

Finance for Integrated Landscape Management

De-risking smallholder farmer investments in integrated landscape management: ECOTRUST's Trees for Global Benefit (TGB) in Uganda

A report by The Environmental Conservation

Trust of Uganda (ECOTRUST)



About this Study

This report was prepared by Patrick Byakagaba, Pauline Kalunda Nantongo and Freddie Kalibwani. Support was provided by Tropenbos International (TBI), partner of the CGIAR research programme on Forests, Trees and Agroforestry (FTA), a global partnership that unites international organizations engaged in research on food security. The report is part of a series of case studies that provide insights into various mechanisms used to increase access to finance for smallholder farmers, SMEs and communities in their efforts to contribute to sustainable landscapes. The case studies focus on the strategies used by various stakeholders to reduce the risks of selected financial flows for investors, intermediaries and recipients. These case studies follow up on recommendations made by participants in the consultative process on innovative finance for sustainable landscapes. The goal is to provide more evidence of successful strategies in order to increase access to finance for smallholder farmers, SMEs and communities (Louman et al. 2020a).

This case study describes a conservation finance mechanism implemented by the Environmental Conservation Trust of Uganda (ECOTRUST). The mechanism delivers US\$6 of every US\$10 to smallholder conservation farmers through a blended model that combines public (donor) finance, private-sector foreign direct investment (FDI), and community contributions, to support long-term biodiversity and climate change outcomes at the local level. ECOTRUST has developed this model over 17 years of implementing its Trees for Global Benefit (TGB) program.

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Photos: ©ECOTRUST. Cover: Murchison landscape, Uganda; page 4: TGB farmer pruning; page 8: TGB agroforestry systems; page 11: TGB farms in Queen Elizabeth Landscape, Uganda; page 16: TGB farmer collecting herbs; page 28: CFM groups collecting wood from forests; page 32: View of the Bugoma CFR in the Murchison Landscape; page 37: Agroforestry practiced on TGB farms.

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Preface

This is one of a series of case studies implemented by partners of the CGIAR research programme on Forests, Trees and Agroforestry (FTA) and coordinated by Tropenbos International. These case studies of selected financial value chains aim to provide a greater insight into the strategies applied by their various stakeholders to increase the participation of smallholders in the transformation to resilient landscapes.

Most tropical rural landscapes are still subject to high rates of deforestation and forest degradation, which makes them more vulnerable to climate change and other outside shocks. Smallholders are important actors in these processes, but rarely benefit from current financial flows. They need to be considered when investing in tropical rural landscapes.

The [methodology](#) used by the case studies was designed to be implemented by FTA and its partner organizations that are studying finance for integrated landscape management. While the methodology is useful in a wide range of cases, the authors specifically intend it to apply to the processes that key informants considered to be successful in supporting landscape initiatives and/or in increasing access to finance for all possible recipients — including marginalized and disadvantaged groups — within landscapes. Applying this methodology in a range of cases will contribute to generating an information base of comparable results. People can draw lessons from this information base to design processes that support inclusive financing for integrated landscape initiatives.

The methodology comprises three phases.

Phase 1 involves an in-depth interview with the implementing agency (IA), which plays a central role as broker or intermediary of financial flows to existing landscape initiatives. This phase aims to define six things: 1) the main sources of finance and their characteristics; 2) the principal groups of recipients; 3) the financial flows associated with the various sources and recipients; 4) the process of managing and channelling funds;

5) the financial mechanisms applied and their underlying rules; and 6) the risks and barriers involved from the perspective of the IA. In addition, the interview in Phase 1 will identify stakeholders to be interviewed in the subsequent phases.

Phase 2 comprises collecting data related to the sources of finance, recipients (groups and individuals), and the providers of non-financial services who engage with them. It includes interviews with four types of key informants, which were identified during Phase 1: 2a) representatives of the finance sources; 2b) representatives of recipient groups; 2c) service providers engaged with recipients; and 2d) selected individual recipients and non-recipients (particularly smallholders). Phase 2 focuses on risk perceptions, barriers perceived by each of the stakeholder groups, and ways to reduce the (perceived) risks and overcome barriers. It also seeks to determine the extent to which the financial flows have met stakeholder expectations, as well as the perceived effects of the financial flows on sustainability goals in relation to the landscape.

Phase 3 involves validating the information gathered in Phase 2. Focus group discussions held in Phase 3 involve representatives of principal recipients and groups of recipients, service providers, the implementing agency, and other stakeholders who are relevant to the financial flows.

This report describes a case study from Uganda that was based on the methodology.

This case study describes a local Trees for Global Benefit (TGB) conservation finance mechanism in Uganda. The TGB mechanism provides incentives through payment for environmental services (PES), a model that enables thousands of smallholders to engage in forest landscape restoration as a business and delivers long-term biodiversity and climate change investments at the local level. The implementing agency was the Environmental Conservation Trust of Uganda (ECOTRUST).

Executive Summary

According to Soanes et al, 2019, there is need to reimagine both the conservation and climate finance systems. Only US\$1 of every US\$10 of climate finance committed currently reaches local-level climate action (IIED 2017). However, evidence from international development bilateral and climate funds that focus on reaching local communities shows that local programmes can deliver a “triple win.” This means that they can produce more sustainable results at a lower cost, develop local capacity, and generate local climate-positive economic development benefits, such as improved livelihoods, reduced pollution, and access to clean energy (IIED 2017).

This case study describes a local Trees for Global Benefit (TGB) conservation finance mechanism in Uganda, implemented by the Environmental Conservation Trust of Uganda (ECOTRUST 2020). The mechanism delivers US\$6 of every US\$10 to local smallholder conservation farmers. It involves a blended finance model that combines public (donor) finance, private-sector foreign direct investment (FDI), ECOTRUST’s own internal revenue, and community contributions to deliver long-term biodiversity and climate change investments at the local level, where they matter most.

This case study looks at the TGB program as an example of a sustainable landscape financing

scheme, providing insights to the innovations that allowed the program to contribute to integrated landscape management (ILM). The findings reveal that TGB has innovative ways of reducing the risks and barriers that limit financial flows, and the capacity to integrate trees into smallholder-dominated agricultural landscapes. This blended finance mechanism used public and ECOTRUST’s own money to ensure that TGB implementation matched investor requirements. This built confidence among the various actors (from investors to smallholders) and significantly reduced the risks and barriers that limit investing in ILM. TGB has been able to unlock private financing for landscape restoration by demonstrating that the financial returns from restoration activities are attractive and that ILM is worth investing in. TGB mainly uses public funding to leverage private-sector funding. This confirms that blended finance can address the current funding gaps and support conservation, climate action and sustainable development (Rode et al. 2019; Clark et al. 2018) if it is designed in a way that addresses the risks and barriers of all stakeholders (Louman et al. 2020b). The TGB financial mechanism has 12 key principles that interact to ensure the successful delivery of conservation finance where it matters. See Table 1.

Table 1. Key principles of the TGB financial mechanism

1. Blended financing in the different phases of the model
2. Community engagement
3. De-risking farmer investments
4. Commoditizing smallholder restoration initiatives
5. Aggregation of environmental services
6. Performance-based payments to smallholders
7. Leveraging or catalyzing private-sector finance
8. Financial inclusion for multiple income streams
9. Balancing restoration with improved livelihoods

10. Program of activities (PoA) design for scaling out and replication

11. Ex-ante as opposed to ex-post payments

12. The involvement of an intermediary implementing agency

Notes: Commoditization refers to making something that previously was not available in the market (such as an ecosystem service) into a commodity. Ex-ante payments are based on forecasts and not results. Ex-post payments are based on results.

It also emerged that, beyond these key principles, several other attendant factors are critical to prevent and manage risks. Social capital and a good working relationship are very important in providing information that can be useful in preventing and mitigating risks. It is important to build the capacity of farmers through forming groups and savings associations to minimize the risk of them dropping out of the program. It is also crucial to ensure that there is a free flow of information between the farmers and the implementing agency through feedback and grievance mechanisms. Having a diverse spectrum of brokers helps reduce the risk of failing to get enough carbon buyers. Having a carbon bank or endowment fund is the most appropriate avenue to ensure that capital expands. There is a need for all stakeholders to understand the mix of flows and related risks in the different investment phases and to develop appropriate risk mitigation strategies. Honest brokerage is essential for maintaining good relations with farmers and buyers in order to reduce attrition. The ex-ante payment delivery model is an effective incentive for building farmer confidence and enabling smallholders to sustain their trees right from the planting stage.

- the need for financial institutions to design “green” credit models that respond to the realities of smallholders and enhance their financial inclusiveness;
- the need for public/donor funding sources to review their policies for investments in integrated landscape management initiatives, because these are long-term by nature;
- the need for more public finance that targets integrated landscape management initiatives in order to stimulate private-sector investment;
- the need to demonstrate to private companies the financial and non-financial benefits of investing in integrated landscape initiatives; and
- the need for projects such as TGB to share their experiences and to provide evidence of their performance through easily accessible platforms.

These are the main recommendations that emerged from the study:

- the need to scale out the TGB model in order to deliver conservation finance to smallholders at the landscape level;
- the need for funding sources and financial institutions to rethink their risk perceptions of smallholders;
- the need for a full valuation of farmer contributions and co-benefits as part of financial flows;



SECTION I

1. Introduction

The Paris Climate Agreement and the Sustainable Development Goals commit the world to advancing social prosperity while increasing resilience to climate shocks, protecting carbon sinks and reducing greenhouse gas emissions. Although the international community has already committed financial and technical support to achieve the goals of tackling poverty, resource degradation and climate change, only US\$1 of every US\$10 from international climate funds between 2003 and 2016 was committed to locally focused projects (Soanes et al, 2019)

Implementing an effective post-2020 global biodiversity framework will require governments and the private sector to scale up biodiversity finance and reduce or avoid financial flows that harm biodiversity (OECD 2020). Global biodiversity finance is estimated at US\$ 78–91 billion per year (OECD 2020). This estimate comprises public domestic expenditure (US\$ 67.8 billion per year); international public expenditure (US\$ 3.9–9.3 billion per year); and private expenditure on biodiversity (US\$ 6.6–13.6 billion per year). This further confirms that countries have not prioritized stopping biodiversity loss in their investments, which is reflected in the failure to achieve the Aichi Biodiversity Targets for 2020 that were set at the Convention on Biological Diversity conference in 2010 (Bradshaw et al. 2021). Meanwhile, governments are spending approximately US\$ 500 billion per year on support for activities that are potentially harmful to biodiversity — five to six times more than total spending for biodiversity. The total volume of financial flows that are harmful to biodiversity (i.e., encompassing all public and private expenditure) is likely to be many times larger (OECD 2020).

Actions to reverse harm to or loss of biodiversity are likely to attract a lot of attention from governments and NGOs in the future. For example, eliminating or reducing

subsidies and other incentives that are harmful to nature, biodiversity and climate, while significantly increasing incentives for positive or neutral impacts on biodiversity across all productive sectors, is a commitment of 82 countries that signed on to the “Leader’s Pledge for Nature” on 28 September 2020 (UN 2020a).

