholder systems. Covers improved feeding, manure management, and animal husbandry. Uses a standardized baseline and quantifies emission reductions per liter of milk.**

[2] TraceX. (2023). *Understanding Verified Carbon Standard Project Lifecycle.*
[3] GIZ. (2023). *Guidebook for Project Developers: Best Practice for Agricultural Carbon Project Development Targeting Voluntary Carbon Markets.*
[4] Plan Vivo Foundation. (2023). *PT001 Smallholder Agriculture Monitoring and Baseline Assessment, V1.0.*
[5] Rabobank. (2023). *Acorn Methodology for Quantifying Carbon Benefits from Small-Scale Agroforestry, V1.1.*
[6] Gold Standard. (2020). *Soil Organic Carbon Framework Methodology, V1.0.*
[7] Gold Standard. (2024). *Soil Organic Carbon Activity Module for Zero Tillage, V1.0.*
[8] Gold Standard. (2023). *Soil Organic Carbon Activity Module – Biostimulants for Soil Revitalisation, V1.0.*

Verra (VCS)	**VM0042 – Improved Agricultural Land Management (IALM)[11]**	**Conservation agriculture, cover cropping, nutrient management, agroforestry**	**Most comprehensive VCS methodology for cropland**
	VM0047- Afforestation, Reforestation and Revegetation.	**Applies to afforestation, reforestation, and revegetation (ARR) activities that establish, increase, or restore vegetative cover in non-forest areas or enhance forest carbon stocks in areas with existing forest cover.**	**Used for tree planting activities in landscapes**



Farmer implementing intercropping of fruit trees, vegetables and fodder in farmland.



Alley cropping system implemented at farm participating in KACP

Case Example: Vi Agroforestry

1. Initial inquiry

Vi Agroforestry's carbon projects followed different paths. **For KACP**, we decided to carry out a pilot project on smallholder agricultural soil carbon, thereafter the BioCarbon Fund of the World Bank contacted VCS who supported in piloting and approving the new methodology. It was a joint effort to develop the methodology, the requirements and processes and documentation needed.

For our second carbon project, Emiti Nibwo Bulora, the approach was more traditional, and Vi Agroforestry had evaluated the need for pre financing tree planting activity as a necessary step in reclaiming degraded land. Plan Vivo standard offered the possibility of ex ante credit issuance hence the decision to contact Plan Vivo Foundation for funding the project.

For our third carbon project, Mount Elgon Livelihoods Project, the initial desire was to work with Gold Standard which Livelihoods Venture had previous project with. The Gold Standard lacked a soil carbon methodology aligning to the project activities which necessitated approaching the Verra Standard to certify the soil carbon component of the project activity.

[9] FAO et al., (2016). *Smallholder Dairy Methodology, V1.0.*
[10] Verra. (2024). *VM0042 Methodology for Improved Agricultural Land Management. Version 2.1.*
[11] Verra (2025). *VM0047 Methodology for Afforestation, Reforestation, and Revegetation. Version 1.1.*



Farmer implementing intercropping of fruit trees, vegetables and fodder in his farmland.

2. Methodology selection

For KACP, *we co-developed the VM0017 Sustainable Agricultural Land Management (SALM) methodology, as there was no existing approach for smallholder farmers.* Instead of adopting an existing ill-suited methodology, ViA focused on quantifying and crediting the GHG benefits of SALM. This was validated through long-term research in Kenya by Det Norske Veritas Climate Change Services AS (DNV), a third-party validation and verification body. The methodology was co-developed by the VCS directly and approved in 2011. This involved multiple feedback rounds and revisions to ensure all criteria were met.

This process demonstrates that developing a new methodology is possible when no suitable one exists, especially for areas like smallholder agriculture that currently lack appropriate standardised methodologies for carbon stock accounting.

For Emiti Nibwo Bulora project, Plan Vivo standard was applied because it allowed selling of credits Ex Ante, hence supporting farmers in tree planting in agroforestry system configuration.

For Mount Elgon Livelihoods Project two different standards were applied for the different carbon components. VCS was applied for soil organic carbon and tree planting and Gold Standard was applied for the dairy emissions - being the only standard that had developed this methodology at the point of inception.

> "we co-developed the VM0017 Sustainable Agricultural Land Management (SALM) methodology, as there was no existing approach for smallholder farmers."



Farmers using basin water catchments to conserve soil moisture for banana crops.





STEP 3

Designing a Credible Project – The Preparation of Project Design Documents

To register a carbon project with a recognized standard, a PDD must be developed, tested, and validated. This typically happens after at least two years of implementation, but no later than five years from the project's inception. The PDD is a comprehensive document that outlines all technical, environmental, and social aspects of the project. It includes:

- Project design and scope
- Chosen methodology and baseline scenario
- Demonstration of additionality and eligibility criteria
- Monitoring, reporting, and verification (MRV) systems
- Stakeholder engagement processes
- Expected environmental and social impacts

It also details the specific project activities, how emissions reductions or removals will be achieved, the parameters for tracking benefit-sharing and co-benefits throughout the project's lifetime. For reference, revisit the checklist from Step 1 – the PIN, which lays the groundwork for the PDD.



Vi Agroforestry staff conducting farm measurement excercise in participating farmer's land.

Case Example: Vi Agroforestry

For many carbon project developers, the PDD is the first major hurdle where theory meets reality. It's where ambition is tested against methodology, field data, and stakeholder dynamics. For Vi Agroforestry, the KACP was not just a pioneering soil carbon initiative - it was a live laboratory for shaping how smallholder AFOLU projects can be credibly documented, validated, and scaled.

This section unpacks the PDD process not as a checklist, but as a lived experience - highlighting the design logic and decisions shaped one of Africa's most referenced soil carbon projects.

A PDD is often described as a "technical blueprint," but that undersells its role. In practice, it is:

- A negotiation tool between project developers, standards bodies, and verifiers.
- A trust-building instrument for donors and buyers.
- A living document that evolves with field realities - and should be subjected to revision after the validation process (see Step 4 for more on validation).



Vi Agroforestry field officer carrying out stakeholder agroforestry training.



A diverse alley cropping system



Vi Agroforestry field officers collecting soil samples.

Project description

The KACP is being implemented in Kenya since 2009. It was initially supported by the Biocarbon Fund (BCF) of the World Bank and funded by Vi Agroforestry and the Swedish International Development Agency (Sida). The project works with smallholder farmers who implement SALM practices for livelihood improvement and generation of GHG removal through soil and tree carbon sequestration. The average land holding for these smallholder farmers that is or potentially is under SALM per household is approximately 0.5 ha. Based on the AFOLU Requirements of the VCS (VCS 2011, Version 3) the project activities fall under the category “Agricultural Land Management (ALM). Eligible ALM activities i.e. those that reduce net GHG emissions on cropland and grassland by increasing carbon stocks in soil and woody biomass and/or decreasing CO2, N2O and/or CH4 emissions from soils.

Selection of carbon standards and accounting methodology

Being a first soil-carbon project in Kenya, there was a need to develop a methodology that would support quantification of GHG emission reductions from the sustainable agriculture land management practices (practices that enhance above and below ground carbon as well as soil-based carbon sequestration). The World Bank's Bio-carbon Fund, Vi Agroforestry and Unique Land Use and Forestry hence developed the VM0017 methodology which Vi Agroforestry has been using until March 31st, 2023, when Verra deactivated it. Deactivation of the methodology meant that the KACP had to switch methodology to another appropriate methodology. This is a costly undertaking as it involves the use of consultants and a change in monitoring, reporting and verification systems and processes.

The PDD accounted for five carbon pools, as per VM0017, including:

- Above- and below-ground tree biomass - calculated using CDM A/R tools (CO_2,).
- Soil organic carbon - calculated using RothC carbon model (CO_2,).
- Fertilizer use (N_2O emissions).
- Fossil fuel combustion (CO_2, CH_4, N_2O).

For more detailed overview of the carbon pools, see Table 3.



Table 3. Carbon pools considered in this project

Carbon pools	Gas	Explanation
Above ground tree biomass.	CO_2	A carbon pool covered by SALM practices. The increase in above ground biomass of woody perennials planted as part of the SALM practices is part of the methodology. The above ground biomass is calculated using the CDM A/R Tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" and the "Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the clean development mechanism implemented on grasslands or croplands", AR AMS0001.
Below-ground tree biomass.	CO_2	Below-ground biomass stock is expected to increase due to the implementation of the SALM activities. The increase in below ground biomass of woody perennials planted as part of the SALM practices is part of the methodology. "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" and the "Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the clean development mechanism implemented on grasslands or croplands", AR AMS0001.
Soil organic carbon (SOC).	CO_2	A major carbon pool covered by SALM practices.
Use of fertilizers.	N_2O	Main gas for this source. Baseline and project emissions from synthetic fertilizer use are calculated using the CDM A/R Tool "Estimation of direct nitrous oxide emission from nitrogen fertilization".
Burning of fossil fuels.	CO_2 CH_4 N_2O	CO2 and non-CO2 emissions are calculated using the tool Estimation of emissions from the use of fossil fuels in agricultural management.

Each SALM practice (residue management, composting, agroforestry, cover cropping) was linked to specific carbon pools and quantified accordingly. This level of granularity was essential for validation. For more detailed overview of the carbon pools and SALM practices, see Table 3 and 4.





Farmer inspecting cover crops.

Table 4. SALM practices promoted in the KACP and accounted for carbon

SALM Activity	Description
Residue management	Residues from crops such as maize, beans, cow peas, sweet potatoes as well as deciduous tree litter are left on the soil. This organic matter creates favourable microclimatic conditions that optimize decomposition and mineralization of organic matter ("surface composting") and protect soil from erosion.
Composting	Composting entails controlled biological and chemical decomposition that converts animal and plant wastes to humus. It is an organic fertilizer made from leaves, weeds, manure, household waste and other organic materials from the farm. Proper composting management leads to an increased proportion of humic substances due to high micro-organic activity, and therefore the quantity and quality of humus in the soil increase.
Cover crops.	Cover crops are planted on bare or fallow farmland to reduce erosion and mineralization of organic matter. Green manure is a fast-growing cover crop sown in a field several weeks or months before the main crop. Before the main crop is planted, the green manure is then ploughed into the soil.
Agroforestry	Agroforestry is a major program activity which has proved to be a more sustainable economic, social and environmental land management system in smallholder conditions. Agroforestry increases tree cover which contributes to increased biomass above and belowground including soil carbon. Several agroforestry practices are part of this project activity: • Agro-silviculture that involves selected species of trees (e.g. Sesbania sesban, Markhamia lutea, Calliandra, Grevilea robusta and others) grown on the cropland in a mixed spatial (scattered) system. • Boundary / hedge tree planting involves planting of selected trees along field boundaries, borders and roadsides which can create micro-climate for crops, serves as windbreaks thus stabilizing the soil.

Residue management	• **Woodlots serve as woody biomass pools for the farmers. Generally, about 40 trees planted at one distinct piece of land can be considered as a woodlot. Woodlot can be established near homesteads and separately from cropland.** • **Tree shading of perennial crops involves trees grown in combination with other perennial crops such as coffee, sugarcane and tea. These systems potentially increase productivity of the soils through increased litter inputs, enhanced microclimatic conditions and soil nutrient availability.** • **Trees and pastures (silvo-pasture system). This practice can contribute to the production of green manuring and improved fallowing practice.** • **Fodder banks can provide essential and improved feeds to livestock. This type of crop is an integral part of the whole livestock feeding and management system. Fodder trees usually include Calliandra, Sesbania sesban, Gliricidia sepium, Moringa oleifera and Cajanus cajan.**

Baseline scenario

Before the inception of the KACP project, a baseline was conducted to ascertain the status of the environment, agricultural practices as well as the socio-economic aspects. Results from the baseline indicated that the area is characterized by high agricultural potential that attracted large human settlement in the past, resulting in extensive land fragmentation and degradation. The humid environmental conditions led to permanent leaching of the soil. There was soil degradation due to agricultural intensification that dramatically reduce the nutrient content of the soils and therefore compromised food supply; reliance on monocropping farming especially maize growing and heavy dependence on synthetic agro-inputs for pest and disease control among others. Project scenario showed that the project would bring positive changes to people and the environment. For instance, farmers will engage in a more diversified cropping system, uptake sustainable agricultural practices such as intercropping, boundary planting, orchards, mulching, composting and use of integrated pest management practices. The project estimated that 1,777,715 tonnes of CO2e would be sequestered.

Agricultural activities in the baseline were assessed on the adoption of SALM practices and are monitored as a proxy of the carbon stock changes using activity-based model estimates, for more information about the monitoring, see below under “Monitoring Plan”.



Cattle being fed nutritious fodder to improve milk productivity



Farmer applying compost onto the farmland.



Figure 2. Carbon credit production targets (CO2e) without buffer

	Kisumu Project Region	Kitale Project Region
Cummulative (Over 20 years).	**898,284**	**338,089**
Average per year.	**44,914**	**16,904**
Average per hectare per year.	**2.0**	**0.8**
Total project cummulative.	**1,236,373**	
Per Year.	**61,818**	
Total Project Average per Hectare and Year.	**1.37**	

Adapted form VCS 2010



Farmer inspecting tree seedling.



Farmer applying mulch to support the growth of a young tree seedling.

Eligibility criteria

The project start date (July 2009) marked the beginning of the KACP project and Vi Agroforestry started project activities and monitoring in the field. All the eligibility criteria below were assessed prior to this, since they are essential for project feasibility – without them the project is not viable.

Permanence

The KACP has been designed with a long-term vision to maintain and enhance carbon stocks over a 50-year period. Trees planted under the project continue to sequester carbon as they grow, contributing to sustained climate benefits. *To ensure this long-term impact, farmers are trained in appropriate agroforestry tree management techniques such as pruning, pollarding, and selective thinning - that promote healthy tree growth while minimizing competition with food crops.*

These practices are not only essential for maintaining carbon sequestration but also for integrating trees effectively into smallholder farming systems.- such as pruning, pollarding, and selective thinning - that promote healthy tree growth while minimizing competition with food crops. These practices are not only essential for maintaining carbon sequestration but also for integrating trees effectively into smallholder farming systems.