Climate finance, on the other hand, continues to dominate the discourse on national, regional and international financing, and is always evolving with new financing instruments. According to the UN, (2020b), climate finance must be “new and additional.” The premise is that public finance is at the core of fulfilling developed countries’ climate finance obligations, and that private climate finance should play a supplementary, not an essential, role. The architecture of climate funds is fragmented. Some funds focus on products (e.g., renewable energy, biocarbon, etc.); others on sectors (e.g., the Forest Investment Programme) or eligible countries (e.g., the Least Developed Country Fund). The ability to demonstrate impact from the use of climate finance is key to attracting more investors, irrespective of category.

The path to lowered greenhouse emissions in the Paris Agreement goal has driven the development approach of “green growth” in countries. Green growth is a vague term with many definitions, but broadly refers to the idea that society can reduce its environmental impacts and slash its emissions, even while economies continue to grow. Uganda’s Green Growth Development Strategy, 2017, calls for “an inclusive low-emissions economic growth process that emphasizes effective and efficient use of the country’s natural, human, and physical capital while ensuring that the natural assets continue to provide for present and future generations” (GOU 2017:8). Due to the close connections between climate change strategies and green growth strategies,

financing mechanisms need to address both without contradiction (GOU 2017).

According to the OECD (2020a), the total climate finance provided for developing countries reached US\$ 78.9 billion in 2018, close to the goal of raising US\$ 100 billion each year by 2020. Africa received about a quarter of this; Asia benefited from the largest share, approximately 43%. The same authors indicate that between 2016 and 2018, 79% of the total climate finance provided and mobilized by developed countries was reported as allocated to individual countries, while 21% was reported as regional or for multiple countries. In Africa, climate finance was apportioned as follows: East Africa US\$4.8 billion (7%); North Africa US\$4.1 billion (7%); West Africa US\$3.3 billion (5%); Central Africa US\$1.1 billion (2%); Southern Africa US\$0.8 billion (1%); and Regional Africa US\$3.2 billion (5%). This scenario partly explains the failure of African countries to meet the goals of the Paris Agreement on Climate Change (as proposed by each country in their Nationally Determined Contributions; Bradshaw et al. 2021).

In terms of global thematic split, mitigation absorbed 72%, adaptation 19% and cross-cutting 9% (OECD 2020a). For the Least Developed Countries (LDCs), including Uganda, the split between adaptation, mitigation and co-benefits has been 42:50:8 over the 2013-to-2017 period. Evidence from six African countries suggest that although they prioritize climate change adaptation because of its differential impact on poor economies, in practice, they have favoured mitigation investments, since mitigation activities are seen to provide greater economic opportunities,

particularly in clean and renewable energy production (Thornton 2011).

According to Soanes et al, 2019, there is a need to reimagine both the conservation and climate finance system. Only US\$1 of every US\$10 of climate finance is currently reaching local-level climate action (IIED 2017). However, evidence from international development bilateral and climate funds that focus on reaching local communities has shown that local programs can deliver a “triple win,” producing more sustainable results at lower cost, developing local capacity, and generating local climate-positive economic development benefits, such as improved livelihoods, reduced pollution, and access to clean energy (IIED 2017). Such funds include The Global Environment Facility’s (GEF) Small Grants Programme; the Forest Investment Programme (FIP) Dedicated Grants Mechanism; and the DFID-financed Decentralized Climate Funds in Kenya – County Climate Change Fund.

This case study presents a local conservation finance mechanism in Uganda. Implemented by the Environmental Conservation Trust of Uganda (ECOTRUST 2020), delivers US\$6 of every US\$10 to the local smallholder conservation farmer. Its blended finance model combines public (donor) finance, private-sector foreign direct investment (FDI), and community contributions to deliver long-term biodiversity and climate change investments at the local level, where they matter most. ECOTRUST has developed this model over 17 years (2003–20) of implementing its flagship Trees for Global Benefit (TGB) Project (ECOTRUST 2020).

An aerial photograph of a tropical village. The landscape is dominated by dense, lush green vegetation, including palm trees and other tropical flora. Scattered throughout the greenery are several small, colorful houses with roofs in shades of red, orange, blue, and white. A dirt road or path winds through the upper left portion of the image. The overall scene depicts a peaceful, rural community in a tropical setting.

SECTION II

2. Methodology

2.1 Scope of the Study

The study interrogated the direct and indirect reasons why the “trees for global benefit” (TGB) program has succeeded as an innovative finance scheme that contributes to integrated landscape management. The study focused on exploring the strategies that TGB has applied to close the smallholder financing gap while supporting progress in gender-equal, climate-resilient landscapes (Figure 1). The study sought to establish financing solutions that are appropriate to Uganda’s financial system and that support smallholders to invest in integrated landscape management as part of sustainable development.

The study also identified the perceived risks, benefits and barriers associated with these solutions from the point of view of key stakeholders in the TGB program. Risks were perceived as events or conditions that if manifested would have a negative impact on the project objective (Burja and Burja 2009). Barriers were perceived as those issues that discourage decision makers in the finance community from making an investment (Jones 2015).

The study assesses how the TGB program adopted a landscape approach in the various financing solutions to scale up the impacts of SMEs and smallholders on the forest ecosystem services that are essential for inclusive green growth in Uganda. The landscape approach targets balancing multiple goals related to both environmental and non-environmental objectives, such as livelihoods and sustainable resource management (Freeman et al. 2015). The case study further describes the financial flows and mechanisms from the source of finance to brokers, from the brokers to ECOTRUST (the implementing agency, or IPA), and from ECOTRUST to the beneficiaries. The study also identifies the financial mechanisms that allowed private investors to invest in carbon and those that allowed farmers to use

the income from carbon sequestration to obtain other types of private finance.

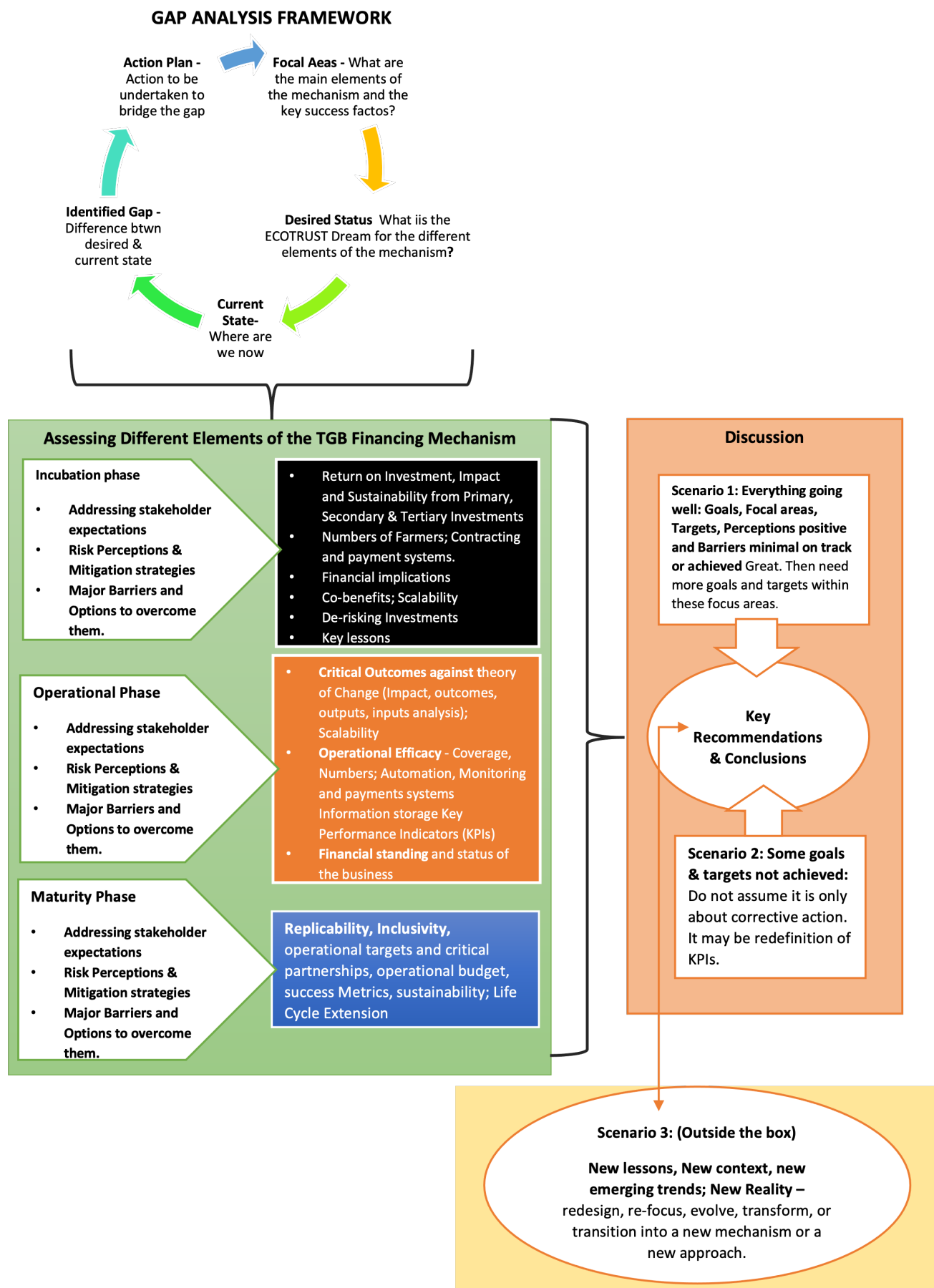
The study also reviewed the risk reducing strategies within the TGB financial mechanism that address specific risks as perceived by the different stakeholder categories including financiers, ECOTRUST and beneficiaries. The study also assesses those aspects of the financial mechanism that support integrated landscape management and apply an inclusivity lens to ensure that women and other vulnerable groups benefit. It reviews elements of the financial mechanism that support replication and scalability to other parts of Uganda, based on the experiences of the stakeholders consulted. Figure 1 shows the analytical framework for the study.

2.2 Research Design

The study applied exploratory, descriptive, and interpretive research designs. Descriptive research solicits views from various stakeholders on the phenomena under study (Dunlock, 1993). Interpretive research assesses and conceptualizes the perceptions of different stakeholders based on the assumption that social reality is shaped by human experience (Rehman and Alharthi 2016).

Exploratory research was applied to identify the innovative insights of stakeholders (Jaeger and Halliday 1998) on the financial scheme, which contribute to integrated landscape management and mitigate the risks to overcome the key barriers that limit investment in local conservation initiatives. Exploratory research was also applied to gain a better understanding of the TGB financing model. Descriptive research was carried out to systematically describe and present the views of different stakeholders on their expectations and the extent to which specific elements of the financial mechanism addressed these expectations, risk perceptions, mitigation strategies, and resulting risk exposure. The

Figure 1: Analytical framework for the Study: Source: Author's understanding of the Study.



research also identified the main barriers to expanding integrated landscape management finance and the experiences and options in the TGB program that can overcome these barriers.

2.3 Sampling Strategy

Purposive sampling was used to select the key informants. Ten (10) key informants were interviewed. The key informants were contacted through phone calls and emails. This was followed by scheduling a time for the interview that was favourable for the key informant. The key informants were selected from the following categories: staff at ECOTRUST involved in the implementation of TGB; recipient groups of the TGB program; individual recipients; non-recipients; providers of non-financial services (especially tree nursery operators); and organizations involved in financing TGB. Interviews were carried out via Zoom and telephone due to restrictions brought by the COVID-19 pandemic. Key informants were selected on the assumption that they had comprehensive knowledge of the aspects being studied, due to their participation in TGB or being residents of the TGB implementation sites. Deliberate efforts were made to ensure that both men and women were selected. Of 10 key informants, 4 were women and 6 were men. 5 youths were also interviewed. Participants for the focus group discussions (FGDs) were selected purposively to ensure fair representation of youth, women, and men — all with varying experiences in TGB. Two FGDs were held via Zoom each one held in a different one of the four landscapes: Mount Ruwenzori landscape in Kasese District, and Queen Elizabeth landscape in Rubirizi District; both districts are in Western Uganda. Each FGD had 12 participants, at least 5 of whom were women.

2.4 Data Collection

Team members collected data using document review and analysis, key informant interviews and focus group discussions. Document review involved analyzing all relevant documents on the TGB initiative, such as the project design

document, dissemination materials and reports, financial reports, peer-reviewed and published articles, grey literature, manuals, minutes of meetings, and templates of agreements. This was used to describe the TGB program. Document review and analysis are important in case study research because they enable the data collected during interviews to be contextualized. They can also provide insights on which questions to ask during interviews, and can provide comprehensive information on the themes being studied (Bowen 2009). Document review and analysis was followed by in-depth interviews with the staff of the implementing agency (ECOTRUST) including the Executive Director, who are involved in implementing the TGB program. The in-depth interviews were guided by pre-set questions that covered the goals of ECOTRUST in channelling funds into a given landscape, a general overview of the main financial flows facilitated (including sources and recipients), and the main financial mechanisms used and their conditions. The IA provided documents on the financial flows for further analysis, with confidentiality assured. The Executive Director also provided information on the main financial inflows and outflows from ECOTRUST, including their characteristics, and their current and future strategies for the recipients and the landscape.

Other in-depth interviews were conducted with staff in the finance department of ECOTRUST. The interviewers asked about the main sources of finance, characteristics of the financial inflows (such as size, instruments and mechanisms involved), the terms of the agreements, and expected outcomes. Interviewers also asked the staff about the risks perceived by ECOTRUST in relation to the financial mechanisms employed, as well as the risk management strategies adopted, the common barriers between the source and ECOTRUST, and what has been done to overcome these barriers. These interviews were followed by further interviews with both the Executive Director and staff in the Finance Department to provide more clarity on motivation for TGB, how ECOTRUST uses

the financial resources, how resources from different sources are blended, how the IA facilitates financial flows between sources and recipients, and what other services it provides. Interviews also addressed the specific risks perceived by ECOTRUST and any risk management strategy being implemented to reduce these risks. The interviewees were also asked to identify the main barriers they encountered in accessing sources of finance and how these barriers are overcome.

The final interview with ECOTRUST covered the financial flows and services that link it and the recipient organizations. Specifically, the interviews addressed the financial inflows to ECOTRUST, the main recipients, the main financial outflows (from ECOTRUST to recipients) and their characteristics and mechanisms, as well as risks and barriers. Interviewers also asked about the strategies employed to overcome barriers and reduce risks. The staff were also asked if they were aware of any other actors who channelled finance to the same recipients.

Team members also conducted an in-depth interview with one of the sources of finance that funds TGB activities. Topics included the risks perceived or encountered by the source, the risk management strategies adopted to minimize these risks, and suggestions for de-risking future/similar investments. Other questions included the main barriers to reaching investees experienced by the source, how they were overcome, and recommendations for tackling such barriers in the future. The last set of questions established the source's expected outcomes and

effects on the landscape objectives and its recommendations to better adapt the flow to increase its positive effects.

Interviews were carried out with at least three members of two groups that are recipients of the TGB financial flow. The interviews covered characteristics of the flows that reach these recipients, the terms of the flow, and the expected and perceived effect of the flows from the perspective of the various actors. Other aspects included the risks associated with the flow, risk management strategies used, and how the flow could be improved to better achieve positive effects and lower risks. Interviewers also asked about the barriers experienced by the actors and ways for overcoming them, as well as recommendations to make future finance more accessible to potential recipients. Research team used triangulation to validate the information: i.e., they asked the same questions in the focus group discussions as they did in the interviews with key informants.

The data from the interviews and FGDs were transcribed manually. Statements made by key informants and in FGDs, following themes in the guiding questions, were analyzed to generate information about the perspectives of the people who were consulted. The process of determining views and perspectives from the transcribed data was done in a circular and repetitive way in order to identify both descriptive and interpretive statements (Hsieh and Shannon 2005).



SECTION III

3. Key Findings

3.1 The Trees for Global Benefit (TGB) Financial Mechanism

Trees for Global Benefit (TGB) is an innovative initiative for financing forest-based landscape restoration. It integrates biodiversity conservation with climate change adaptation and mitigation within the context of landscape reforestation that is linked to improved livelihoods and sustainable landscapes. The TGB mechanism provides incentives through payment for environmental services (PES), a model that enables thousands of smallholders to engage in forest landscape restoration as a business. TGB uses blended finance to support the various activities under its primary-, secondary- and tertiary investment phases (Figure 2). The blended finance includes ECOTRUST's own revenue, community contributions, public/donor investment; and private-sector Foreign Direct Investment. TGB uses this four-layered financing model to drive and support the various phases of the program and ensure that US\$6 of every US\$10 is delivered to the final beneficiary – the local smallholder farmer. TGB treats each household as an economic unit and develops a business plan for each unit. The business plan is linked to a 25-year contract that stipulates the agreed environmental and biodiversity performance targets, along with a ten-year payment schedule.

The flows in the TGB financial mechanism support three investment phases: primary, secondary and tertiary (Figure 2). The primary (or preparatory) investment phase blends ECOTRUST's internal revenue, community contributions and donor financing to support community engagement, land acquisition and farmer recruitment processes (Figure 2). Public or donor financing is the main source in the secondary phase, which supports the commoditization and aggregation of the smallholder environmental services that result

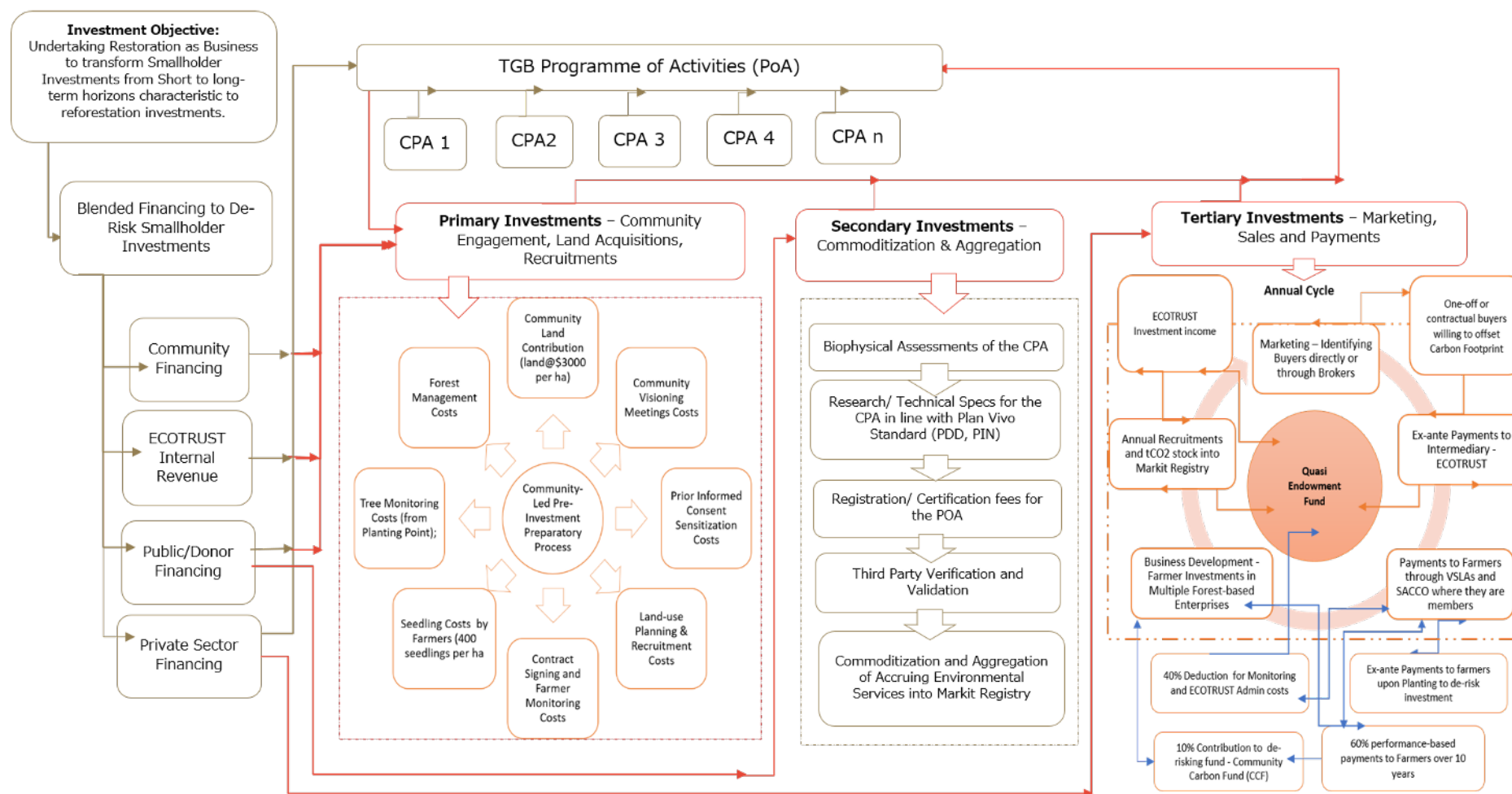
from the activities funded by the primary phase. The tertiary investment phase is financed by the private sector or the market. It promotes and sells off the accrued or performance-based environment services and delivers payments directly to the individual beneficiary farmers.

In the tertiary phase ECOTRUST delivers early (ex-ante) payments to smallholders when they plant trees. Also known as front-loading, this builds farmers' confidence in the contracts and provides funds that de-risk the long-term investment in tree growing and enable the farmers to sustainably manage the reforested landscape. The payments are delivered through local financial institutions where the farmers are members. This boosts the cash flow of the local financial institutions while at the same time making the farmers' PES contracts dependable collateral for obtaining additional finance in the form of loans from the institutions. The additional finance is reinvested by the farmers in forest-based green enterprises, resulting in multiple income streams and diverting the farmers away from practices that degrade forests. The contracts enable the farmers to expand their short-term investment horizons to include longer term conservation-linked investments. The processes and financial flows in different investment phases and the different investment portfolios per phase are shown in Figure 2.