The underlying assumption is that farmers will continue to implement SALM and agroforestry practices beyond the project's contractual period, as these approaches provide tangible co-benefits–such as improved soil fertility, diversified income sources, and enhanced resilience to climate change–that extend well beyond carbon alone.

> **To ensure this long-term impact, farmers are trained in appropriate agroforestry tree management techniques such as pruning, pollarding, and selective thinning - that promote healthy tree growth while minimizing competition with food crops.**

Leakage

The carbon project activities impacts are measured comparing Baseline Scenario versus Project Scenario. This includes what is happening away from the project boundaries. The project ensures that the carbon project is not causing emissions elsewhere. A holistic approach is undertaken to ensure that farmers are properly trained in the application of SALM practices and agroforestry and on how to sustain themselves within their farms. Farm plans are very important in this case. Social and environmental impact assessment was conducted to ensure that we understand the potential impacts fully and at the same time design a mitigation plan. KACP aims at increasing the organic input from plants and manure to the agricultural land.

The project intervention focus is on the whole farm as the basic unit where biomass is produced to provide organic inputs to the crop fields as well as to provide feedstock to livestock. Consequently, biomass and organic material are only shifted within a single farm system. Since the project is in a rural set up, the natural source of cooking energy is either firewood or charcoal which advised the use of the whole farm approach, where KACP is promoting the shift from the traditional three-stone stove to an improved and wood-saving stove. It is expected that firewood consumption per farm is reduced by half through this intervention. Further, as part of the project, firewood trees (e.g. Markhamia lutea) are planted to ensure a sustainable source of energy.

Positive leakage – where the project's efforts to reduce emissions leads to positive environmental impacts elsewhere are encouraged. This means that we have farmers who are not necessarily in the project are adopting practices and technologies, such as agroforestry and composting, on their farms - resulting in bigger results in overall carbon emissions reduction.



Farmland resident preparing a meal using firewood.

Additionality

As part of the feasibility, it was important to ensure that the proposed project was contributing to carbon reduction and that this would not have occurred if the carbon project was not in place. Equally the project is responding to actual problems that communities are grappling with e.g., land degradation, biodiversity loss, loss of livelihoods, climate change impacts etc. To identify the baseline scenario and demonstrate additionality of this project the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities (Version 01)" was applied.

The project also looked at the possible alternative land use scenarios to the proposed A/R CDM project activity. This involved analysis of scenarios such as:

1. What was the land-use and management prior to the implementation of the project activity, either grasslands or croplands.
2. Adoption of sustainable agricultural land management without the incentives from the carbon market (project activity)
3. Abandonment of the land followed by natural regeneration or assisted reforestation.

After the scenario analysis, it was established that the current land use system had no barriers for implementation since the farmers are trapped in this "so-called maize-focused poverty traps".



Farmer inspecting maize crop on farmland.

Deciding on the project boundaries

The project area was also mapped using coordinates from GPS devices. It was also necessary to have locations where SALM could be applied since this was the main technique used for this project. Each location was placed under a specific administrative boundary i.e. district (later changed to counties). Agroecological zones were also defined. Project map was also produced.map was also produced (See figure 3).

Financial feasibility assessment

During the early planning phase of KACP, Vi Agroforestry conducted a detailed financial analysis to assess the project's long-term viability. This included estimating cash flows over the 20-year crediting period, calculating the expected payback time for initial investments, and projecting the costs associated with project development, validation, monitoring, and verification. The analysis showed that the project was financially feasible, providing a solid foundation for moving forward with implementation.

Carbon financing structure

A pilot grant for project development was initially awarded by Sida and supported Vi Agroforestry own funds. Following this, the World Bank, BioCarbon Fund drafted a Letter of Intent and signed a nine-year Emission Reduction Purchase Agreement (ERPA) with Vi Agroforestry, covering the period 2009–2017. The planned sale of Verified Carbon Units (VCUs) (partly as up-front funding) was therefore a key incentive in the decision to proceed with the project. After the ERPA period,

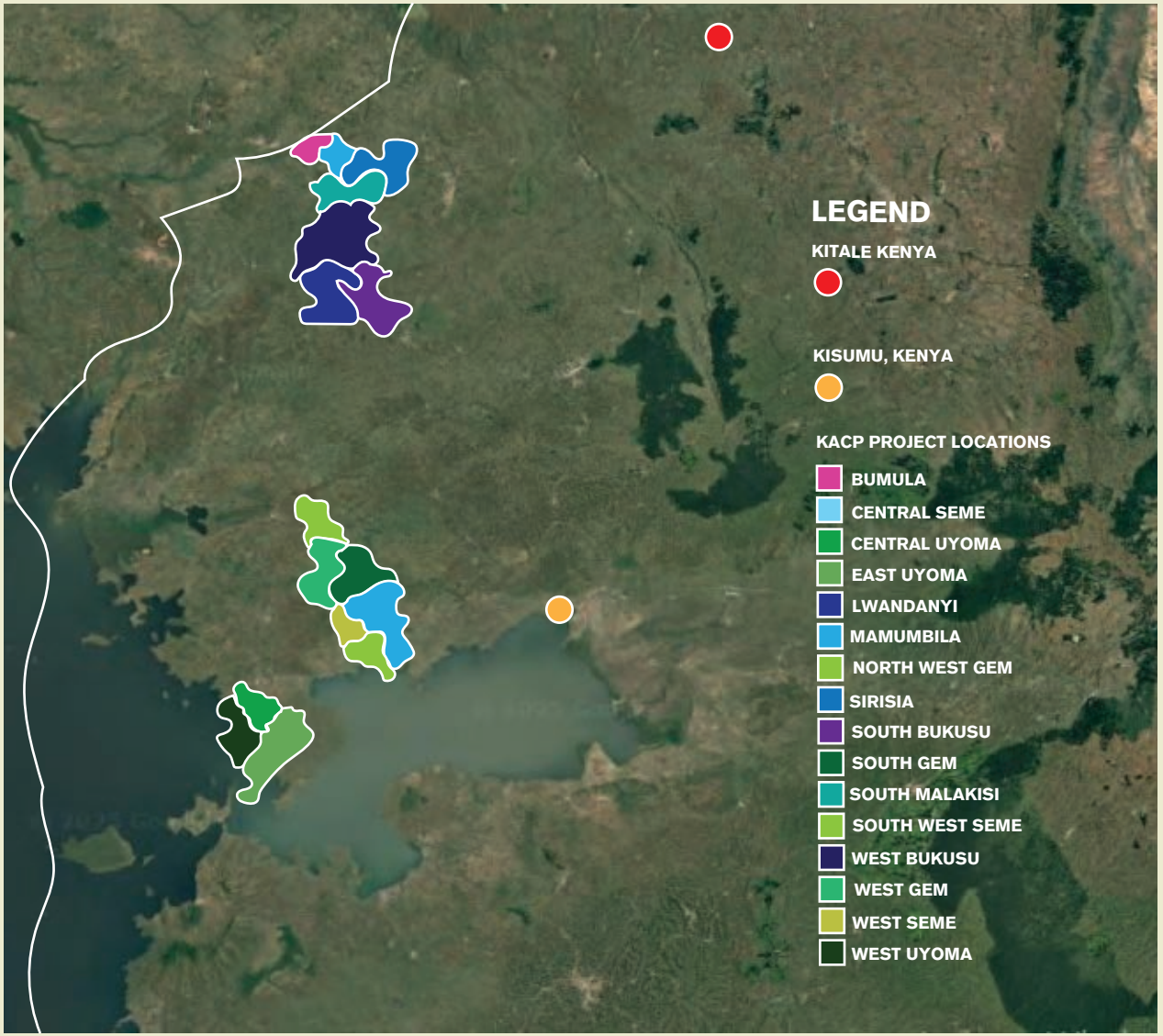


Figure 3. The KACP project locations in Kitale and Kisumu, Western Kenya

Vi Agroforestry gradually assumed full responsibility for the project's operations and financing, including sourcing carbon credit buyers, primarily from Sweden.

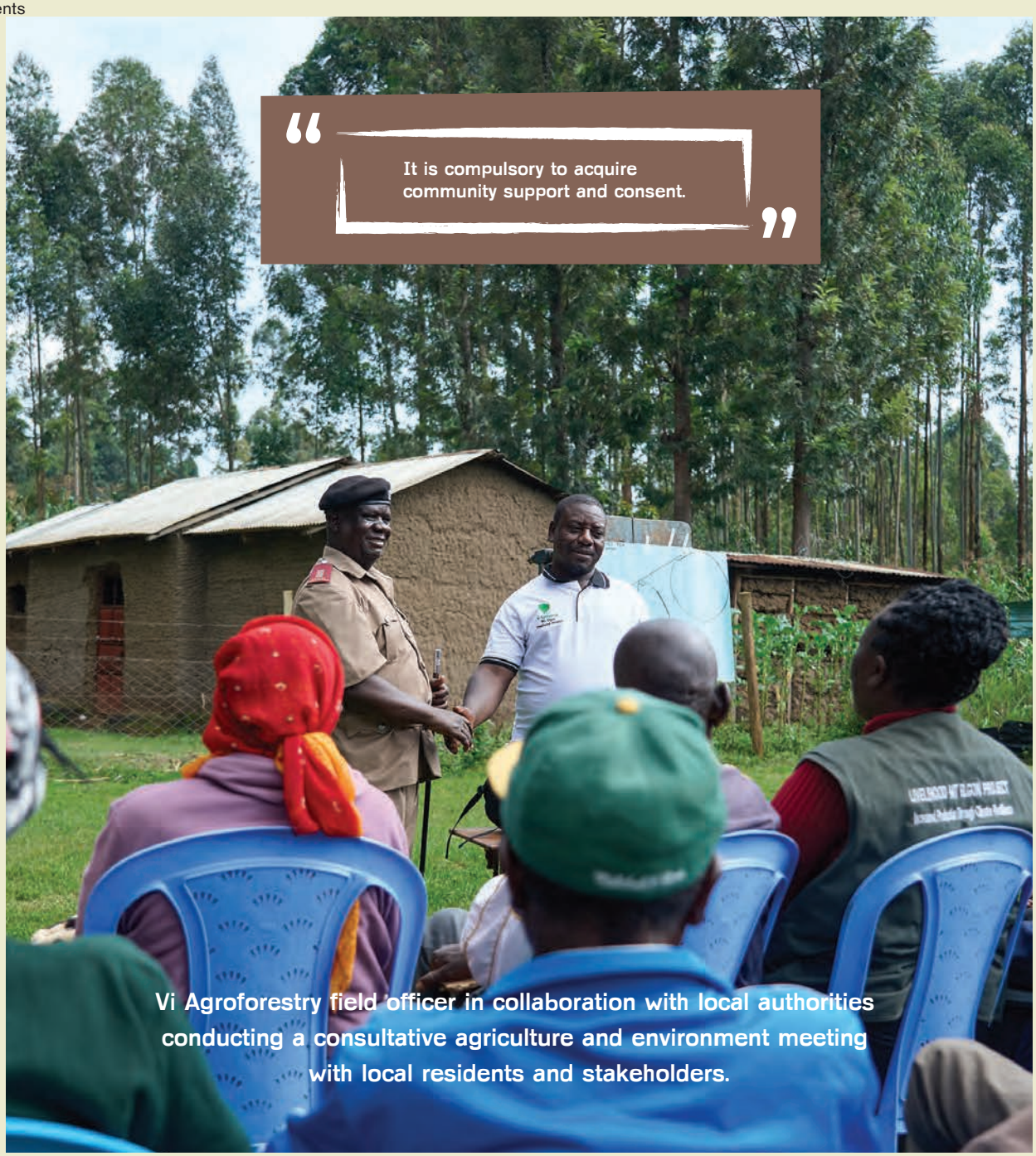
Stakeholder mapping and seeking Free Prior & Informed Consent

Effective stakeholder engagement begins with comprehensive identification and mapping of all relevant stakeholders. *It is compulsory to acquire community support and consent.* This was done through a consultative process where project information was shared with both direct and indirect stakeholders including the smallholder farmers, local authorities, community/opinion leaders and various government departments related to agriculture and environment. Stakeholder participation is a key component in KACP. Stakeholders' awareness was an entry point in the village and the region this was used as an avenue to explore existing and complementary extension services to engage in partnerships (farmer, NGOs and government agencies are invited).

Stakeholder engagement

KACP was rooted in a holistic farm systems approach that integrated extension services across farm planning, enterprise development, and Village Savings and Loan Associations (VSLAs). These VSLAs enabled farmers to save, access credit, and reinvest in sustainable agricultural practices, particularly those aligned with SALM (Sustainable Agricultural Land Management).

Please note:
Increasingly many investors now prefer payment upon delivery of issued carbon credits i.e., projects that are already established.



Vi Agroforestry field officer in collaboration with local authorities conducting a consultative agriculture and environment meeting with local residents and stakeholders.





A farmer group registered in order to simplify benefit-sharing mechanisms.

While carbon sequestration was a key outcome, it was intentionally framed as a co-benefit, secondary to the project's primary goal of improving smallholder productivity and climate resilience.

To operationalize this vision, Vi Agroforestry embedded a decentralized but coordinated extension system into the PDD. 28 field advisers were deployed across 28 administrative locations, each responsible for facilitating a five-step engagement process:



This wasn't just about ticking the "Free, Prior and Informed Consent" box, it was about building a governance structure that could sustain the project over decades.

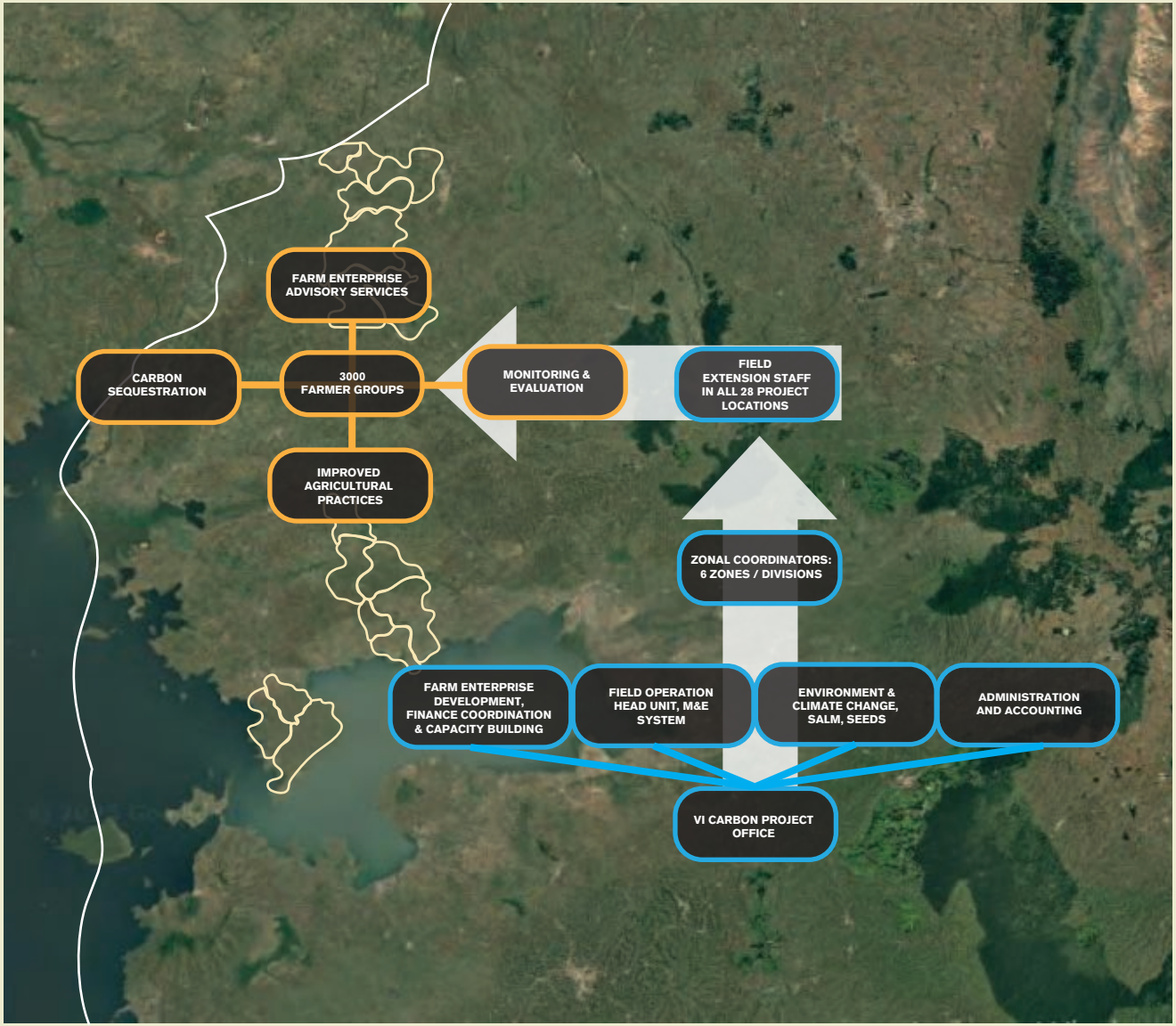


Figure 4. Schematic structure of the institutional set up of the project[12]

[12]. VCS. (2012). *VCS Project Description Template. Kenya Agricultural Carbon Project.*

Benefit sharing mechanism

From the outset, Vi Agroforestry integrated a benefit-sharing mechanism into the KACP project design, as outlined in the PDD. *The aim was to ensure that carbon revenues would be distributed fairly, transparently, and in a way that built long-term trust with participating smallholder farmers,* i.e. the beneficiaries.

To begin with, the project capitalized on existing legal and institutional frameworks relevant to the project i.e., considering the environmental instruments, regulations constitution, financial institution (within Kenya) and leveraging on their strengths as support base. For example, utilizing banks and electronic money transfers ensures that the benefits are distributed in a safe and secure route.

A grievance redress mechanism (GRM) was developed during the implementation of the KACP project, but it was not included in the original PDD due to the early timing of the project's entry into the voluntary carbon market in 2009 - when such mechanisms were not yet standard practice. This reflects how the project design evolved over time to meet emerging expectations and best practices, it is important that the project developer continuously improve the project design and align with evolving safeguards.

> "The aim was to ensure that carbon revenues would be distributed fairly, transparently, and in a way that built long-term trust with participating smallholder farmers,"



Carbon rights registration through a family title deed.



Ascertaining the land and carbon rights

Legal entitlement of smallholder farmers to benefit from the carbon credits generated through their adoption of SALM and agroforestry practices.

In KACP, carbon rights refer to the legal entitlement of smallholder farmers to benefit from the carbon credits generated through their adoption of SALM and agroforestry practices. These rights are tied to the farmers' active participation in emission reduction or carbon sequestration activities. The resulting carbon benefits are monetized through carbon credits and these benefits are distributed through registered farmer groups, which are legal entities recognized by the Department of Social Services and operate formal bank accounts to manage funds.

Land rights are a prerequisite for participation in KACP, as they ensure that the land used for SALM practices is legally accessible to the farmer. KACP recognizes two types of land ownership:

- Own: The household head holds a title deed registered in their name.
- Family: The title deed is registered under a family patriarch or matriarch, but the household
  head has legitimate use rights through inheritance or customary allocation.

This distinction ensures that farmers have secure access to land, which is essential for long-term sustainability and for meeting the permanence criteria required in carbon projects.

Respect for indigenous knowledge and local communities is paramount. The individuals engaged in the project belong to a society that has a culture, customary laws and knowledge of how they have always dealt with various environmental and social issues. In KACP, this is respected and where there is need to address retrogressive beliefs of practices, community consultation is conducted to reach a consensus. The project has fully embraced effective participation of all stakeholders, including underrepresented peoples and local communities.

Gender-transformative approaches are actively employed to challenge and address systemic gender inequalities. This includes promoting equitable access to resources, such as land, regardless of traditional gender roles or inheritance norms. For example, the



Vi Agroforestry field officer and farmer inspecting farmland.

Cost benefit analysis

The total risk factors under Opportunity Cost (OC) were analysed taking into consideration the credited period of KACP is 20 years i.e. 2009 – 2030 for carbon revenues as well as other financial benefits ranging from soil fertility, yields, income. Project revenues are affected by price fluctuation and cost of inputs, and the project takes Farmer Enterprise Development (FED) farming as business beyond subsistence practices. The alternative analysis of land uses was compounded using Net Present Values (NPV) considering discount rate of 6%, project lifespan of 20 years, and initial project total capital. The analysis showed NPV with increasing cash flows was of positive change due to increased farm benefits.

Community impact

The carbon project must be impactful to the community. At the inception of KACP, an Environmental and social impact was conducted to ascertain the existing situation factors that were likely to affect the project (environment, climate change, biodiversity socio-economic) and also to predict impacts that are likely to come from the project. The project has established a Social and Environmental Management Plan (ESMP) which involves pest management and control of invasive species. The ESMP provides a framework for managing risks, implementing mitigation measures, and engaging with stakeholders throughout the project lifecycle. It provides a basis at which monitoring and measurement of the project's

> The carbon project must be impactful to the community.

Monitoring plan

In the KACP, Vi Agroforestry designed a two-tiered monitoring system, called Activity Baseline and Monitoring Survey (ABMS), see figure 5. (Page 52). The ABMS monitoring is structured in two different surveys, Vi Agroforestry's Permanent Farm Monitoring and the Farmer Group Monitoring:

• **Permanent Farm Monitoring:** Conducted by ViA field officers on a fixed sample of farms, so-called ABMS farmers, and are representative for the whole KACP project area. This system establishes baseline conditions and tracks overall project performance across the entire project area (45,000 ha). Indicators include: SALM adoption, crop response, land tenure, land size, crop type, livestock, household cooking and heating, type of shelter, type of roof, water sources, distance to water, water availability, savings, goals of savings, food security, levels of on-farm decision making, family size and age structure, and household budgets.

This data is used to verify the results of the Farmer Group Monitoring.

• **Farmer Group Monitoring:** A self-assessment system where farmers annually record relevant data (e.g. land use, SALM practices, crop types). These records are verified by field officers and used to model actual (ex-post) GHG emissions and removals (from SOC and tree biomass) of a particular group of project instances during a verification event. Further, based on the results of this Group Monitoring the carbon benefits will be distributed accordingly.

Both systems in the ABMS feed into the Roth C soil carbon model to estimate changes in soil organic carbon (SOC) and determine the area under SALM adoption. This dual approach ensures both scientific rigor and community ownership of the monitoring process. The RothC soil carbon model also takes external datasets (e.g. climate and soil data) into consideration.



Permanent farm monitoring conducted by Vi Agroforestry field officers on farmland.

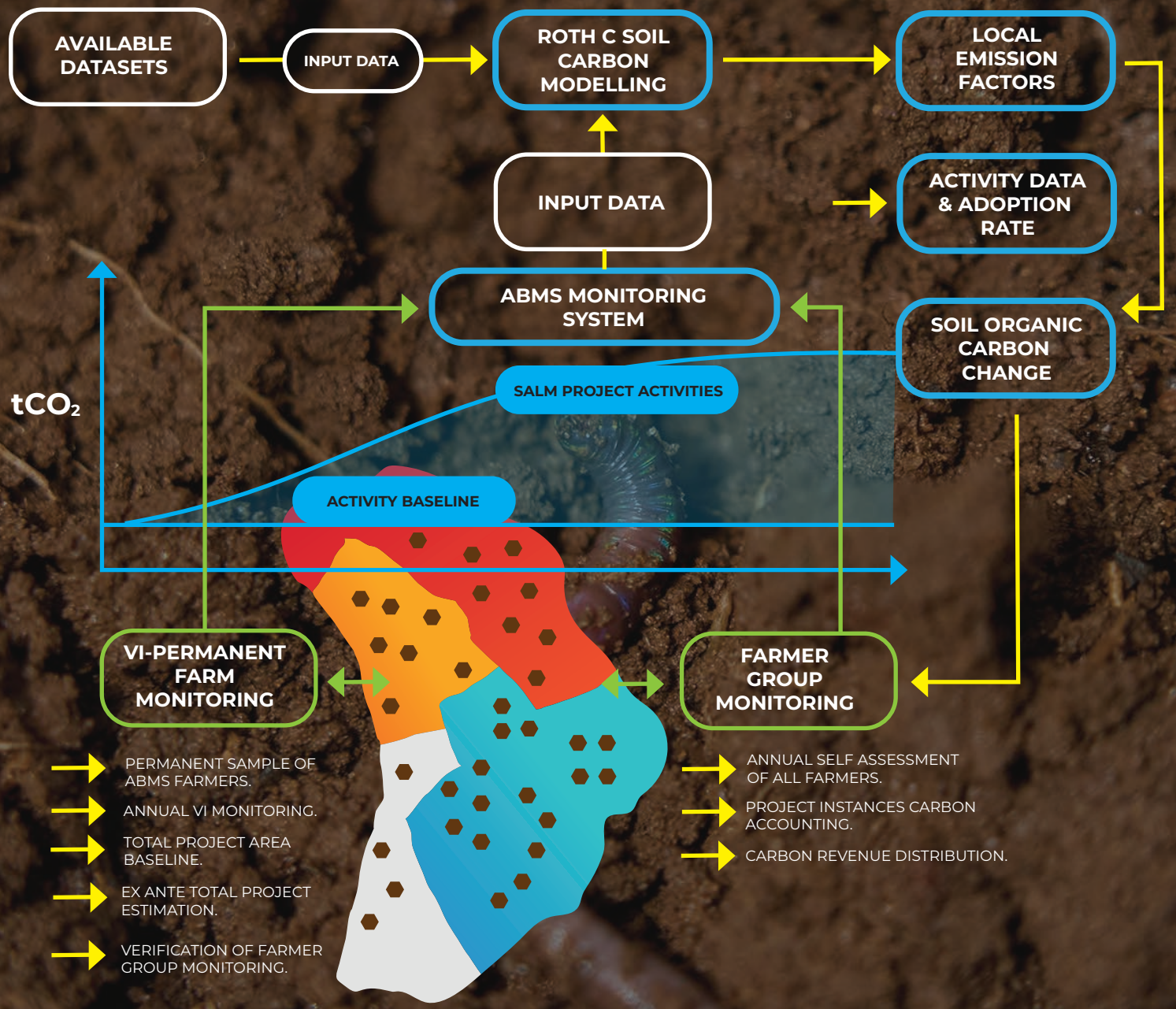
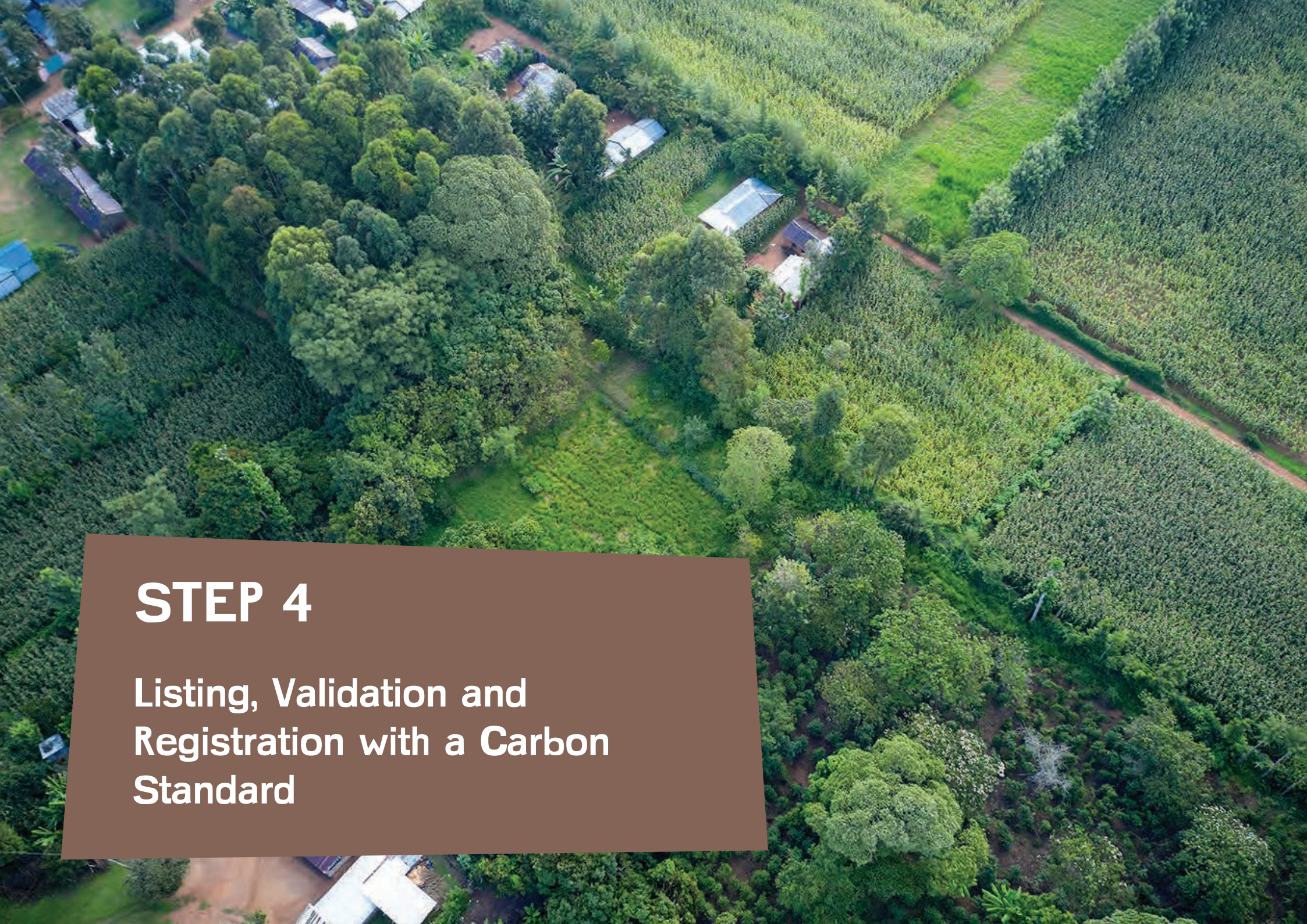