3.2 The Primary Investment Phase: Community Visioning and Community Investment

This is the core phase on which the success of TGB is premised. ECOTRUST's internal revenue and community contributions are the main sources of financing for this phase (Figure 2), but some donor or public finance and impact investments can also be invested at this stage and recovered in the tertiary phase when

Figure 2: Financial Flows for the Trees for Global Benefit (TGB) Financial Mechanism: Source: ECOTRUST, 2020



Legend for line colors

- **Brown lines** – Blended Financing flows to the overall POA
- **Red lines** – Main flows to a specific investment phase and within the phase
- **Blue lines** – Complementary Flows to the Annual Cycle or Tertiary Phase
- **Dotted Lines** - around each of the phases

PES payments are made. There are eight key elements of the Primary Investment Phase:

1. **A focus on landscapes with global biodiversity significance** — TGB has enabled more than 10,000 smallholders to restore and sustainably manage over 8,000 hectares (ha) of reforested woodlots across three key landscapes in Uganda with global biodiversity significance (Queen Elizabeth and Murchison landscapes in the Albertine Rift in Western Uganda, and the Mount Elgon landscape in Eastern Uganda). Queen Elizabeth and Mount Elgon landscapes are UNESCO Man and the Biosphere reserves.
2. **Annual voluntary and incremental farmer recruitment** — The primary investment activities (community visioning, mobilization, sensitization, and monitoring investments) are repeated annually, are financed by ECOTRUST's internal revenue, and ensure free, prior and informed consent (FPIC) for all farmers who join the program each year.
3. **Community investment/contribution** — The farmers are the primary and most critical investors. Farmers join the program by committing to reforest 0.5–5 ha of their land with indigenous tree species over a rotational period of 25 years. Securing land for reforestation is therefore the first-level or primary investment that each farmer makes, at approximately US\$2,740 per ha, using the would-be selling price as the proxy. This primary investment in secure land — by more than 10,000 smallholders at the equivalent selling proxy of US\$27 million — is a critical factor in the success of TGB.
4. **25-year land-use and business plans** — ECOTRUST engages with each individual farmer to develop a land-use plan for all the household's farmland to ensure that reforestation does not displace other critical land uses, especially food production. The land-use plan then doubles as the business plan for the 25-year performance and payment contract between the individual farmer and ECOTRUST.
5. **Purchase of seedlings** — Once smallholders are recruited, they then make an additional primary investment by purchasing and planting a mix of indigenous tree seedlings at an agreed spacing (400 trees per ha) at US\$0.3 per seedling.
6. **Monitoring system for farmers and trees** — ECOTRUST invests in monitoring and in storing the monitoring data for each individual farmer and each tree in a national database. Individualized client accounts support payment arrangements. This is the second primary investment for ECOTRUST as the implementing agency (IA); the first investment is outlined in item ii.
7. **A monitoring cost of 40%** — Accurate monitoring, data storage, payment procedures and process costs; complementary workforce; and other intermediary requirements cost ECOTRUST US\$4 of every US\$ 10 it receives in accrued payments for environmental services (PES).
8. **Farmers receive 60%** — TGB delivers 60% of all payments for environmental services to the local farmer, against a 40% administration and monitoring retainer (ECOTRUST 2020).

3.3 Secondary Investment Phase: Technical Specifications and Aggregation

The secondary phase creates the link between the supply and demand side of the business. Investments in this phase are used to design and tailor technical specifications that are aligned to existing international standards and markets. This enables ECOTRUST to commoditize and aggregate the environmental services that accrue from the various forms of smallholder farmer reforestation efforts (Figure 2). The aggregated carbon stock is stored on an international stock-exchange platform: the HIS Markit Environmental Registry. From there,

sales are made to various buyers. **ECOTRUST's main intermediation role is in this phase and is a major factor in its success.** The secondary phase is financed mainly from public or donor funds, mostly because it involves a high level of scientific rigour aligned with a specific existing international carbon market standard, which investors require. Also, this investment can be a one-off since donor grants are usually time-bound and may or may not be renewed. In addition, alignment and certification costs to meet international standards can be prohibitive for smallholder-level carbon projects. **TGB's cooperative carbon-offset scheme** links thousands of smallholder woodlots across various landscapes.

In the secondary investment phase, verified emission reductions (VERs) under the Plan Vivo international standard (Plan Vivo 2021) are aggregated from the overall area under improved forest management. These VERs constitute the supply side of TGB forest landscape restoration as a business. Under TGB's cooperative financing scheme, each household is treated as an economic unit that retains the rights to land, trees and carbon credits. This cooperative approach allows smallholders to aggregate their reductions to achieve scale, manage risk, and gain access to carbon financing under the Plan Vivo standard as a group scheme that they can afford as individual households. The scheme helps farmers who traditionally rely on short-term planning to adopt longer-term horizons (over a period of ten years) on the understanding that at given intervals (and subject to independent verification and certification), they can obtain carbon financing. TGB is designed as a market-driven intervention that de-risks reforestation investments by smallholders, creating opportunities for diversified income generation that are aligned with the long-term growing periods associated with sustainable forestry investments (ECOTRUST 2003).

There are four key elements of the secondary investment phase:

1. **A scheme that aggregates PES from various smallholders** — Aligning the tree-

planting program to the specifications of one of the existing PES standards facilitates aggregation, commoditization and trade. Several PES standards, such as Plan Vivo, VCS and CCBA, already exist within the PES market.

2. **Aligning to a PES standard is a complex process** — It involves ensuring that the project sufficiently addresses a very wide range of factors, including adequate consultation with local communities and governments, proper selection of eligible planting areas and tree species, secure land tenure, PES estimates, permanence, leakage, risk buffer size, establishment of third-party verifiers, and verification schedules.
3. **Designing a PES accounting and monitoring system for the services generated from the total area** — This involves an intensive contract development exercise, with all growers needing to specify the exact number of hectares under improved management. The carbon contract assumes a minimum rotation period of 25 years. The contract also specifies payment details that include administration costs; contribution to a risk fund (the Community Carbon Fund); and a schedule of payments to the grower. Monitoring the trees involves designing a GIS-linked digital monitoring system and database for capturing grower and tree information in a timely manner. This facilitates commoditizing the environmental services and enables payments to farmers. It also involves recruiting monitors and designing technology-based monitoring using drones or remote sensing to undertake monitoring of all growers and trees with periodic intervals throughout the year.
4. **Commoditizing and linking the growers to a diverse portfolio of carbon buyers** — This connects the tree growers to the voluntary carbon market: private-sector buyers who are willing to trade their polluting rights. ECOTRUST is the implementing agency (IA), registering the

project, aggregating the credits to achieve marketable scale and finding willing buyers. ECOTRUST signs contracts with buyers for delivery of the credits; receives the bulk payments; and transfers them to the various growers in the project, based on performance that is measured against the signed contracts. ECOTRUST has been involved in the PES market for 17 years.

3.4 Tertiary Investment Phase: Private-Sector Foreign Direct Investment

Investments in this phase are based on the financial flows between ECOTRUST (as the implementing agency), brokers and recipients. The capital comes from companies in the United States and Europe. Companies that wish to offset their carbon footprint pay for the environmental services accrued from the sustainable management of thousands of hectares of woodlots by thousands of smallholder farmers (Figure 2). The woodlots are aggregated under the TGB program (ECOTRUST 2003). **The model is based on mobilizing and delivering private-sector capital by ECOTRUST over the last 17 years. TGB creates opportunities for companies in the private sector to engage with their supply chain partners and invest in reducing ecosystem risk within the supply chain. The income from the sale of the environmental services provides much-needed capital in the form of Foreign Direct Investment (FDI) to kick-start the forestry enterprise. This model allows farmers to tap into modest financing at various stages of their forestry enterprise while also generating income from enhanced land productivity and contributing to biodiversity conservation and global climate benefits (ECOTRUST 2020).**

There are four key elements of the tertiary investment phase:

1. **Investments in this phase are based on the financial flows between ECOTRUST (as the implementing agency and broker for private companies) and recipients.** Companies can offset their carbon

footprint by paying for the environmental services accrued from the sustainable management of thousands of hectares of woodlots by thousands of smallholder farmers.

2. **Investments focus on robust financial monitoring and on a transfer system for carbon credits** that is linked to an international carbon stock exchange (IHS Markit Environmental Registry).
3. **A full proof financial system and customer care delivers annual stock and sales** are critical success factors for both the supply and demand side.
4. **TGB is a model for catalyzing foreign direct investment (FDI) driven by the private sector in community-based biodiversity protection and climate change mitigation** and undertaken by smallholder farmers involved in landscape restoration in low-income countries such as Uganda.

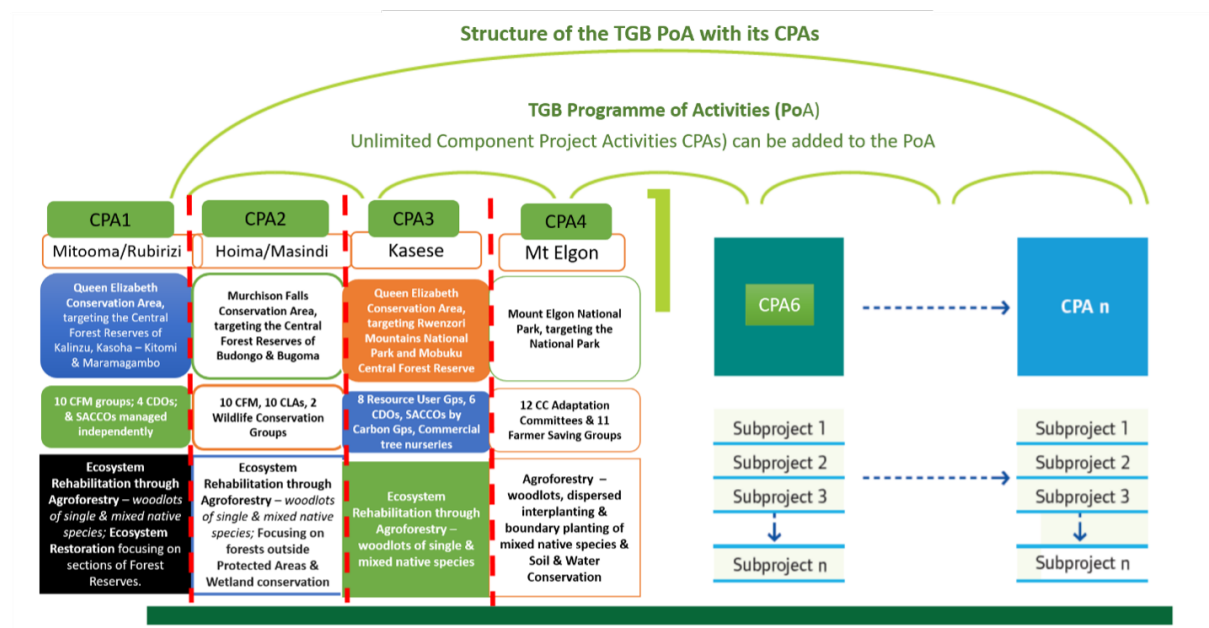
3.5 A Programme of Activities: towards Scalability, Replicability and Inclusivity

Trees for Global Benefit is designed as a Programme of Activities (PoA), as defined in the Clean Development Mechanism (CDM) framework (UNEP, 2005). The PoA structure allows for the inclusion of various communities at multiple sites to implement multiple activities over the lifetime of the program (Figure 3). A PoA enables projects to be implemented that have a high potential for replication over a long period of time, typically several years to more than a decade. Once a PoA has been registered, an unlimited number of component project activities (CPAs) can be added without having to undergo a new CDM project cycle. New activities can be added for up to 28 years (Climate Focus, 2013). A PoA is suitable for combining carbon credits from many small and geographically dispersed activities, even if their locations are not known when the project starts.