Figure 5: The graphic summary of the ABMS project monitoring system in the KACP.





STEP 4

Listing, Validation and Registration with a Carbon Standard

The process of listing, validation, and registration under a recognized carbon standard, such as under VCS, is essential for ensuring environmental integrity, transparency, and market credibility. These steps are distinct but interlinked, each serving a specific function in the lifecycle of a carbon project.

Listing of a Carbon Project

Listing refers to the initial inclusion of a project in the carbon standard's registry pipeline. It is a preliminary step that signals the intent to develop a carbon project and allows stakeholders to track its progress. For AFOLU projects, listing typically involves submitting a PIN or a PDD that outlines the project's scope, objectives, baseline conditions, monitoring plan, stakeholder consultation documentation and expected environmental and social benefits.

> "Validation must be completed before a project can be registered. The validation should ideally be undertaken before the first verification."

Validation of a Carbon Project

Validation is an ex-ante, third-party assessment of the project design by an accredited Validation and Verification Body (VVB). It ensures that the project meets the methodological, legal, and environmental requirements of **the selected carbon crediting standard**. For AFOLU projects, this includes evaluating baseline scenarios, additionality,

leakage, permanence, and monitoring plans. *Validation must be completed before a project can be registered. The validation should ideally be undertaken before the first verification.* The standards body however allows for combined validation of PDD and the first carbon verification. During the validation process, changes may be requested which are implemented as part of the revision of the PDD. The end output after validation is a validation report.

[13] Verra. (2024). *Registration and Issuance Process. Version 4.5,*



Vi Agroforestry field officer with farmer undertaking validation exercise on farmland.



Vi Agroforestry Field officer ensuring informed consent.

Registration of a Carbon Project

Registration is the formal acceptance of the validated project into the carbon standard's registry. It involves a comprehensive review of the validation report, stakeholder consultations, and supporting documentation. Once registered, the project becomes eligible to generate Verified Carbon Units (VCUs) based on actual emission reductions or removals. Registration confirms the project's compliance with the standard and marks its entry into the VCM and assigned a unique ID on the registry.

Case Example: Vi Agroforestry

Listing of Vi Agroforestry Carbon Projects

KACP listing involved the initial steps that have been outlined in step 3 above i.e., project conceptualization and drafting a formal PDD which were submitted for preliminary review and listing. Vi Agroforestry prepared and submitted the PDD documents for all the three carbon projects to facilitate the listings before project inception.

Validation of Vi Agroforestry carbon projects

KACP underwent validation in 2012 by an accredited third-party auditor (Designated Operational Entity or DOE), to ensure it met eligibility and methodological requirements. Similarly, the Emiti Nibwo Bulora project was validated in 2010.

The Livelihoods Mt. Elgon project was validated in the fifth year of implementation in parallel with the first carbon verification. The VVB assessed the scope, methodology and processes of implementation and monitoring carried out in the field and contrasted with what was described in the PDD. During the validation carried out in 2021 for the period 2016-2020, there were recommendations for changes in approaches like the methods of annual data collection. These were later incorporated as part of the revision to the PDD for subsequent years.

Registration of Vi Agroforestry Carbon Projects

When the project passed the listing phase, it moved to the registration stage, where it underwent a more rigorous review by the carbon standard body. This included a detailed assessment of the project documentation, validation reports, and stakeholder consultation outcomes. Having met all the criteria, KACP was officially registered under Verra standard. This registration marked the project's eligibility to begin generating carbon credits i.e., Verified Carbon Units (VCUs) based on its actual emission reductions, these carbon credits are normally verified and issued periodically. This registration thus provides formal recognition of the project and forms the basis at which KACP is participating in the VCM.



Vi Agroforestry field officer with farmer undertaking validation exercise on farmland.





STEP 5

From Planning to Practice
Project Inception and Implementation

It is essential that all interventions and activities align precisely with what is documented in the PDD, as this forms the basis of approval during the validation phase. During verification (see Step 7), the third-party auditor will compare the project implementation to the PDD. Inception refers to activities carried out at the start of the project, while implementation involves ongoing, cyclical activities that are repeated throughout the project's lifespan.

1. Stakeholder Engagement

Before rolling out the project, there must be a community involvement phase where an in-depth engagement with the local communities and stakeholders is undertaken to ensure their support, address any foreseeable concerns, explain the project risks, the mitigation measures, and likely environmental and social impacts. Lastly, a benefit-sharing plan should be implemented to ensure that smallholder farmers and local communities receive equitable gains from carbon revenues or other benefits from project participation.

2. Risk management plan

A robust risk management strategy is essential to anticipate, mitigate, and manage uncertainties in carbon projects. The plan should address:

- Climate risks: Droughts, floods, and changing weather patterns affecting the GHG reduction effort, such as tree growth.
- Financial risks: Fluctuations in carbon market prices and funding availability.
- Social risks: Land tenure conflicts, community resistance, and benefit-sharing disputes.
- Technical risks: Data collection challenges, monitoring inaccuracies, and project validation failures.



Vi Agroforestry field officer engaging the local community in a local public meeting.



> "Community-based monitoring is highly recommended to reduce monitoring burden by equipping farmers with mobile tools."

3. Monitoring and evaluation plan

To ensure project credibility, a Monitoring, Reporting and Verification (MRV) system must be established. The plan should include the following:

- Definition of key performance indicators (KPIs) for carbon sequestration, environmental sustainability, and livelihood improvements, ensuring measurable and verifiable outcomes.
- Baseline and targets indicating frequency of measurement.
- Data management system for storing, processing and analysing the data

The monitoring should incorporate GIS-based area mapping, remote sensing, satellite imagery or other technology for tracking forest cover and carbon storage. *Community-based monitoring is highly recommended to reduce monitoring burden by equipping farmers with mobile tools* to report tree survival rates, growth patterns, and potential agroforestry adoption.

4. Environmental and Social Impact Assessment (ESIA) process

The ESIA process assesses both the positive and negative environmental and social impacts of the project. It involves conducting baseline assessments to examine soil health, water resources, biodiversity, and land use before project implementation. To mitigate potential risks, impact mitigation strategies must be established, addressing concerns such as deforestation, biodiversity loss, and potential displacement of local communities. To achieve this an Environmental and Social Management Plan (ESMP) is developed.

5. Gender analysis

In AFOLU carbon projects gender analysis is important as women play a key role in Agriculture. Women must be equitably included in project planning and implementation but are often excluded due to restrictive land tenure systems that limit their land ownership rights. To address this, the project should actively promote women's participation in decision-making and leadership roles. Additionally, it should include gender-sensitive training and inclusive capacity building for women and marginalized groups to fully engage and benefit from the project. Gender analysis can be conducted through focus group discussions, sex-disaggregated surveys or seasonal calendars.

6. Contracting land-users (or implementation partners)

For long-term project sustainability, formal agreements must be fair, transparent, and beneficial for land-users, e.g. farmers. Contracts should clearly define eligibility criteria, specifying which farmers qualify based on land size, formal land ownership, commitment, and their ability to maintain trees in accordance with permanence requirements. Agreements must also establish a clear benefit- sharing framework, defining how carbon revenue will be shared among farmers, cooperatives, and implementing partners. Additionally, the contracts should specify the duration and obligations, detailing long-term commitments, tree planting requirements, and monitoring responsibilities to ensure compliance with carbon market standards.



Women from the local community participating in decision making in a local public meeting.



7. Implementation phase

Execution of the PDD, moving from the theoretical approach to a practical implementation.

1. Establish the necessary infrastructure for data collection and remote sensing tools to monitor GHG emission reduction.

2. Train local personnel and stakeholders on project operations and monitoring.

3. For tree planting components in project design, set up community-based nurseries for seedling production and distribution. Select tree species based on environmental conditions and farmer needs, and provide training on proper planting and management to maximize survival rates.



Nursery with diverse set of tree seedling species.









Case Example: Vi Agroforestry

1. Stakeholder Engagement

For all three carbon projects, Vi Agroforestry has extensively involved all the stakeholders, particularly the direct participants (the smallholder farmers), before and during the implementation with regular full disclosure. For example, in the Mount Elgon project, not only were the stakeholders identified before and during the project inception processes, but they have been variously engaged in the implementation. The smallholder farmers have been sensitized on the project design, goals & objectives, implementation expectations, and the anticipated immediate, short-to-medium term and long-term benefits. The farmers are clear on the benefits-sharing model and participate in the project after free and prior informed consent. This sensitization is a continuous process that is undertaken regularly. In the KACP, all the outcomes from stakeholder engagement - such as feedback, meeting dates, and locations - are always documented and disclosed to the stakeholders openly. These measures were intended to foster trust and ensure that all participants remained informed and engaged throughout the project lifecycle.

All Vi Agroforestry carbon projects have established feedback, grievance and redress mechanisms (GRM) to address concerns and monitor safeguard compliance. Feedback is collected and shared with stakeholders on a regular basis. For example, in the Livelihoods Mt. Elgon project, monthly meetings are held with farmer groups and quarterly meetings with partners and community facilitators to ensure continuous engagement and issue resolution.

The GRM also ensures farmers (and other stakeholders) can seek adequate redress to unsatisfactory issues arising from project implementation and benefit-sharing. The GRM allows the stakeholders to handle their issues at the local (group), intermediate (extension providers), or project management level with an option of directly addressing the same with senior management of Vi Agroforestry. For a summary of the GRM's objectives, see the information box to the right.

In multi-stakeholder projects, conflicting interests are inevitable, particularly when engaging actors with differing priorities such as private sector partners, cooperatives, and farmer groups. In the Livelihoods Mount Elgon Project, for example, aligning the interests of stakeholders like Brookside, cooperatives, investors, and farmers posed a coordination challenge. Misalignment of expectations or benefits can result in stakeholder disengagement or dropout, which can threaten project sustainability.

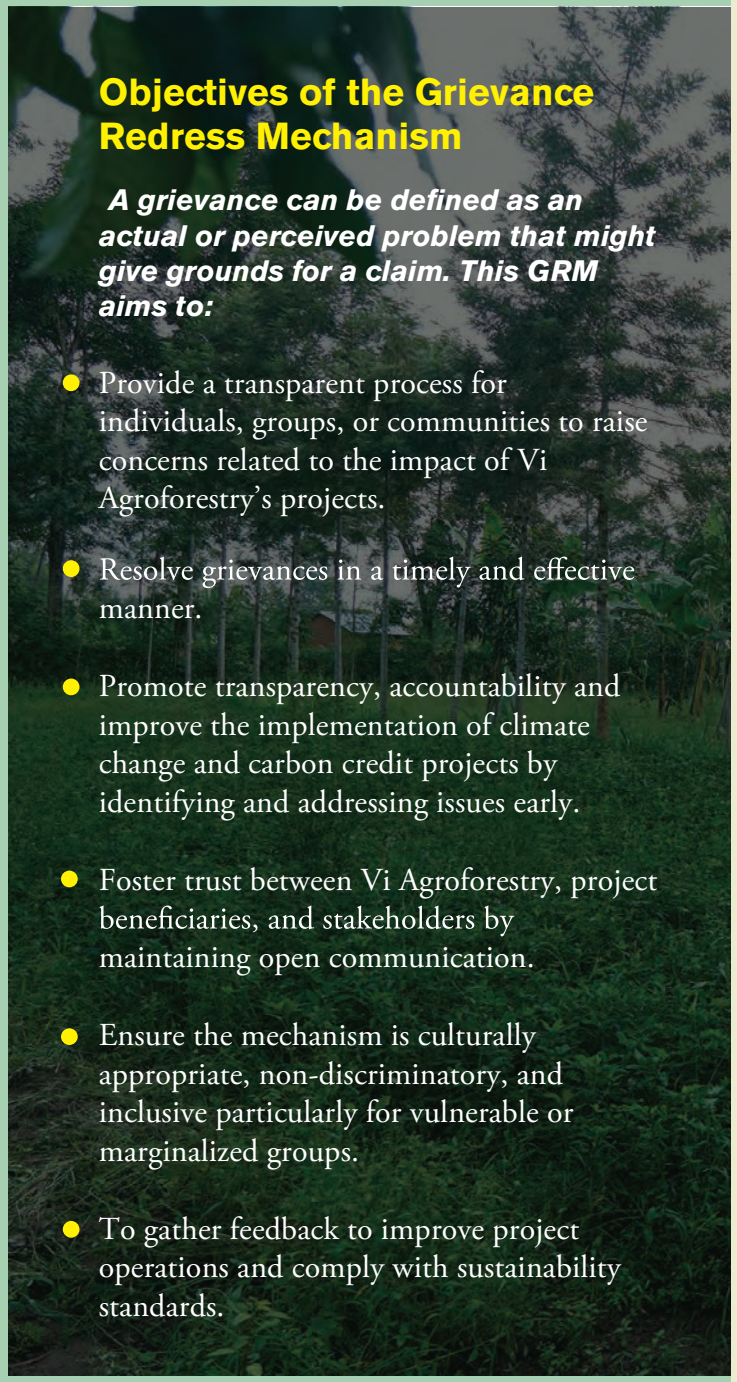


Figure 6: An excerpt from Vi Agroforestry's GRM

2. Risk management plan

The Risk management is a critical component of carbon projects and is usually part of the PDD but must be treated as a continuous process throughout the project's lifecycle. Risks evolve, and regular updates are essential.

Due to the recent upsurge of issues in carbon crediting projects, *Vi Agroforestry has noted that the updated standards have formalized and expanded requirements for stakeholder engagement procedures*, obliging project proponents to identify all relevant stakeholder groups, conduct thorough risk assessments, and facilitate inclusive consultations grounded in the principle of FPIC. While these developments are positive and important - it raises the bar for project developers.

3. Monitoring plan

The monitoring plan should align with the PDD. In Vi Agroforestry's carbon projects, Key Performance Indicators (KPIs) are chosen based on the requirements of the carbon standard and the project's specific goals. For example, in KACP, indicators included both emission reduction metrics and socio-economic indicators related to farm enterprise development and livelihoods improvement.

GHG quantification is mandatory under carbon standards, requiring consistent data on land use, soil carbon, and/or biomass. However, *ViA's experience shows that while comprehensive KPIs are essential, too many indicators can overburden implementation. A careful balance is needed to ensure indicators are both meaningful and manageable*.

> "Vi Agroforestry has noted that the updated standards have formalized and expanded requirements for stakeholder engagement procedures."



> "ViA's experience shows that while comprehensive KPIs are essential, too many indicators can overburden implementation. A careful balance is needed to ensure indicators are both meaningful and manageable."



5. Gender analysis

In the Livelihoods Mount Elgon Project, a gender analysis led by WOCAN to understand the differentiated roles, needs and constraints of women and men in agricultural and land management practices introduced the Household Roadmap (HRM) Methodology to promote inclusive decision-making and ensure project benefits reached all household members. Practical adjustments, like limiting meeting times to less than 2 hours and scheduling sessions at suitable hours around household chores, enabled greater women's participation.

The success of this approach led to its replication in other Vi Agroforestry projects. Although HRM was not applied in the KACP, the project still achieved high levels of women's engagement through organizing and strengthening women's and youth groups, much higher participation of women compared to the other programmes we led at that time. However, lessons from KACP reinforced the need for structured gender strategies like HRM in future projects.

6. Contracting farmers

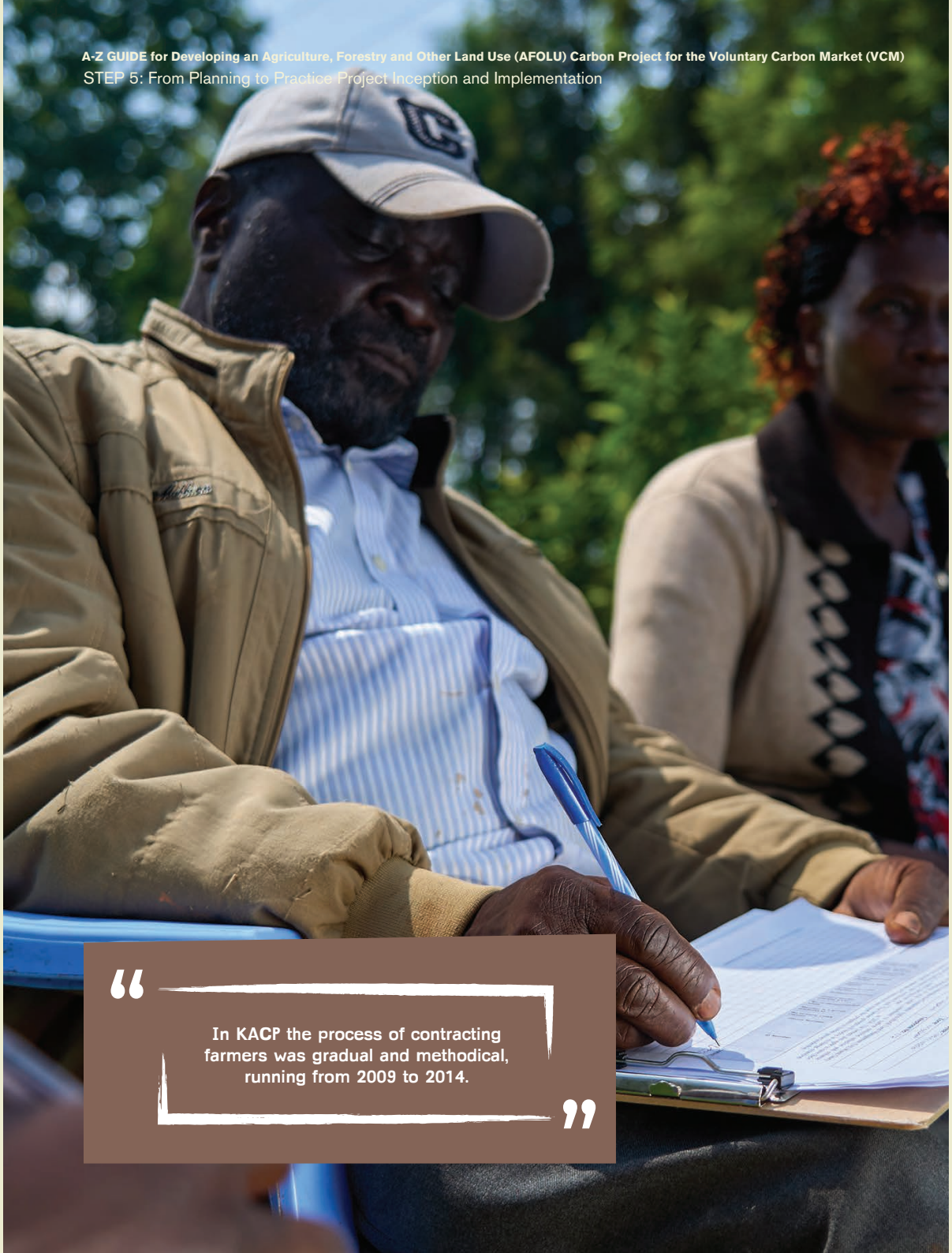
In KACP, the process of contracting farmers was gradual and methodical, running from 2009 to 2014. Sensitization activities were conducted at the community level to inform potential beneficiaries about the project, the importance of land access, and where SALM practices could be implemented. These meetings were facilitated in collaboration with local administration structures.

Farmers were encouraged to organize themselves into self-help groups, including women's and youth groups, which were then formally registered with the government. Registration provided legal recognition and allowed groups to open bank accounts for managing project-related funds.

The contracting process was formalized and repeated across communities over several years. Before contracting, each participant's farm had to be mapped to identify the areas where SALM practices would be applied. Special considerations were made to ensure inclusion:

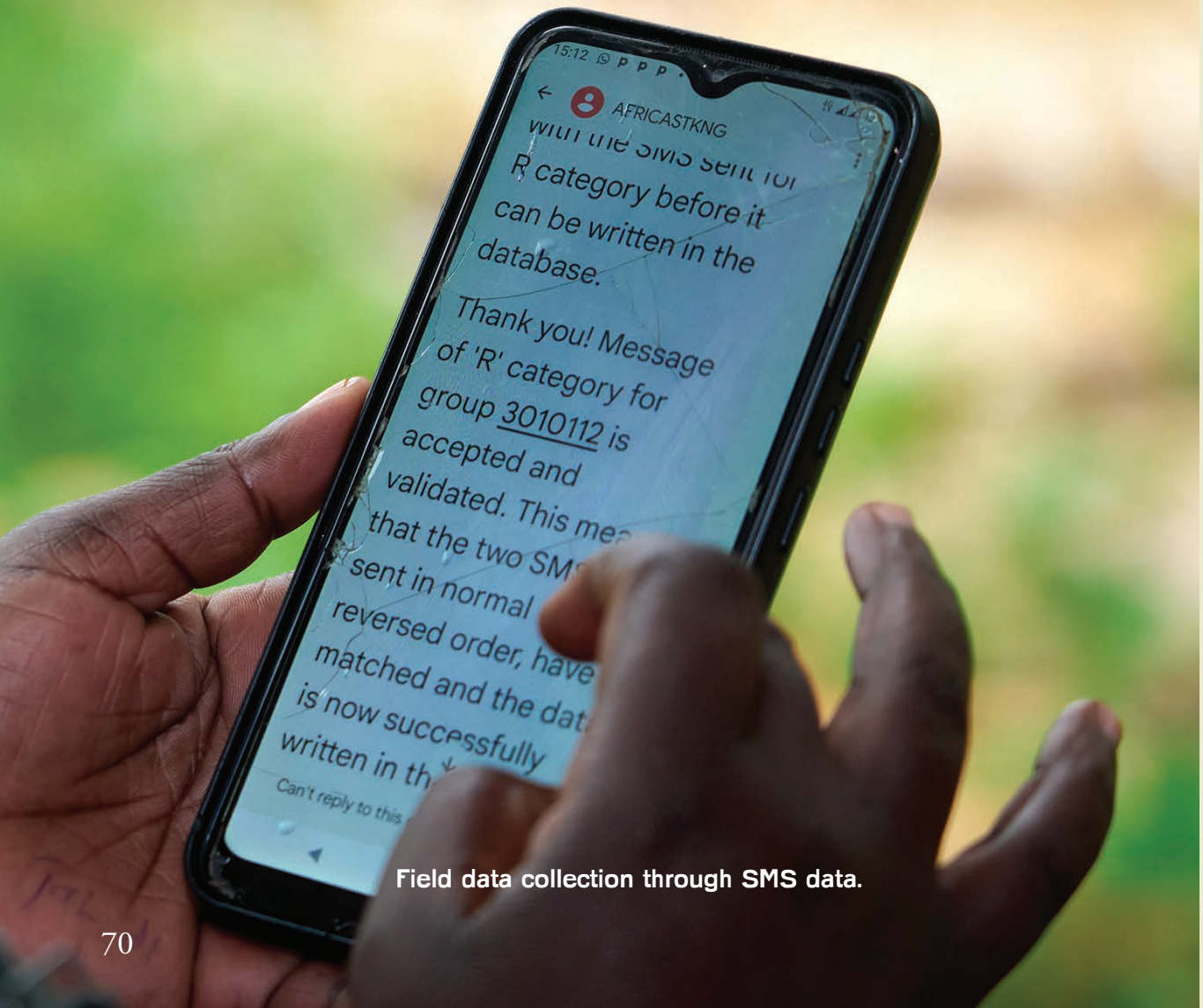
- Women often lacked formal land titles but were recognized through marital status and long-term use of land.
- Youth needed to demonstrate land access or inheritance, often validated through local administration.

This approach ensured broad participation and a structured yet inclusive contracting process. To conclude, contracting a large number of project beneficiaries is often time-consuming and requires sustained effort over several years.



> "In KACP the process of contracting farmers was gradual and methodical, running from 2009 to 2014."

> Redesign during implementation is not an exeption - Its the norm.



Field data collection through SMS data.

7. Implementation Phase

In carbon projects, participation, realism, and adaptability are crucial. While the PDD provides a structured framework, it is a theoretical blueprint that may not fully align with on-the-ground realities. Project developers must view the PDD as a living document, one that requires continuous adjustment during implementation to respond to evolving conditions, stakeholder needs, and practical challenges so that the project can deliver what it is expected to deliver.

Vi Agroforestry's experience in the KACP and Mount Elgon Livelihoods Project illustrates this need for flexibility during implementation. In KACP, the original targets were 60,000 farmers and 45,000 hectares. However, these goals were later revised to 30,000 farmers and 22,000 hectares based on field realities. Similarly, in the Mount Elgon Livelihoods project, the initial implementation model relied on cooperatives. When it became clear that knowledge transfer to farmers was insufficient, the model was restructured to work directly with farmer groups. *Redesign during implementation is not an exception - it is the norm.*

Effective monitoring and reporting require both sound planning and practical tools. To reduce administrative burden and enhance efficiency, technology was integrated into MRV systems. For example, KACP deployed a web-based MIS and SMS-based data submissions, allowing farmers to report practices without relying on physical forms. Field data collection shifted from handheld GPS devices - which were costly and inefficient - to smartphones enabling faster and more accurate farm tracking. However, accurate precision during GPS tracking is crucial to avoid distorted polygons for contracted farms.



Polygon data must be updated regularly to reflect changes in participation or land management, as some farmers might drop out. Although the minimum standard requirement is every 10 years, ViA recommends updating every 5 years as a good practice.

Strong systems require skilled personnel. In both KACP and Mount Elgon Livelihoods, Vi Agroforestry invested in intensive one-month training programs for field officers. These covered core technical areas such as:

- Carbon accounting and agroforestry practices
- SALM methods (e.g., composting, mulching, intercropping, tree management)
- Nursery establishment and seed propagation
- Monitoring protocols and data quality assurance
- Group formation, farmer sensitization, conflict resolution and benefit-sharing mechanisms

These trainings equipped field teams with the competence to train community facilitators (CFs), engage farmers, and ensure consistent implementation across diverse project areas.

“Polygon data must be updated regularly to reflect changes in participation or land management, as some farmers might drop out. Although the minimum standard requirement is every 10 years, ViA recommends updating every 5 years as a good practice.”