A PoA is a voluntary coordinated action by a private or public entity which coordinates and implements any policy or measure or stated goal (i.e., incentive schemes and voluntary programs), which leads to Green House Gases (GHG) emission reductions or increase net GHG removals by sinks that are additional to any that would occur in the absence of the PoA (UNFCCC, 2011). New activities under a PoA can be registered as a single CDM project, provided that they use approved baseline and monitoring methodologies that define the appropriate boundary, avoid double counting and account for leakage, and ensure that the net human-caused removals by carbon sinks and that emission reductions are real, measurable and verifiable, and additional to any that would occur if the project did not take place.

The Programme of Activities approach under TGB is an organizational and financial framework that is able to bring together many individual activities that are distributed over space and time (Figure 3). Through the community visioning exercise, each community can identify the improved landscape initiatives that are suitable to its needs. The appropriate technical specifications of these initiatives are then prepared to meet international standards and to be able to introduce new communities and/or new activities into the scheme. ECOTRUST ensures inclusivity by taking a “whole community” approach in generating a community vision for conservation and a “whole household” approach that generates a joint business/land-use plan for every smallholder. Each household has a contract and an account number with ECOTRUST and is treated as an economic unit.

Figure 3: Structure of TGB Program of Activities (PoA) with its Component Project Activities (CPAs). More CPAs can be added for scaling out (adopted from Climate Focus 2013)



3.6 A business partnership

Reducing poverty among rural households and protecting the ecosystems that these households depend on for their basic needs — subsistence agriculture, safe drinking water and forest products — is one of the biodiversity conservation challenges faced by many

countries in sub-Saharan Africa (NEMA, UNDP and Global BioFin 2019) and across the world. Restoration must make economic sense to the key stakeholders involved to ensure sustainability. **TGB is an innovative business partnership between three main parties that support biodiversity restoration:** private-sector buyers; a conservation finance

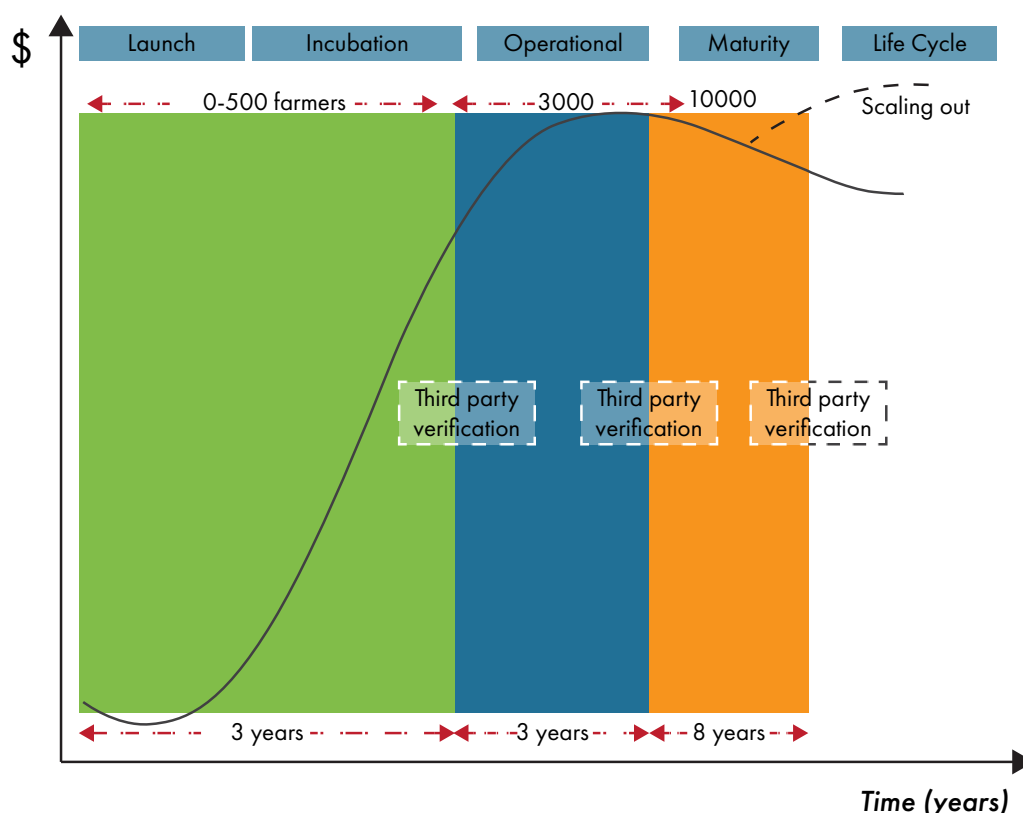
and aggregation intermediary; and partner communities and landscapes (smallholder suppliers). The TGB model provides a financial incentive for poor households to engage in biodiversity conservation on a sustainable basis. ECOTRUST is the conservation finance and aggregation intermediary (i.e., the implementing agency) and signs purchase agreements for carbon credits with private-sector buyers, and restoration and supply agreements with smallholder partners. ECOTRUST guarantees payments to the smallholders over a period of 10 to 15 years, and guarantees a supply of carbon credits to the buyers, who in turn deliver ex-ante payments to incentivize the farmers. ECOTRUST then delivers a robust, digital third-party-verified monitoring and reporting system that assures the buyers of carbon stock delivery. The financing is delivered in form of performance-based ex-ante payments on

the assumption that by year 10, sustainable interventions will be fully established, providing multiple benefits to farmers and removing any incentive to revert to the “before” situation of unsustainable land management practices.

3.7 Growth Stages: Incubation, Operational and Maturity

The TGB financing mechanism goes through three main stages: incubation, operational, and maturity. These stages are linked to four factors: (i) the number of farmers recruited into the program; (ii) the time frame or number of years implemented, which is also linked to; (iii) international third-party verification cycle intervals of three, five and ten years; and (iv) recovery of preparatory investments costs for a given site (break-even point) as an indication for the readiness of the program to launch a new site (scaling out in Figure 4).

Figure 4: Incubation, Operational and maturity phases of the TGB Mechanism



The Incubation stage lasts for about three years. It involves all three phases of investment (primary, secondary and tertiary) and a small number of farmers (ranging from 100 to 500)

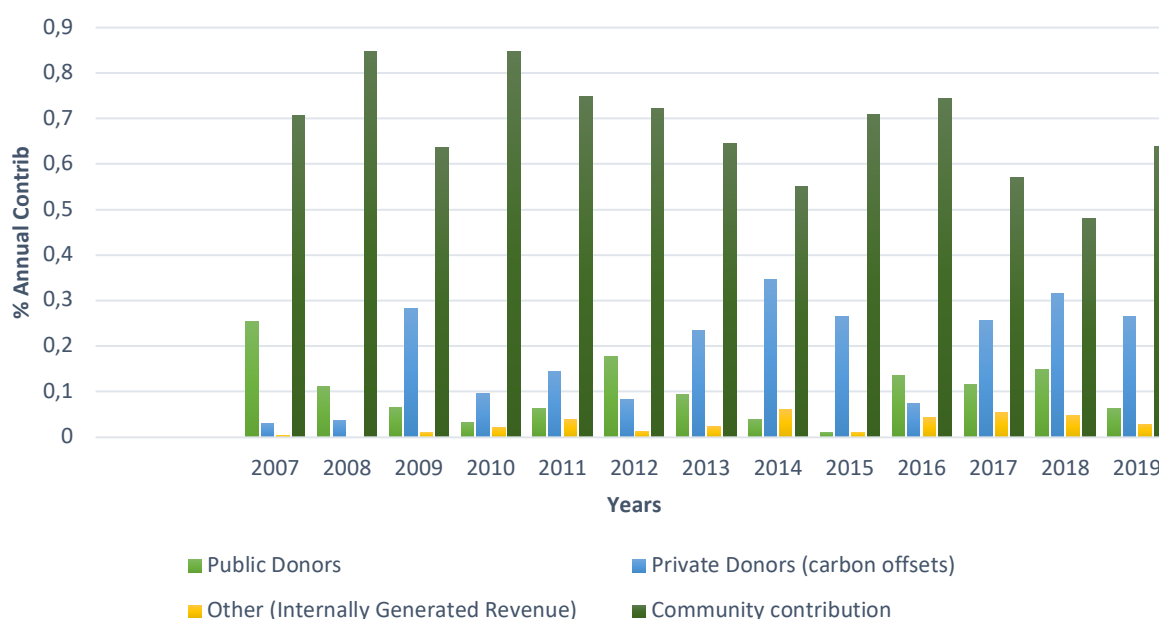
engaged in reforestation a total of about 500 hectares (i.e., about one hectare each). The program then enters a **three-year operational stage** where investments — especially

primary-phase farmer recruitment — intensify to increase farmer numbers, from about 500 to about 3,000. Tertiary investment costs increase substantially during the operational stage because of increased monitoring costs, but so do stocks and sales. **The program then enters an eight-year maturity phase** with all systems stabilized. Recruitment rises to a stable 8,000–10,000 smallholders and an annual FDI inflow of about US\$1 million. These stages are aligned with the international third-party verification system used by Plan Vivo, which conducts periodic external verification audits of all systems and processes to ensure compliance.

3.8 Financial Flows

The TGB financing mechanism uses public financing to leverage or catalyze private-sector financing for carbon offsets. Public financing has remained low over the years, but private-sector financing has increased significantly over the last decade (Figure 5). Public financing is used mainly to incubate new TGB sites until the carbon sales allow investors to recoup their primary investment and reinvest in a new site. ECOTRUST's internal revenue has grown incrementally over the years and has enabled it to set up an endowment fund; this helps sustain the organization and the business.