Vi Agroforestry field officer carrying out agroforestry farmer training.



Grievance Redress Mechanism (GRM) implememtation by Vi Agroforestry field officer.



Vi Agroforestry field officer carrying out agroforestry farmer training.



Local farmers tending to a community based nursesry.





STEP 6

Monitoring and reporting

This section outlines the key elements of monitoring and reporting in a carbon project, a cyclical process that recurs throughout the entire project lifecycle. This step not only fulfils the requirements of the carbon crediting standard but also provides the project developer with the data to track progress and manage risks. Below are the key components to consider during this step.

1. Monitoring Phase

Monitoring is especially critical in carbon projects, where data supports the verification and adaptive management. Based on the monitoring plan (see step 3 Preparation and validation of PDD) the project developer should conduct regular data collection with reliable methods. These often include a combination of field-based measurements, surveys, and remote sensing technologies, particularly useful for large-scale or geographically dispersed projects. Sustained monitoring is essential not only for verifying emission reductions but also for ensuring the long-term viability of the project. This includes routine maintenance of project activities and continuous community engagement to foster ownership, maintain support and proactively address any emerging concerns.

In addition, a strong data management system is crucial for storing and analysing collected data.

2. Reporting Phase

Progress reports

Project developers must submit regular progress reports to track implementation progress as a basis for adjustments and anticipated improvements. Most carbon standards require these reports every 2 to 5 years, though some, like the Gold Standard, require annual submissions.

Additionally, Environmental and Social Audits (ESA) are often mandated annually to ensure compliance with safeguard requirements and assess ongoing environmental and social impacts.



Vi Agroforestry field officer measuring the Diameter at Breast Height (DBH) of a tree trunk.



Vi Agroforestry field officer and farmer recording crop yield data.

Stakeholder Updates and Grievance Redress Mechanism

Project developers should ensure ongoing communication with stakeholders through regular updates and meetings that share progress on implementation and results. These engagements provide opportunities to receive feedback, address concerns, and discuss risks and safeguard issues. Developers must also report on grievance resolution and clearly communicate how stakeholders can submit grievances through the established Grievance Redress Mechanism.

Reporting and Transparency

To maintain transparency in all aspects of the project, detailed reports should be published on the project's outcomes, risks and safeguards monitoring, and lessons learned. These should be accessible for stakeholders and the public.

3. Adaptive Management

Monitoring data should be used to identify areas for improvement and guide necessary adjustments to the project plan. As issues may emerge during implementation and monitoring, it is essential that the project developer has effective risk mitigation strategies in place and responds to these challenges appropriately.

4. Impact Assessment

Beyond routine monitoring, it is advisable to conduct periodic impact assessments - ideally every 5 years - to evaluate the broader environmental and socio-economic outcomes of the project, such as job creation and improved livelihoods. Since annual changes may be minimal, a mid-term review every 2–3 years can provide useful insights and also feed into the Environmental and Social Audit (ESA) proces.

These assessments go beyond operational indicators to evaluate whether the project is achieving its overall objectives, and they help validate the findings of the ex-ante ESIA conducted during the project design.

Case Example: Vi Agroforestry

1. Monitoring Phase

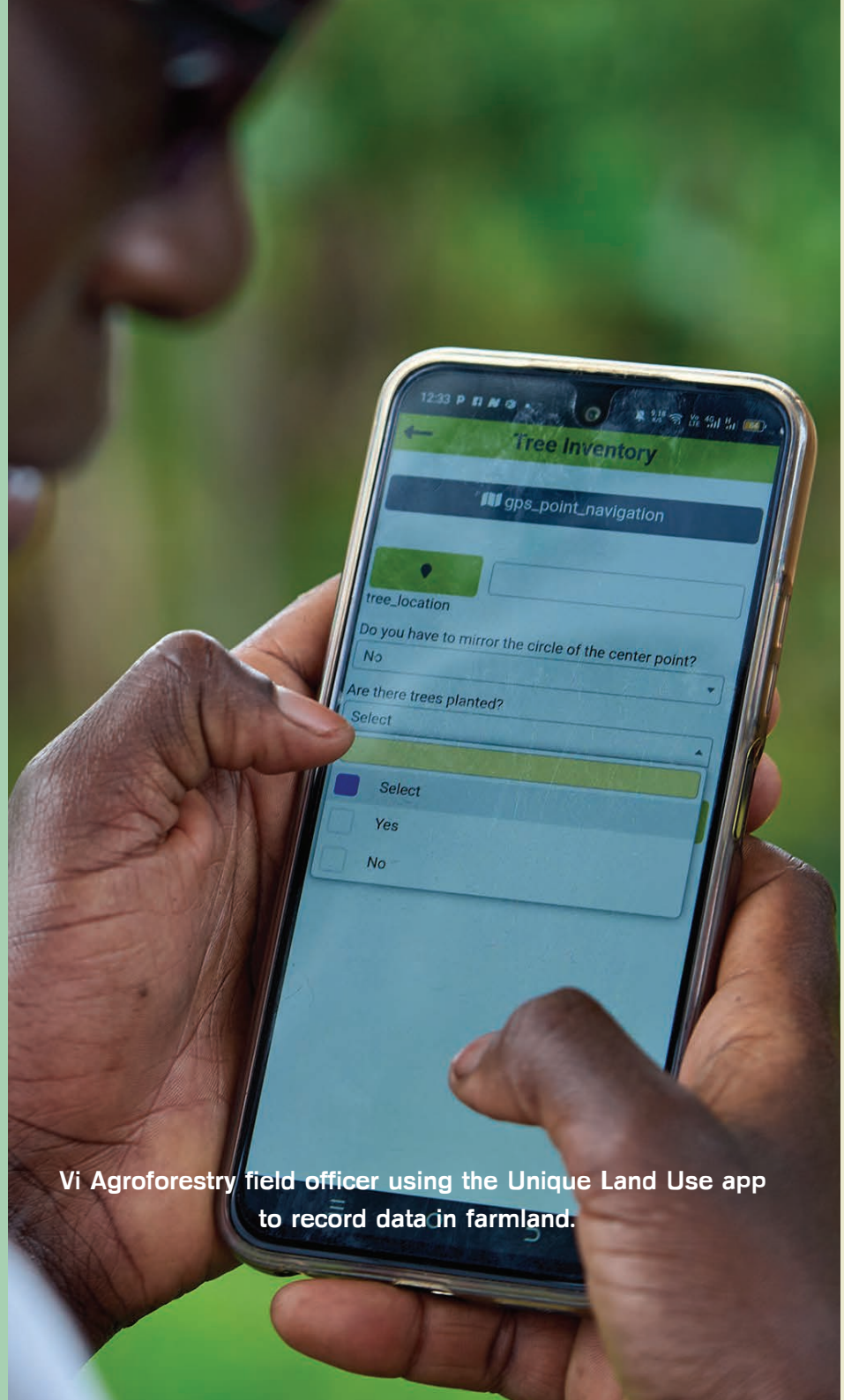
At Vi Agroforestry, robust monitoring and evaluation (M&E) systems are in place across all carbon projects. These systems combine internal tracking with external carbon monitoring and are designed to meet the requirements of the selected carbon standard and methodology. The monitoring phase is where the project's monitoring plan - outlined in the PDD (see Step 3) - is put into action. While the plan defines what should be monitored and how, this phase focuses on how those systems are implemented and adapted to field realities.

a. Operationalising the Monitoring Plan

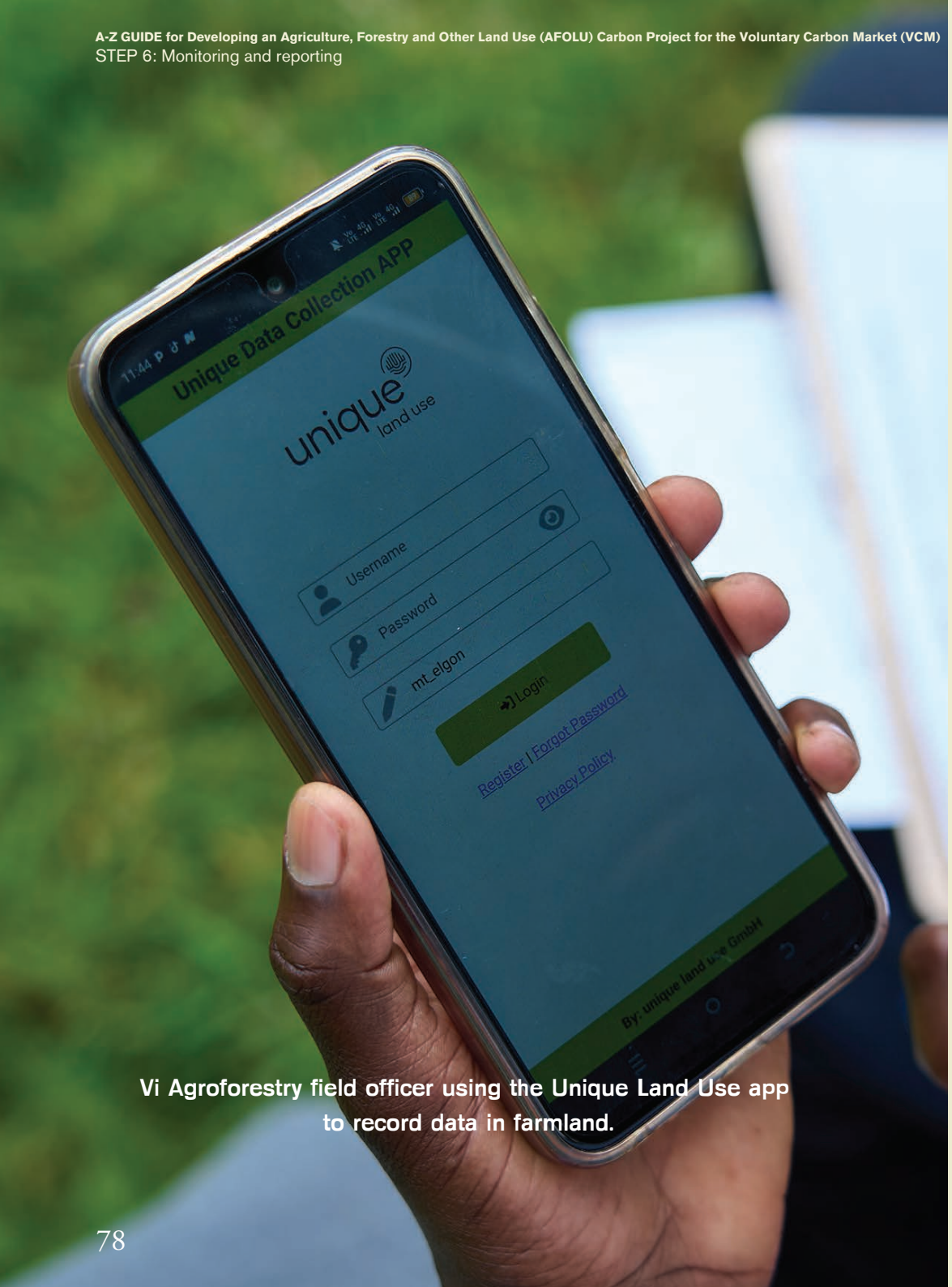
Referring to KACP, the ABMS monitoring is operationalized through a structured workflow. Field data from both the Permanent Farm Monitoring and Farmer Group Monitoring surveys are collected, cleaned, and aggregated at the project location level. This data is then centrally processed, analyzed, and archived at Vi Agroforestry's Monitoring and Evaluation Unit at the programme office in Nairobi.

Considerations have been put in place for data archiving (maintenance and storage) is an important component of the work. Copies (electronic and/or paper) of all field data, data analyses, and models; estimates of the changes in carbon stocks and corresponding calculations and models used; any GIS products; and copies of the measuring and monitoring reports are stored in a dedicated and safe place, normally offsite.

Given the long duration of the project and the rapid evolution of software and hardware, Vi Agroforestry has implemented a strategy to periodically update or convert electronic files into formats that remain accessible over time. All raw data, analytical reports, and supporting spreadsheets are stored in a dedicated long-term electronic archive for at least two years following the end of the final crediting period in 2030.



Vi Agroforestry field officer using the Unique Land Use app to record data in farmland.



Vi Agroforestry field officer using the Unique Land Use app to record data in farmland.

b. Methodology transition

In 2023, the deactivation of the VM0017 methodology required KACP to transition to VM0042. This shift introduced several challenges:

- The Monitoring Information System (MIS) had to be restructured to align with the new data requirements of VM0042.
- Some parameters previously tracked were no longer valid, while new ones had to be introduced.
- Field staff and farmers required retraining on new data collection protocols.

c. Data Management and Archiving

Data collection is conducted regularly - typically semi-annually or annually - using digital tools and project-specific MIS for storage and analysis. Vi Agroforestry maintains a centralized MIS for data aggregation, analysis, and long-term storage. Key practices include:

- Regular backups and offsite storage to prevent data loss.
- Periodic updates to ensure compatibility with evolving software and hardware.
- Long-term archiving of raw data, models, and reports for at least two years after the final crediting period.

For example, in the Emiti Nibwo Bulora project, data is currently managed in access databases, which presents challenges due to their risk of data loss. To mitigate this, multiple backups are maintained to ensure data security.

2. Reporting Phase

The Mt. Elgon project submits an annual report to the Gold Standard, detailing project progress and related issues. Plan Vivo also requires annual reporting, while VCS follows a similar process but does not require yearly submissions.

3. Adaptive Management

At Vi Agroforestry, lessons are regularly drawn from every monitoring aspect and used to improve the systems for the next period. This involves reinforcing what works well and modifying or phasing out what doesn't. Risk registers are regularly reviewed and updated to reflect new risks and revised strategies.
For instance, while ViA initially implemented carbon projects through partners, regular monitoring revealed that direct implementation by ViA field officers was more efficient. As a result, the operational approach was adjusted - without altering the PDD itself - to improve day-to-day efficiency. This highlights the importance of maintaining flexibility in implementation to adapt to real-world conditions while staying aligned with the overall project design.