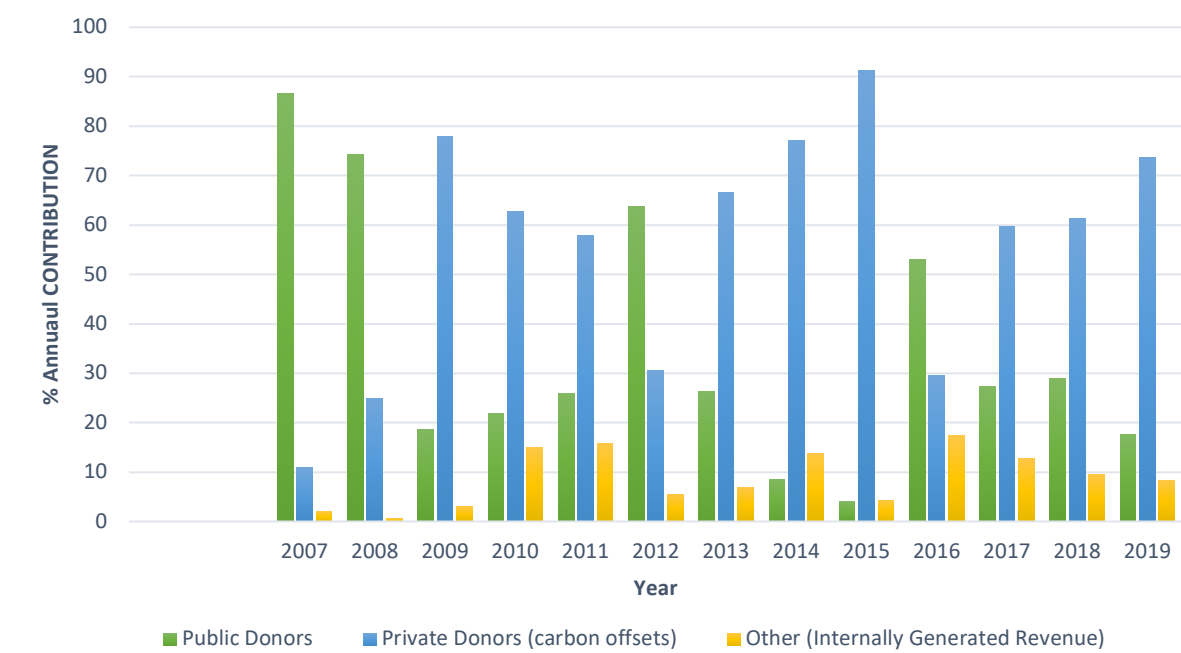
Figure 5: Comparison of Public, Private, ECOTRUST and Community Contribution to Annual TGB Investments: 2007-2019



Community contributions and local investments are usually not taken into consideration when looking at agriculture or forestry programmes, but are quite significant if monetized, and would be much higher than other contributions (Figure 6). Individual households contribute 0.5–1 ha for planting woodlots for a rotational period of 25 years. They then make additional investments in planting and managing the woodlots (400 trees per ha) for a minimum of 10 years; they also undertake additional green

enterprises to help them sustain their households beyond carbon payments. Calculating the true contribution of the farmers is complex and beyond the scope of this case study, but using the current sale price per hectare as a proxy for the farmers' contribution shows that the communities have so far invested the equivalent of more than US\$27 million in reforestation and improved forest management under the TGB program (Figure 6).

Figure 6: Public, Private and ECOTRUST Internal Revenue financing as a % Annual TGB Investments (2007-2019); Source: ECOTRUST finance department archives 2007-2020



Analysis of the growth of carbon income from the private sector compared to the growth of donor funds showed some spikes that

ECOTRUST explained as linked to certain key events that occurred over the period under review (Figure 7 and Table 2).

Figure 7: Growth of Carbon Income Vis-a-Vis Donor Funding (2007-2019): Source: ECOTRUST Finance Dept, 2021

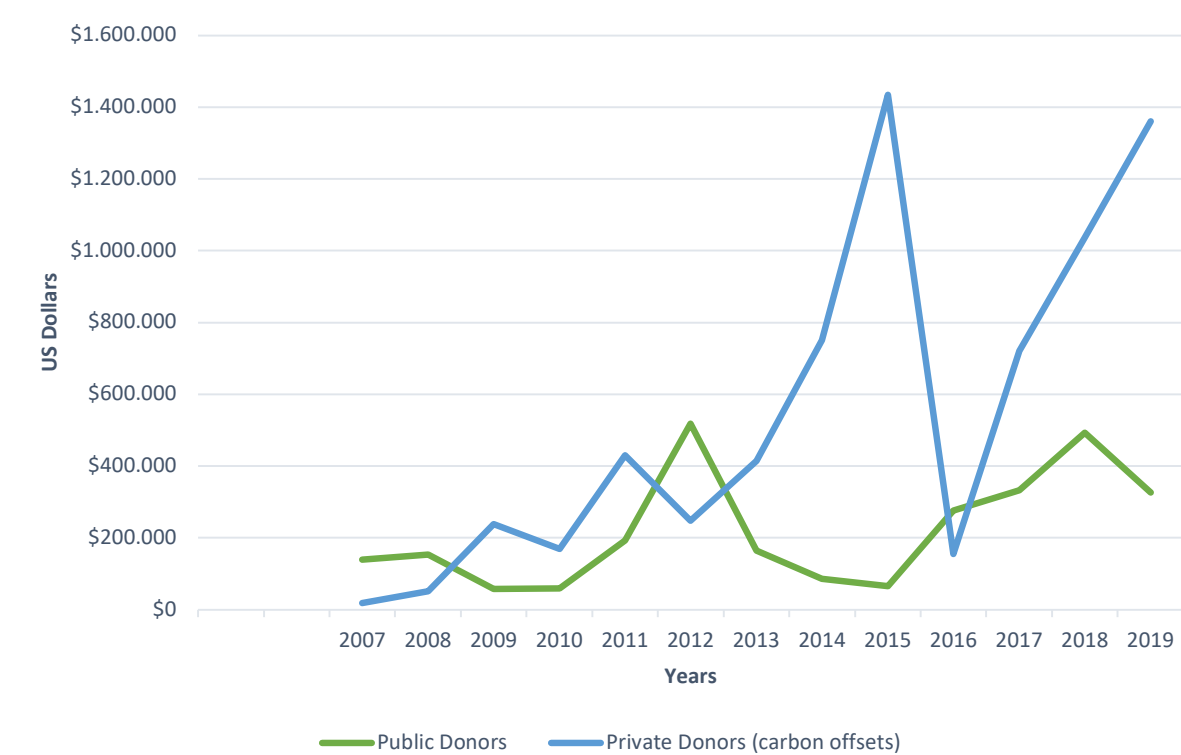


Table 2. Spikes in TGB carbon income, 2007–18

2007–08	United States Agency for International Development (USAID) grant is awarded under the Prime West Programme to extend pilot to Budongo Systems Range in Murchison Falls Conservation Area as part of promoting participatory forest management
2008–09	Private-sector commercialization starts with a validation exercise, registration with Plan Vivo by Rainforest Alliance and first relationships with brokers
2010–12	Donor support received from DANIDA through Care International for the inclusion of Kasese District in TGB
2012	Purchase agreements with long-term private buyers are signed
2013	Donor funding is received from UNDP for establishment of the Carbon Bank and PES facility to support expansion to Mount Elgon, including payments for watershed service
2013	Third-party verification exercise is carried out by Rainforest Alliance
2015	Significant private-sector payments are received due to an advance delivery of the tCO ₂ (total carbon dioxide) in the long-term contracts (which wasn't supposed to be delivered until 2016)
2017	Some donor support is received from the World Bank to support the formation of communal land associations for the community forests in support of their inclusion in integrated landscape management
2018	Third-party verification exercise is carried out by ESI Inc.

3.9 Main Risks and Barriers

Limited Financial Inclusion

ECOTRUST works with smallholder communities in rural areas that are characterized by inadequate financial inclusion. Delivery of financial services at an affordable cost to smallholders is extremely limited in most rural parts of Uganda. This is partly because financial institutions consider the communities in rural areas as a high risk to transact with, and most of the rural areas do not have adequate physical and communication infrastructure to attract these institutions. This limits access to credit and increases the cost of capital. Further, the lack of financial institutions has led to an increased demand for the few that are willing to invest in rural areas, and this has contributed to high charges for the farmers who receive their payments and save with them. ECOTRUST has mitigated the risk of limited financial inclusion through four main strategies: (i) The households that participate in TGB collectively save with a micro-finance institution to reduce on transaction costs; (ii) Participating households have been encouraged to form their own savings and credit cooperative societies, which

save with commercial banks in neighbouring towns; (iii) Farmers with mobile phones can now have payments delivered directly to them using mobile banking services to eliminate the need to use intermediary financial institutions; and (iv) ECOTRUST has also continued to work closely with existing saving and credit cooperative societies in the areas where they operate to leverage their services for participant farmers.

Cost of Capital

The ever-changing requirements of the few financial institutions in rural areas make it difficult to be certain about the cost of capital and other transaction costs. As an organization, ECOTRUST seeks to transform the livelihoods of its partner communities, but the local financial institutions through which ECOTRUST delivers payments tend to increase their transaction costs arbitrarily. This negatively affects the final income that the households receive, and thus limits their ability to attain their desired livelihood goals.

Farmer Attrition

Some farmers drop out of the program without fulfilling their contractual obligations, either

through lack of interest, being lured by a better investment opportunity, or death. This risk has been addressed through regular monitoring of participants. If they are not on the right trajectory to achieve the targets, they are advised to revise their plan to commit only what has been planted. ECOTRUST has set up a risk fund (a community carbon fund) to mitigate the risk of participant attrition. It has also supported strong bonds with participants, and ensured that there is cohesion among participants through their groups, in order to mitigate this risk.

Failure to find Carbon Buyers

Failure to find carbon buyers within the expected time frame is a perceived risk that has been mitigated through the use of long-term purchase agreements. This ensures that there is a match between supply and demand. In addition, ECOTRUST has established a community carbon fund that can be used to pay farmers if they do not get a buyer within the expected time frame.

Unplanned withdrawal of local Financial Institutions from the landscapes

Another perceived risk is the unplanned withdrawal of local financial partners from the landscapes where TGB is implemented.

This has been mitigated through significantly reducing transactions with intermediary institutions and instead working directly with the smallholder farmers.

Short-Term Nature of Donor Funds

Most of the public/donor financing sources do not invest in long-term activities, yet restoration activities require a relatively long planning and growing time. These investors have what Clark et al. (2018) describe as “short termism.” This implies that the finance from such sources can support only those activities that can be implemented within their time frame. Other activities that need support in later years will often not have adequate funding. This has been mitigated through blended financing: funds from various sources are invested in initial activities, help attract private finance, and together permit the farmer households to invest in additional economic activities.

A photograph of four women in a forest, each carrying a large bundle of sticks or branches on their heads. They are wearing traditional African clothing, including headwraps and patterned dresses. The forest has many tall, thin trees and green foliage. A blue vertical banner with the text 'SECTION IV' is overlaid on the left side of the image.

SECTION IV

4. Emerging Lessons and Perspectives

4.1 Risk Mitigation and Prevention

Social capital and a good working relationship are very important in providing information that can be useful in preventing and mitigating risks. It is important to build the capacity of farmers to self-manage the risks. It is also crucial to ensure that there is a free flow of information between the farmers (the recipients) and the implementing agency. Having a diverse spectrum of brokers helps reduce the risk of failing to get enough carbon buyers. Having a carbon bank (endowment fund) is the most appropriate mitigation to ensure that capital can grow. Ensuring that there is a strategy for each risk at each stage of implementing TGB helps mitigate all risks. Fair and transparent business dealings are essential for maintaining good relations with farmers in order to reduce attrition. The ex-ante payment system is an effective incentive model for building farmer confidence and enabling smallholders to sustain their trees, right from planting.

4.2 Adequate Capacity and Resources

All these mitigation and prevention strategies are possible because ECOTRUST has adequate resources and capacity. This includes dedicated risk and compliance officers, a fully equipped monitoring and evaluation team, and a robust information management system, and an endowment fund that acts as a reserve fund. Public funding sources need to consider increasing the duration of project life in order to have a meaningful impact on long-term projects such as TGB. There is also need to minimize dealings with the local intermediary financial institutions through which funds are transferred to farmers, because farmers view them as high risk since they tend to increase transaction costs arbitrarily. These efforts would enable public donors and private-sector investors to change their perceptions of smallholders as being high risk.

4.3 Risk Perceptions among Recipients

The recipient groups consider natural disasters such as long droughts and floods as the main risks that may affect their activities and thus affect the flow of finances, which are performance-based. This has been mitigated through setting up a community carbon fund (CCF) that is used to support the farmers in recovering quickly from external shocks; farmers contribute 10% of their carbon income to the fund. Another risk perceived by participating households is experiencing internal shocks such as death of a family member, which may result in a sudden decline in income and force them to consider cutting down some trees to address this drop in income. This has been mitigated through ensuring that farmers participate in local saving and credit schemes that lend to members using the tree-growing contracts as collateral. The risk of inflation has been addressed by members investing the money earned from carbon payments in green enterprises that have high returns, such as beekeeping and ecotourism. To help mitigate risks, ECOTRUST builds smallholders' capacity in business planning and provides start-up capital.

4.4 The expected and actual effects of the flows among recipients

Most of the recipients expected payments only for the carbon stored by their trees. TGB has provided them with several other benefits that they did not expect. For instance, they have been trained in developing business plans for green enterprises as a strategy for sustainable forest management to avoid cutting down trees when carbon payments end. ECOTRUST created a carbon community fund (CCF) that supports business initiatives started by participants and helps farmers address

external shocks; farmers contribute 10% of their carbon income to the fund.

TGB has also resulted in many positive environmental effects in the partner landscapes:

1. Soil erosion and the siltation of rivers, streams and lakes have lessened because of the trees grown by participants.
2. The local temperatures are now moderated because of the cooling impact of the trees grown by members.
3. The occurrence of drought has reduced significantly.
4. The frequency of floods has reduced tremendously.
5. The area planted with indigenous tree species has increased, thus increasing forest cover in the landscape.
6. Encroachment on protected forests has lessened because people have interest in conserving and planting trees.
7. There is increased interest in growing trees by non-participants because of knowledge shared by those participating in TGB.
8. Pressure on protected forests for firewood has reduced because people use branches from their planted trees.
9. Indoor air pollution has reduced because of the energy-saving stoves that were provided by ECOTRUST as a deductible from their carbon payments.

4.5 Social and Economic Effects

Recipients highlighted many social and economic effects:

1. Household income among participants has improved, which has enabled them to pay tuition fees for their children in good schools, build permanent houses, and invest in other enterprises.
2. Participants are able to use their tree-growing contracts as collateral to borrow money from local saving and credit societies — this increases their financial inclusion.

3. The status of the areas where TGB is implemented has improved because local government officials consider participants as “model” farmers practising environmental sustainability.
4. Participants have access to safe drinking water because the project also provides them with solar water heaters.
5. Participants have developed a saving culture because the TGB program encouraged them to form saving and credit associations, where they can borrow at relatively low interest rates.
6. New small-scale businesses have emerged in the areas where TGB is implemented because of the high purchasing power created by the payments for carbon.
7. Participants have had the opportunity for exchange visits and this has built their capacity in tree planting and management.
8. Some members have had an opportunity to learn to read and write through participation in TGB.
9. TGB has enhanced cohesion and networking among participants and non-participants through knowledge sharing.
10. Participants have been trained in business planning and record keeping by TGB and this has enabled them run enterprises such as beekeeping and ecotourism.
11. Energy security in terms of firewood has improved in most households that participate in TGB.
12. The demand for local products has increased because participants in TGB living in the landscape have a steady income that increases their purchasing power.
13. TGB has created employment opportunities in tree farming and in saving and credit organizations that rely on TGB farmers.
14. TGB has triggered the formation of saving and credit associations because of the guarantee of clients with secure collateral provided by trees grown under the program.

4.6 Changes needed to improve positive effects in the landscape

Participants in TGB consider that these important changes need to be implemented to increase the positive effects in their landscapes:

1. Continuous training of farmers in business planning and investment is needed so they have a steady flow of income even after carbon payments stop.
2. The area covered by TGB needs to be larger to include more farmers so that

trees grown by participants have a more significant impact at a larger spatial scale.

3. Sources of finance for other initiatives of participants in TGB need to be expanded to increase income.
4. More buyers of carbon need to be identified to ensure that participants get a good price for their carbon.

An aerial photograph of a vast landscape. On the left side, there is a large, dense forest with a thick canopy of green trees. To the right of the forest, the terrain transitions into rolling green hills and valleys. The hills are covered in lush vegetation, and some small, scattered buildings or structures are visible in the valleys. In the far distance, more hills and mountains are visible under a sky filled with large, white, fluffy clouds. The overall scene depicts a natural, rural environment.

SECTION V

5. Discussion: Emerging Principles

Integrated landscape management (ILM) is currently revered because it promotes multifunctional land-uses (Mann et al. 2018). However, implementation of programs that promote ILM is limited by financial flows. This case study looked at the TGB program as an example of a sustainable landscape finance scheme to provide insights in the innovations that allowed it to contribute to integrated landscape management. The findings reveal that TGB has innovative ways of reducing risks and barriers that limit financial flows and the capacity to integrate trees into the agricultural landscape in the context of ILM. ECOTRUST set up a blended financing mechanism, blending internal revenue, community contribution, public/donor financing, and private sector foreign direct investment. It used public and “own” money to ensure that TGB implementation matches investor requirements. This built confidence between the different actors (from investor to smallholder) and significantly reduced the risks and barriers that limit investing in ILM. TGB has been able to unlock private financing for landscape restoration by demonstrating that the financial returns from restoration activities are attractive and worth investing. Thus, TGB mainly uses public funding to leverage private funding. This confirms that “blended finance” can address the current funding gaps to support conservation, climate action, and sustainable development (Rode et al. 2019; Clark et al. 2018) if designed in such a way that risks and barriers of all stakeholders are being addressed (Louman et al 2020).

The TGB financial mechanism is based on 12 key principles that interact to ensure the successful delivery of conservation finance “where it matters” — to the thousands of smallholders at the landscape level who are implementing ILM initiatives that promote climate resilience, biodiversity conservation and sustainable livelihoods.

Principle 1 – Blended financing in each phase

Each of the three phases has a specific blend of financing sources, successful implementation of which leads to the next phase with its own blend of financing sources. The aim of blended financing is to de-risk investments at each stage of a project. The blended finance mechanism — which includes ECOTRUST’s own internal revenue, community contributions, public/donor financing, and private-sector foreign direct investment — has significantly reduced the risks and barriers that limit investments in ILM. TGB has been able to unlock private financing for landscape restoration by demonstrating that the financial returns from restoration activities are attractive and that restoration activities are worth investing in. TGB mainly uses public funding to leverage private funding. This further confirms that blended finance can address the current funding gaps to support conservation, climate action and sustainable development (Rode et al. 2019; Clark et al. 2018). ECOTRUST has sustained blended financing by building investor confidence in all sources of finance, including the smallholders. It has mainly done this by ensuring that TGB matches investors’ requirements with what is being implemented on the ground.

Principle 2 – Community Engagement for Community Visioning and Contributions

The success of TGB is largely due to its investment in community engagement processes and the social capital that comes with them. The ability to mobilize smallholders to voluntarily join the program and put thousands of hectares under trees for a rotational period of 25 years is a critical success factor. The smallholders are therefore not just recipients, but primary investors in the program. These community investments and contributions need to be well-calibrated and well-represented when calculating financial flows. TGB has also demonstrated that farmers

are willing to shift from short-term subsistence investments to longer-term investments such as tree growing in order to enjoy the financial flows from carbon sales and the other benefits linked to sustainable landscapes. This shows that, contrary to some negative perceptions of smallholders as reported by some authors (Rode et al. 2019), smallholders are willing to commit portions of their land to conservation or to integrate restoration investments if these actions make economic sense. This requires building their capacity in land-use and business planning. It also requires supporting them to establish their own local financial institutions, since financial inclusion is limited in most of the rural areas where such projects are implemented. Effective community engagement also reduces the risk that farmers will drop out of the project. This risk is not high in the TGB project, because social capital has been built in the partner communities. The most important measure in the program's success has been feedback meetings between ECOTRUST and participants. These enable ECOTRUST to address queries in real time to avoid escalation of any problems that could result in attrition. The meetings also support transparency and inclusiveness in decision-making. The monitoring system has also been useful in ensuring that the performance of all participants is known in real time so that support can be provided if they are not on track.

Principle 3 - De-risking farmers' Investments

The TGB financial mechanism is designed to de-risk investments to ensure long-term investments in tree growing. Ensuring long-term investment and viability is the underlying investment objective. ECOTRUST undertakes restoration as a business in order to transform smallholders' investment horizons from short-term to the long-term timelines that characterize reforestation activities. Smallholders invest mainly to meet their short-term subsistence needs and therefore find the conventional long-term gestation periods of tree growing unsuitable for meeting these needs. TGB provides a PES-based sustainability incentive

that motivates smallholders to participate in tree growing as a business. Public funding enables ECOTRUST to reduce its transaction and operational costs to 4 of every 10 dollars paid by the private-sector buyers. TGB farmers therefore receive 6 of every 10 dollars in carbon payments. Each farmer then contributes 10% of that carbon income to the community carbon fund (CCF). The fund supports farmers in addressing any external shocks and provides start-up grants for multiple forest-based enterprises for sustainable forest management. The CCF is thus a de-risking tool.

Principle 4 – Commoditizing smallholder initiatives

Commoditization involves aligning an initiative with the specifications of one of the existing PES standards to facilitate carbon trading. It is undertaken by the implementing agency (ECOTRUST). The restoration initiative is technically specified to meet a specific standard of the voluntary carbon market so that the accruing environmental services are quantifiable using the standard. This is a crucial secondary-phase investment and involves all the scientific steps that lead to the project being registered, validated, and annually certified. This phase is usually supported by public financing due to the high research and registration costs involved; it isn't until the tertiary phase that the program results in financial benefits. TGB is aligned with the Plan Vivo Standard in the voluntary carbon market. Aligning with a standard is a complex process. It involves ensuring that the project sufficiently addresses a very wide range of factors, including: (i) adequate consultation with local communities and governments; (ii) proper selection of eligible planting areas and tree species; (iii) secure land tenure; (iv) PES estimates; (v) permanence; (vi) leakage; (vii) risk buffer size; (viii) establishment of third-party verifiers and (ix) verification schedules. All participating farmers must meet the requirements of the standard; this is verified through a robust annual monitoring system.

Principle 5 – Aggregation of Environmental Services

Aggregation is another key role played by the implementing agency (ECOTRUST). TGB is organized as a cooperative in order to aggregate credits from thousands of smallholders into a marketable stock. Each smallholder has a woodlot, ranging from 0.5 to 5 ha, that would not individually produce sufficient total carbon dioxide (tCO₂) to sell on the international carbon market. TGB aggregates these emissions to achieve commercialization. ECOTRUST is then able to sell this stock through private brokers and direct buyers. The private buyers pay ECOTRUST and ECOTRUST transfers these payments to the individual farmers, based on the terms in the carbon contracts and agreed payment schedules. The costs of monitoring, aggregation, marketing and sales are paid by ECOTRUST.