4. Impact Assessment

To assess and report on contributions to the SDGs, the Livelihoods Mt. Elgon Livelihoods Project and Emiti Nibwo Bulora conduct separate socio-economic surveys every two years. These surveys capture community-level changes in livelihoods.

For ViA Verra-certified projects, existing monitoring data is mapped directly to relevant SDG indicators and safeguard criteria to evaluate project impact. Specifically, for KACP, Vi Agroforestry has observed measurable positive outcomes, including substantial increases in crop yields and household income - in some cases exceeding 100% increases in productivity.















Key lessons learned in monitoring & reporting:

- Methodology changes are a real risk in carbon projects. Monitoring systems must be designed to accommodate future shifts in standards or methodologies.
- Monitoring should be as simple and efficient as possible, adapted to the resources at hand. Technology to automate the process can reduce the heaviness of monitoring. ViA used mobile technology and automated systems (e.g., SMS reporting with real-time validation) can reduce errors and save time.
- Only essential parameters should be tracked. The parameter selection should initially be guided by the carbon standard requirements and recommendations. Otherwise, **there is a high risk that a carbon project becomes a monitoring project. This balance is key.**









STEP 7

Verification

For a carbon project, verification refers to the process of independently assessing and confirming that a project's reported emissions reductions or carbon sequestration are accurate and in accordance with established methodologies and standards. This step is crucial because it determines whether the project can issue carbon credits based on its performance and compliance. Verification is typically conducted by an accredited third-party organization, known as a "verifier" or "validation and verification body" (VVB), to ensure impartiality.

The key aspects of verification are:

1. The project proponent will need to select and contract a VVB.

2. The verifier checks that the project follows the selected methodology for calculating and reporting carbon emissions reductions or removals.

3. The verifier reviews the project's documentation, monitoring data, and calculations to ensure they are accurate and comply with the relevant standard. The output is a monitoring report.

4. Verification audit (field or remote): Depending on the project, the verifier may conduct site visits to physically inspect the project activities and confirm that they are being implemented as reported.

5. After completing the review and potential site visits, the verifier issues a verification report, which details their findings and confirms the amount of carbon offsets the project has generated. This report is often required before carbon credits can be issued or sold.

Verification ensures that carbon offset projects deliver real, measurable, and additional emissions reductions, providing confidence to buyers of carbon credits and supporting the overall credibility of the carbon market.



Vi Agroforestry field officers on a field measurement exercise on participating farmer's land.

Case Example: Vi Agroforestry

Vi Agroforestry has undergone multiple verification processes for its carbon projects since 2012. While the verification steps above may appear straightforward in theory, our experience tells a more complex story. See figure 7. for a detailed overview of the process. In the early years, verification under VCS involved fewer rounds of clarification and was more predictable. For example, during our first verification cycles in 2012, we typically completed the process after two rounds of Corrective Action Requests (CARs) often referred to as “findings”, and clarifications from the VVB. However, over time, the process has become significantly more rigorous. Our current (fourth) verification for KACP has taken over five years - the longest to date. This reflects both increasing expectations under VCS and broader market developments, including greater scrutiny from standards bodies and the public. Several factors contribute to this growing complexity:

- The VCS program has evolved rapidly over the past five years, introducing new requirements and tightening quality control. For instance, Verra has launched their own VVB Performance Improvement Program, introducing regular audits of VVBs to improve consistency and ensure high-quality assessments. As a result, VVBs are under more pressure to conduct thorough verifications, which in turn increases demands on project developers.

- While previously, verifications were handled almost entirely by VVBs, Verra now actively participates in the review process - something that was rare in earlier years. In the case of the Mt. Elgon Livelihoods Project, Verra issued findings in three separate rounds.

To navigate this increasingly demanding environment, project developers must invest early in strong monitoring and reporting systems.

> “To navigate this increasingly demanding environment, project developers must invest early in strong monitoring and reporting systems.”



Vi Agroforestry field officers with participating farmer as they implement the onfield verification process.

- Digitisation and automation: Ensuring that data is captured, stored, and retrievable in a structured digital format makes it traceable and easy to access.
- Documentation readiness: The ability to quickly respond to VVB queries with clearly referenced evidence can shorten the verification timeline.

In KACP, we employed census-based data collection methods to capture data from every farmer, eliminating the need for extrapolation from sample surveys. While this approach greatly reduces the margin of error, it was not well understood by the verifier, who had not visited the field due to COVID-19 travel restrictions.

As a result, minor data inconsistencies were treated as critical issues, leading to 5 rounds of findings. To resolve this, we organised a second site visit, which allowed the VVB to directly observe the field realities and better interpret the context, highlighting the importance of face-to-face engagement in the verification process.

In contrast, the Plan Vivo Standard offers a different verification model. Here, verifications are conducted every five years after registration and focus on whether the project is being implemented according to the Technical Specification (TS) and whether projected (ex-ante) carbon benefits are likely to be realised. These verifications are not primarily for carbon quantification but serve to confirm that the selected agroforestry system is functioning as designed. Site visits are still part of the process but are less intensive, and the overall cost, complexity, and duration are significantly lower compared to VCS.

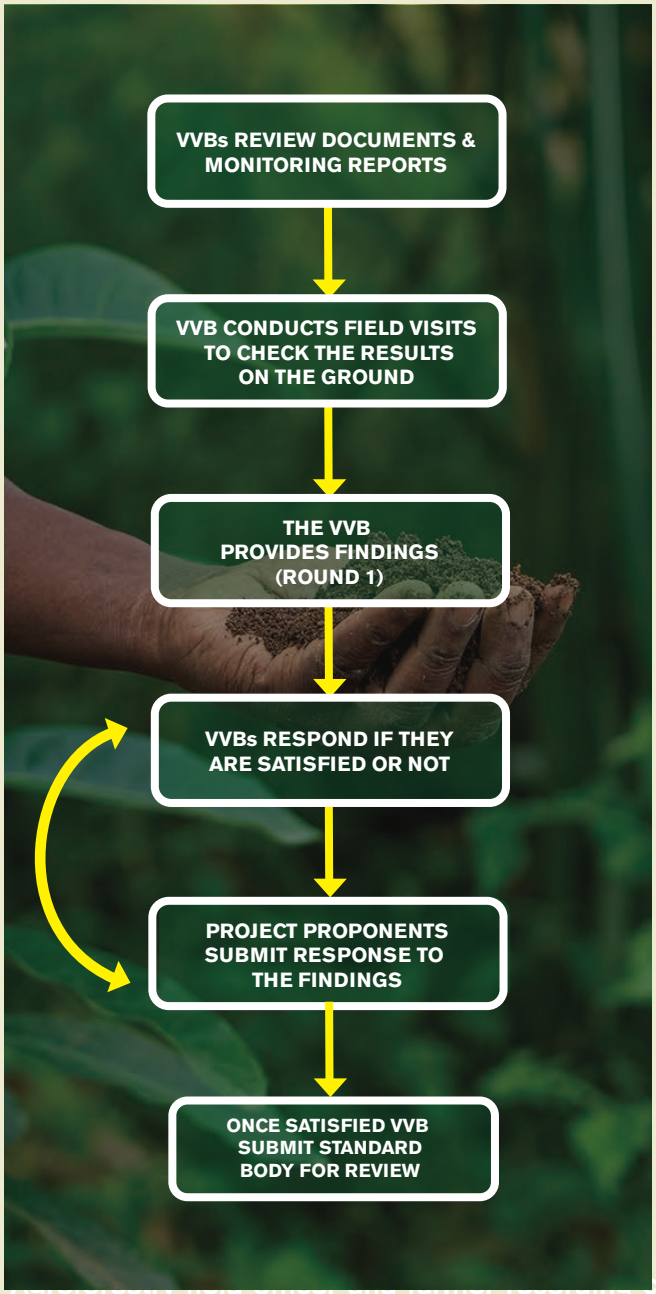


Figure 7. Flowchart illustrating the verification process for Vi Agroforestry's carbon projects.

Key takeaways for project developers

Start early in building reliable MRV systems to maintain accurate and organized records. Automation and digitisation are essential to reduce errors and ease document retrieval.

- Be prepared for extended timelines, especially under VCS. Ensure your team and partners understand that verification may span years, not months.
- Field visits are essential. Encourage VVBs to conduct on-site assessments to contextualise data and reduce the risk of misinterpretation.
- Be aware that data collection methods (e.g., census vs. sampling) influence verification outcomes. Projects using full-coverage sensor data should clearly explain how this reduces error rates.
- Understand the difference between standards. Verification under Plan Vivo is less complex but also serves a different purpose, focused more on system functionality than detailed carbon accounting.

[14] findings are observations or concerns raised by the VVB where they require clarification or additional evidence. These typically relate to areas where the project may not fully meet the requirements of the standard, and the VVB requests supporting documentation or explanations to demonstrate compliance. It is important to note that VVBs can issue an unlimited number of rounds of findings, while VCS is limited to three rounds. If issues are not resolved after that, the project risks suspension.





STEP 8

Issuance and Sale of Carbon Credits

Carbon credits have emerged as a crucial tool in the global effort to mitigate climate change. Each carbon credit represents the avoidance, reduction, or removal of one metric ton of carbon dioxide equivalent (tCO_2e) from the atmosphere (Verra, 2024). These credits can be traded on carbon markets—either under compliance frameworks or in the voluntary space—to offset emissions from governments, companies, or individuals (World Bank, 2024).

Carbon credits play a dual role: enabling organizations to meet climate targets while channeling finance toward environmental and sustainable development projects such as afforestation, renewable energy, improved cookstoves, and sustainable agriculture (Gold Standard, 2024). As climate ambition rises globally, understanding the issuance and sale process is critical to ensure environmental integrity, transparency, and effectiveness (ICVCM, 2024).

Issuance and sale of carbon credits refers to the final stages where the verified emission reductions (VERs) or Verified Carbon Units (VCUs) generated by the project are formally recognized as carbon credits and then sold to buyers. This step includes several 4 key actions:

1. Issuance of Carbon Credits: Once verification is complete, the carbon standard e.g. Verra issues carbon credits equivalent to the VERs/VCUs. These credits are then recorded in a registry maintained by the standard (Verra, 2024).


Carbon credits registry entry at Vi Agroforestry headquarters.

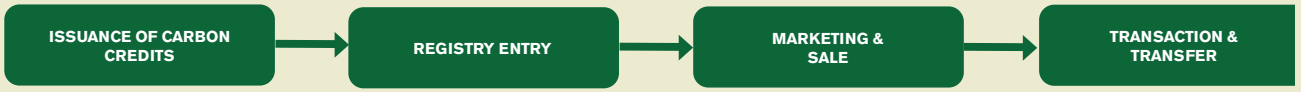
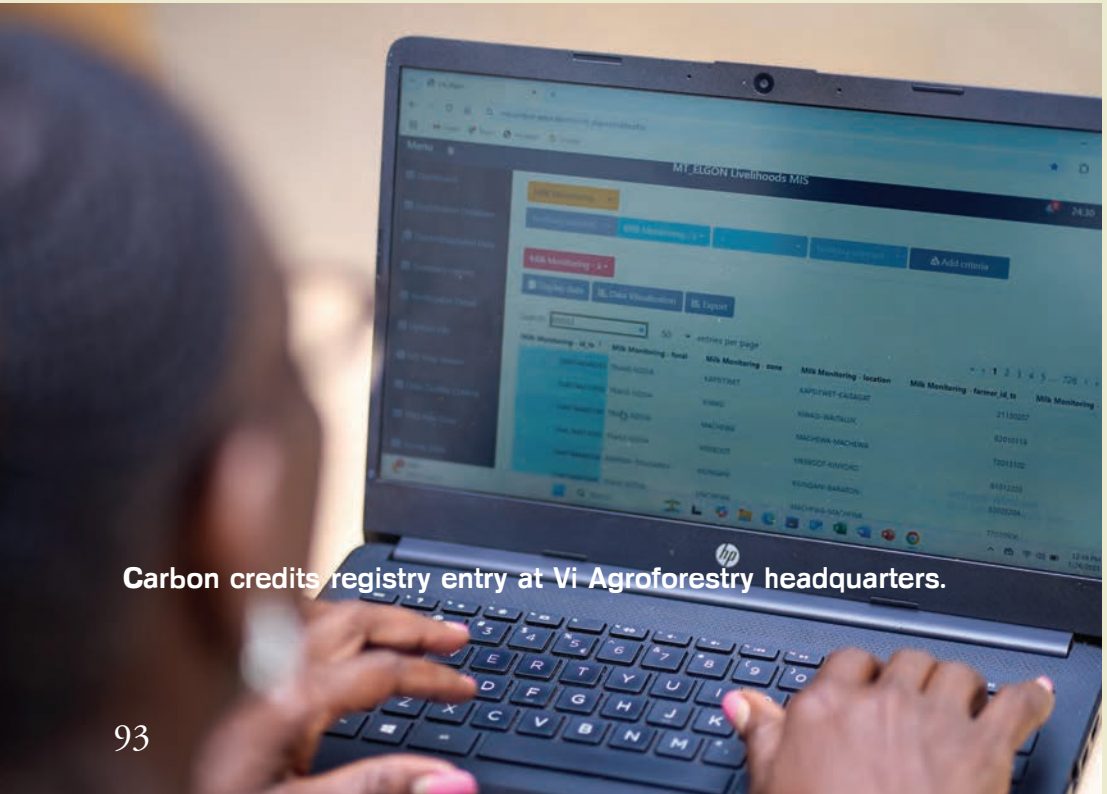


Figure 8. Flowchart showing the process for generating verified carbon credits.





Carbon credits registry entry at Vi Agroforestry headquarters.

2. Registry Entry: The carbon credits are entered into a formal registry system (often referred to as "banking"), which tracks ownership and ensures that each credit is unique and not double-counted. This registry is essential for maintaining the integrity and transparency of the carbon market.

3. Marketing and Sale: Once carbon credits have been issued and entered into a formal registry, the project owner must decide how to handle their sale. There are three main options:

a. Sell directly on the voluntary carbon market.

b. Partner with an intermediary organization (broker) that manages the marketing and sale on the owner's behalf.

c. Hold the credits in the registry as an investment, with the intention to sell them at a later stage.