Principle 6 – Performance-Based Payments to Smallholders

The 25-year carbon contracts are linked to performance milestones that trigger payments over a 10-year period. This is based on a robust system for monitoring farmers and trees and on a cost-effective payment transfer system for thousands of farmers who achieve their contractual targets. TGB payments to farmers are made in year 1, 3, 5, 7 and 10, when they achieve the reforestation targets set out in their contract and land-use plan (which also serves as a business plan). In the first three years performance focuses on survival of the trees; after three years the focus shifts to tree parameters such as breast height, crown width and total height. Performance-based payments ensure that restoration objectives are achieved as part of the sustainability strategy.

Principle 7 – Leveraging or Catalyzing Private-sector finance

This takes place mainly in the tertiary phase and involves attracting private-sector companies across the globe who want to offset their carbon footprint. Since public/donor financing mainly supports activities that can be

implemented within a short time (1–3 years), ILM activities that involve the restoration of degraded landscapes and require long-term financing cannot rely on those sources. It is therefore important to obtain other investment sources to sustain activities in the later years of implementing restoration activities. TGB has addressed this barrier by using public/donor financing for its initial activities.

Principle 8 – Financial Inclusion for Multiple Income Streams

The earnings from carbon, along with the long-term carbon agreements, provide incentives and collateral for the participating households to develop multiple income streams. Existing financial institutions in the nearby towns have restrictive guarantee requirements and credit conditions, thus preventing most potential smallholders from investing in integrated land management activities. This has stifled the growth in finance for such activities. Conversely, the local financial institutions that have been established by TGB participants have enhanced the financial inclusion of the people in the landscapes where TGB is being implemented. This has stimulated integrated land-use activities by addressing the challenge of limited access to capital that smallholders often face. This has enabled them to improve their livelihoods and promote sustainable landscapes. However, the few local financial institutions cannot effectively address this “green credit” demand.

Principle 9 – Balancing Restoration with Improved Livelihoods

Smallholders choose to participate in TGB because it makes economic sense to them. Restoration that makes economic sense is sustainable. TGB has invested in social and environmental co-benefits by supporting farmers to implement the land-use plans that they develop when joining the program. Farmers can therefore diversify their income streams and not depend only on the financial flows from the payments for ecosystem services, which are expected to end by year 10. This diversification allows participants to

invest in landscape-level restoration activities, despite being smallholders. The money earned by participants from carbon has not only improved their livelihoods, but also enhanced business enterprises in their landscapes. The trees grown by TGB participants have produced environmental co-benefits that are critical for enhancing agricultural productivity: controlling soil erosion, moderating temperature, and reducing the occurrence of droughts. These benefits are enjoyed by both participants and non-participants, thus enhancing the acceptability of the program and attracting more participants and external investors. TGB activities have also reduced pressure on natural forests and thus increased biodiversity co-benefits. This has been harnessed by participants in TGB through investing in ecotourism. These co-benefits have surpassed the expectations of participants. This further confirms that carbon sequestration projects can fund sustainable development through financial inflows (Jindal et al. 2008).

Principle 10 - Program of Activities (PoA) Design for Scaling out

TGB is designed as a Program of Activities (PoA) under the Clean Development Mechanism (CDM) framework. This facilitates scaling out and replication. Once a program is certified, new components of activities (CPAs) or new communities can be added without needing to be registered. This facilitates annual recruitments, adding new sites and scaling out to different landscapes. New specifications may have to be developed for the new sites due to their different biophysical context, but these sites can be added to those already included in the registered PoA. Replicability and scalability are thus built in to the design and are, therefore, limited only by cash flow. TGB started with a few hundred farmers in the Mitooma/Rubirizi CPA, but over the last 17 years has expanded to include thousands of farmers in Kasese, Hoima and Mount Elgon districts. In most cases, once a CPA has reached commercialization, the primary investment in developing it is recouped from the sales and can be used to initiate another CPA.

Principle 11 - Ex-ante as opposed to ex-post Payments

This de-risking approach enables smallholders to undertake multiple enterprises over the long tree-growing period right from the time of planting. The Plan Vivo Standard allows for ex-ante (front-loaded) carbon payments at the time of planting, as opposed to other standards that provide payments only after the trees have grown to the final required height, width and other parameters. Ex-ante payments build farmer confidence in the program and enable them to invest early in multiple enterprises and avoid cutting down trees over the 25-year rotational period. Ex-ante payments through ECOTRUST are deposited into an endowment fund. Annual performance-based payments are delivered from this fund to farmers who achieve contractual targets. Ex-ante payments reduce the risks of TGB farmers' investments in the long-term tree growing business.

Principle 12 – An effective implementing agency

ECOTRUST, as the implementing agency, is an honest and transparent intermediary for communities, donors, buyers, brokers, and other key actors, providing timely upward and downward accountability. Its intermediary efforts cut across all the phases of the TGB financing mechanism. Without this intermediation the visioning, monitoring, commoditization, aggregation, marketing, sales and transfer of payments would be almost impossible for the poor landscape-based smallholders to carry out themselves. ECOTRUST delivers all these roles for a small 40% administration cost – enabling 60% of the payments to reach the farmers.



SECTION VI

6. Conclusion and recommendations

The TGB experience has shown that blended finance can support investments in integrated landscape management activities and reduce the risks for and barriers to smallholder participation. The TGB approach can be scaled up through building consensus on objectives and aspirations of the community at the household and landscape level, and using funding sources that can minimize risks and barriers and provide a steady flow of finances. The TGB program has demonstrated that forest carbon projects can result into co-benefits and increase the financial flows from private, public and community sources. TGB has also increased the ability of communities to invest in these co-benefits through providing capacity building in business planning. This has made TGB very attractive to investors in integrated landscape management despite the high risks and barriers that they associate with smallholder farmers. The case study confirms that smallholders are willing to invest in integrated landscape management such as restoration of degraded landscapes as long as it makes business sense.

6.1 Recommendations

1. **Scaling out** — The TGB model has been tested for 17 years and reached the maturity stage. It needs to be scaled out across Uganda and to more countries as a mechanism for delivering conservation finance to smallholders at the landscape level, where it matters most.
2. **Funding sources need to rethink the way they perceive risks related to smallholders.** The case study shows that smallholders are willing to invest in integrated landscape management and that this can result in an array of socio-economic and environmental benefits. Smallholders only require capacity building to manage their activities as a business and to be part of a community-based organization to harness existing synergies and social capital. A reliable and transparent implementing agency that shares the vision of smallholders is critical in building their capacity. Capacity building should include business planning and financial literacy to enable participants manage their initiatives as a business.
3. **Full valuation of farmer contributions and co-benefits needs to be considered** in projects such as TGB in order to attract more financial flows to the landscape. This needs to be coupled with commoditization of the co-benefits in order to sell them at the national and international level.
4. **Financial institutions need to design “green” credit models that are responsive to the realities of smallholders** in order to enhance their financial inclusiveness. If smallholders do not have access to credit they are less able to invest in integrated landscape management.
5. **Public/donor funding sources need to review their policies for long-term investments in integrated landscape management initiatives.** Longer-term investments will have a more meaningful impact on the long-term objectives at the household, community and landscape level.
6. **There is need for more public finance that targets integrated landscape management initiatives to stimulate private investment.** The TGB program has demonstrated that private investment in integrated landscape management increases in cases where public finance reduces or pays for some of the transaction costs. This private investment can be further scaled up if there are direct and indirect subsidies and risk mitigation support, such as that provide by the community carbon fund created for TGB.

7. **There is need to demonstrate to private companies the financial and non-financial benefits of investing in integrated landscape initiatives,** especially those companies that significantly depend on nature. This will incentivize them to invest in activities that sustain landscapes.
8. **Projects such as TGB need to share their experience and provide evidence of their performance on accessible platforms to address the current lack of information.** This will reduce the perception that there

are relatively high risks in investing in integrated landscape management. Information can be obtained through conducting regular robust monitoring, evaluation and impact assessment studies of such projects.

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About Tropenbos International (TBI)

Tropenbos International (TBI) is a not-for-profit foundation that envisions a future in which forests and trees are used sustainably for the benefit of local people and the global community. By making knowledge work for forests and people, Tropenbos International contributes to inclusive and evidence-based decision making for the improved management and governance of tropical forests. TBI's longstanding local presence and ability to bring together local, national and international partners makes it a trusted partner in sustainable development. Since 2017, Tropenbos International (TBI) has been a managing partner of the CGIAR Global Research programme on Forests, Trees and Agroforestry (FTA). www.tropenbos.org



RESEARCH
PROGRAM ON
Forests, Trees and
Agroforestry

About the Forests, Trees and Agroforestry (FTA) research program of the CGIAR

The Forests, Trees and Agroforestry (FTA) program of CGIAR is coordinated by CIFOR in partnership with CGIAR centers ICRAF and Biodiversity/CIAT, and non-CGIAR partners CIRAD, CATIE, INBAR and TBI. It aims to reduce poverty, ensure food and nutrition security for all, address climate change, protect natural resources and ecosystem services, and achieve sustainable production and consumption by enhancing the role of forests, trees and agroforestry systems in addressing these challenges. FTA considers the landscape to be the spatial unit that is most appropriate to study in order to improve these contributions of forests, trees and agroforestry. The program recognizes that the sustainability of landscapes depends on seeking a balance between various objectives and land uses in order to maximize synergies and minimize trade-offs. Studying how to increase investments in land

uses in such landscapes, and improving the social and environmental impacts of these investments, is one of the priorities of the FTA program.



About ECOTRUST

ECOTRUST is a not-for-profit conservation organization established in Uganda in 1999 to conserve biological diversity and enhance social welfare by promoting innovative and sustainable environmental management. ECOTRUST has developed a valued niche in conservation finance, drawing lessons from its flagship Trees for Global Benefit (TGB) program, a carbon-offset scheme under the Plan Vivo System. The program is an innovative forest-based landscape restoration initiative that integrates biodiversity conservation with climate change adaptation and mitigation, while also providing co-benefits linked to improved livelihoods and sustainable landscapes. Through the program, ECOTRUST has, over the last 17 years, enabled more than 10,000 smallholders to plan, carry out and monitor forestry activities in compliance with the voluntary carbon market. The ECOTRUST TGB model won the 2013 UN SEED Award for its innovation, entrepreneurship and partnerships. ECOTRUST delivers conservation finance "where it matters" — to thousands of smallholders undertaking restoration as a business in rural communities. ECOTRUST deploys capital in such a way that 6 of every 10 dollars goes directly to the smallholders in the form of payments for environmental services (PES). ECOTRUST delivers funding through innovative community structures and solutions, attracting additional capital from the private sector to invest in the green opportunities represented by landscape restoration as a business. ECOTRUST makes innovative restoration investments that promote climate resilience solutions on a commercial basis and include private-sector finance by playing an intermediary role and undertaking leadership in marketing environmental services.

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