Each option has its advantages and trade-offs. Selling credits directly gives the project owner full control over pricing, buyer selection, and how the credits are used. However, it also requires capacity to handle marketing, sales, financial aspects such as VAT and audits, potential background and follow up of the buyer as well as administrative tasks with the registry.

Working with an intermediary reduces the administrative burden but limits the project owner's influence over how the credits are marketed and used. For example, the owner may have less say in whether the credits are used to offset unavoidable emissions or to support broader sustainability goals. Additionally, the more intermediaries involved between the project and the final buyer, the smaller the share of the credit price goes towards actual climate action.

Buyers of carbon credits can include companies, organizations, or private individuals seeking to offset their emissions.

There are different rules and regulations applicable for the usage of carbon credits for emission offsets in different countries and under different market segments. These rules and regulations are in different stages of development in different countries but need to be considered during early stages of project development.

Pricing depends on several factors:

. Project type (e.g., nature-based, tech-based)

. Certification standard

. Co-benefits (e.g., biodiversity, gender equity, water, livelihood improvement)

. Project location

. Market demand (Trove Research, 2024)

Using an intermediary organization/Carbon brokers will commonly increase the final price of the credit due to mark ups to cover costs and profit while the Marketplaces and Exchanges (digital infrastructure of the voluntary carbon market (VCM)), most platforms charge commissions or listing fees, which also translates to reduced net revenue to project developers (World Bank, 2024).



Co-benefits such as enhancing biodiversity can increase carbon credit pricing



Case Example: Vi Agroforestry

1. Issuance of Carbon Credits:

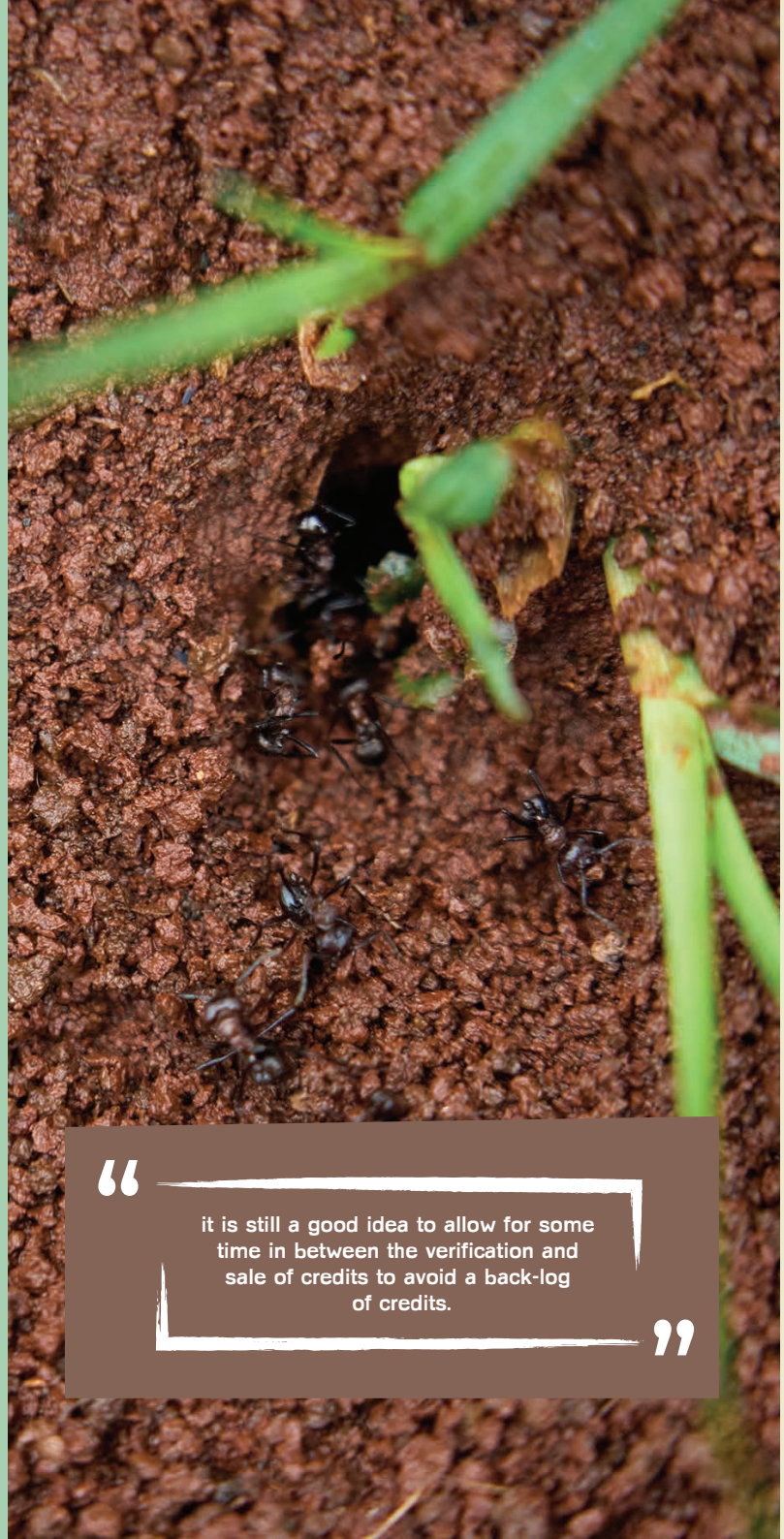
Vi Agroforestry finalised our first verification of carbon credits in 2012 for KACP and 2011 for Plan Vivo which was early in the development of the carbon market. The process of registry and issuance of credits at the different issuance agencies as varied over the years. During the initial verifications the systems were immature, and the registry process was time consuming and had technical issues with the IT systems which caused the process to be tedious and difficult. Since then, the systems have improved and is currently a fast and efficient process for the projects owner, both for registering verified credits from the final verification report and the later issuance of credits.

2. Registry Entry:

After the credits have been issued ViA had to register the credits in the banking facility linked to each standard. Over the years since ViA started our carbon projects we have used a few different banking systems, the main ones being Markit Verra and S&P. The process for registration has also changed over time and has becoming more time efficient. During the first 10 years of working with our carbon projects the registration process for the credits was very tedious and time consuming, which caused frustration both for costumers and for us. Even though there have been many improvements, *it is still a good idea to allow for some time in between the verification and sale of credits to avoid a back-log of credits.*

3. Marketing and Sale:

Over the years ViA has been using different marketing and sale strategies. In general, most buyers (typically companies) initially conducted their own carbon footprint assessments before purchasing credits. In 2017, ViA launched an online climate calculator on its website, enabling both companies and individuals to estimate their emissions and purchase offsets directly.



> "it is still a good idea to allow for some time in between the verification and sale of credits to avoid a back-log of credits."

Our general marketing focal point is that the carbon projects contribute to improved local livelihoods and environmental benefits for smallholder farmers through agroforestry For marketing and sale, Vi Agroforestry has conducted the following steps:

a. The marketing of carbon credits is primarily done through ViA's website (www.viskogen.se), both towards companies, organisations and individuals. It is possible to place an order on the website but it is also common to contact ViA for more information. These calls are handled by Donor Service (for individuals) and the Strategic Partnership Manager (for companies). The Strategic Partnership Manager also promote carbon offsetting in one-to-one-dialogues with both existing partner companies and potential customers.

b. ViA evaluates the customer (due diligence) against the Corporate Policy and assesses the overall sustainability work of the company, this is primarily done for larger companies.

c. We encourage the potential buyers to calculate their emissions and identify their sources. For assistance with emissions calculations, the customers can use Vi Agroforestry's online climate calculator referred to above.

d. For larger companies, a formal agreement is signed. Typically spanning 2 years.

Nevertheless, despite the origin of the projects, all credits have been sold at the same price (approximately 250 SEK per ton) but there has been reduction in the price depending on how much has been bought based on a stair model.

All customers are aware of the standard body that has verified each set of credits.

4. Transaction and Transfer:

This involves ViA sending an invoice to the customer. When the invoice has been paid ViA are transferring ownership of the carbon credits from the project developer to the buyer, typically facilitated through the registry. ViA sends buyers certificates that proves they have purchased carbon credits from ViA, and which standard that has verified the emission reductions.







STEP 9

Financial Aspects and Revenue Generation

The financial aspects need to be considered early in the projects cycle, often already for the additionality analysis, and careful agreements needs to be developed between the stakeholders. A project is depended on initial financing, both for the planning and for the implementation of the project until the first verification is done and the credits can start to generate a positive financial flow – this is usually happening after a few years. When the first verification is done, the credits are issued and sold, the first revenues can be collected. The revenue will be directly dependent on the market price of carbon which will fluctuate. In addition, the value of the credits will be impacted by the quality of the credits, type of project and from which sector it originates from and which co-benefits that is linked to the project. Since the costs of running a project will be different and the carbon value is fluctuating, there is no guaranteed net revenue.

Beside costs related to the credit verification and issuance, there will be additional costs related to the project. Depending on where the projects is being implemented, there might be costs related to abiding by the national regulations. This can include applications, certifications processes on top of the ones required from the quality standard covering environmental or socioeconomic impacts and monitoring of these impacts of the project. Beside costs of adhering to national regulations, and depending on the capacity of the project developer, there might be costs related to external technical support.

Considering that carbon projects are long-term, and especially AFOLU projects that needs to show longevity, sometimes in the terms of decades, the project owner needs to consider changing regulations and unforeseen costs over times longer than the crediting period i.e. when credits are being verified.

“The financial aspects need to be considered early in the projects cycle, often already for the additionality analysis, and careful agreements needs to be developed between the stakeholders.”



A Village Savings and loan Association (VSLA) meeting with members enjoying the benefits through participation in the carbon project.



A registered group receives their reward from participating in the carbon project.

Case Example: Vi Agroforestry

In KACP, farmer groups receive financial returns from carbon credit sales according to the amount of CO_2 sequestered at the group level, ensuring that benefit-sharing is directly tied to measurable climate impact.

These financial benefits are typically delivered ex-post (after credits are issued and sold) and are managed collectively by the groups.

Vi Agroforestry emphasizes that revenues from carbon credits are a co-benefit - the main economic gains for farmers stem from improved agricultural productivity, stronger market linkages, and value chain integration, rather than direct payments from carbon credits.

For further details on ViA's benefit-sharing mechanisms and financial aspects in carbon projects, please refer to our comprehensive document:

https://www.viagroforestry.org/app/uploads/2025/01/benefit-sharing-mechanisms.pdf



A farmer shows off her piglet that was purchased through revenue from the carbon project.





Glossary

AFOLU (Agriculture, Forestry and Other Land Use)

A sector category used in climate reporting and carbon markets that includes land-based activities such as agriculture, forestry, agroforestry, and land restoration.

Additionality

A principle in carbon markets requiring that emission reductions or removals would not have occurred without the carbon project. Demonstrating additionality is essential for a project to be eligible for carbon credits.

Benefit-Sharing Mechanism

A system for distributing financial or non-financial benefits from a carbon project to participating stakeholders, particularly smallholder farmers. It ensures equity, transparency, and local ownership.

Carbon Credit

A tradable certificate representing the reduction or removal of one metric ton of carbon dioxide equivalent (tCO_2e). Credits are issued after third-party verification and can be sold on voluntary or regulated markets.

Carbon Finance

Funding generated through the sale of carbon credits. It can be used to support project implementation, monitoring, and benefit-sharing with communities.

Carbon Pool

A reservoir that stores carbon, such as soil, trees (above- and below-ground biomass), litter, deadwood, or harvested wood products. Carbon projects quantify changes in these pools to calculate emission reductions.

Carbon Rights

The legal rights to claim and sell carbon credits generated from a specific activity or land area. Clarifying carbon rights is essential for ensuring fair benefit distribution.

Emission Reduction Purchase Agreement (ERPA)

A legal contract between a project developer and a buyer for the purchase of future carbon credits, often used to secure upfront financing.

Free, Prior and Informed Consent (FPIC)

A principle ensuring that communities are fully informed about a project and voluntarily agree to participate, without coercion or manipulation.

Grievance Redress Mechanism (GRM)

A formal process for stakeholders to raise concerns or complaints related to project implementation or benefit-sharing. It promotes accountability and conflict resolution.

Monitoring, Reporting and Verification (MRV)

A system for tracking project activities, measuring outcomes (e.g. carbon sequestration), and verifying results through independent third-party audits.

Monitoring, Reporting and Verification (MRV)

A system for tracking project activities, measuring outcomes (e.g. carbon sequestration), and verifying results through independent third-party audits.

Permanence

The durability of carbon sequestration over time. Projects must demonstrate that carbon stored (e.g. in trees or soil) will not be reversed or lost prematurely

PIN (Project Idea Note)

A short, early-stage document outlining the basic concept, objectives, and feasibility of a carbon project. It is often used to attract interest from investors or standards bodies.

PDD (Project Design Document)

A comprehensive document that details the technical, environmental, and social design of a carbon project. It is required for validation and registration under most carbon standards.

SALM (Sustainable Agricultural Land Management)

A set of practices that improve soil health, increase productivity, and enhance carbon sequestration. Examples include composting, agroforestry, residue management, and cover cropping.

Validation

An independent assessment of a project's design (as described in the PDD) to confirm that it meets the requirements of the selected carbon standard.

Verification

A third-party audit of a project's actual performance to confirm that emission reductions or removals have occurred as claimed.

VCUs (Verified Carbon Units):

Carbon credits issued under the Verified Carbon Standard (VCS) program, representing one metric ton of carbon dioxide equivalent (CO2e) reduced or removed from the atmosphere.

Verified Emission Reductions (VERs)

A general term for carbon credits generated by voluntary carbon market projects that have been independently verified to represent one metric ton of CO_2e reduced, avoided, or sequestered.

VCS (Verified Carbon Standard)

One of the most widely used voluntary carbon standards, managed by Verra. It provides methodologies and rules for quantifying and verifying carbon **benefits.**

Voluntary Carbon Market (VCM)

A global market where organizations and individuals voluntarily buy carbon credits to offset emissions. Projects must follow recognized carbon standards and undergo third-party verification to ensure credibility.

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