

# How can small-scale farmers benefit from carbon markets?

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## Key messages

- ▶ Smallholder carbon projects face management challenges due to their complexity, high costs of development, difficulties securing equitable benefits for farmers and an unstable international policy environment.
- ▶ Carbon project managers are developing innovations that help them fulfill their responsibilities of organizing agricultural extension, carbon monitoring and financial management in ways that support equitable and sustainable benefits for farmers.
- ▶ Management lessons drawn from these projects include:
  - Prioritize the non-carbon benefits of improved agricultural productivity and actions that strengthen the community.
  - Cultivate strong relationships between the carbon project managers and community groups.
  - Empower local actors to manage projects.
  - Develop partnerships for scaling up.
  - Prioritize upfront financing for both projects and farmers.



Photo credit: N. Palmer (CIAT)

- Minimize financial risks for farmers.
  - Support conflict resolution mechanisms within farmer groups.
  - Address the gender dynamics of the project.
- ▶ Key policy recommendations to support these projects include:
- Strengthen and clarify the international incentives system for agricultural mitigation.
  - Link projects to climate adaptation and agricultural development resources.
  - Clarify tenure and carbon rights.
  - Support efficient monitoring systems to capture the full range of benefits gained from agricultural carbon projects.



The International Small Group and Tree Planting Program (TIST) is promoting the use of native tree varieties to replace thirsty exotic species in the Mount Kenya area. Photo credit N. Palmer (CIAT)

## Introduction

Carbon credit project developers have been experimenting with projects that engage smallholder farmers in land-based carbon sequestration, while providing equitable livelihood benefits for farming communities. However, these projects face challenges in their management complexity and the costs of project development. This brief contributes to an ongoing discourse on ways that these initiatives can be designed to benefit smallholders (Gledhill et al. 2011; Wollenberg et al. 2012) while addressing critics of the smallholder carbon projects who argue that they pose unnecessary risks to farmers and are not worth their cost (Sharma 2012; Stabinsky 2011). We review the institutional arrangements of six agricultural carbon initiatives in Africa to show how management innovations might lead to more successful projects. We draw from these lessons to suggest policy action that would contribute to project effectiveness.

In 2010 EcoAgriculture Partners in partnership with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and the managers of six carbon market projects, initiated research to improve carbon projects' viability and benefits for the rural

poor in East Africa. Partners were selected from active carbon market projects in East Africa involving poor farmers. The partners jointly designed and implemented a baseline study of institutional conditions for their projects. They focused on five areas: project organization and management, the structure and role of community groups within the projects, costs and benefits for managers and farmers, strategies to manage risks to farmers, and efforts to support women's participation. The resulting six baselines served as the foundation for action research undertaken from 2012 through to the present day, to improve institutional effectiveness. The results of the baseline studies were reported in a synthesis paper (Shames et al. 2012), from which this brief draws.

The participating projects were CARE's Sustainable Agriculture in a Changing Climate (SACC) in western Kenya; the Cocoa Carbon Initiative (CCI) in western Ghana; Clean Air Action Corporation's (CAAC) International Small Group and Tree Planting Program (TIST); ECOTRUST's Trees for Global Benefits in Uganda; Vi Agroforestry's western Kenya Agricultural Carbon Project; and World Vision's Assisted Natural Regeneration Project in Humbo, Ethiopia.

## Lessons for smallholder agricultural carbon project management

Carbon project managers have three areas of responsibility to ensure project success: agricultural extension, carbon monitoring and financial management. The case studies generated the following lessons on how managers can organize their projects to better meet these responsibilities and create more equitable and sustainable projects.

### ► **Prioritize non-carbon project benefits, especially improved agricultural productivity and community strengthening**

Carbon payments that accrue to individual smallholders will likely be very small relative to their total income due to the current low carbon prices and high costs of project administration.

Payments made to farmers for carbon credits varied substantially. For example, the ECOTRUST project reported that about US\$900 would be paid to farmers over the course of 10 years to keep their land as a woodlot, based on a carbon price of between US\$4.00 and US\$5.50 per ton of carbon. At the other end of the spectrum, in a soil carbon project, Vi Agroforestry estimated that the average farmer would receive about US\$3.30 per year per hectare with a US\$4.00 per ton carbon price if they were paid individually by the project.

In either case, the primary financial benefits that accrued to smallholders from participating in these projects were associated with their access to technical information, training and inputs, and not cash payments for carbon. The sustainable land management practices supported by these projects not only increased yields, but diversified incomes, increased fodder and fuelwood production, and enhanced farmers' resilience to climate change through

improvements in soil health. Projects also strengthened community groups, which not only managed elements of the carbon project, but also delivered other benefits such as marketing coordination, health training, and improved community cohesion. Additionally, projects provided new opportunities for women and youth, particularly in developing tree nurseries. Given that non-carbon benefits are likely to be greater than the value of carbon payments in the near future, project managers should focus on maximizing the efficacy of the extension and community development components of these projects. In addition, the relatively small role of the carbon payment in projects needs to be carefully communicated to smallholders to ensure they clearly understand the value of the carbon payment relative to other benefits.

### ► **Cultivate strong relationships between the carbon project managers and community groups**

The relationship between the carbon project managers and community groups was the foundation for project activities, and the strength of this relationship, as well as that of the groups with one another, affected the success of the projects' outcomes. The carbon project managers in these cases were either from international or national NGOs, many with previous experience in implementing agriculture and rural development activities in the places in which the carbon projects were developed. The project managers with pre-existing relationships with community groups were able to build from a foundation of trust and rapport. For instance, the NGO, World Vision, has operated livelihood programmes – including agriculture, health, education and environmental activities – in the Humbo area of Ethiopia since the mid-1980s when it first provided famine relief.

Community groups served as representatives of the farmers' interests, and were organized in multi-tiered structures, which usually included small groups and group clusters. They were the primary link for farmers to communicate with project managers. In the case of TIST, the 'small groups' consisted of six to twelve farmers, and roughly 40 of these were aggregated into local clusters. The leaders of these clusters played a critical role as they interacted directly with TIST staff and were the primary conduits of information and resources for the project.

The relationship of community groups with one another was also a critical element of project organization. In the World Vision project, farmers were organized into seven cooperative societies. These groups are in the process of forming a cooperative union, which will represent all of the project farmers and eventually manage the project when World Vision leaves. The strength of the project over the long term will then rest in large part on the strength of the cooperative union.

► **Empower local actors to manage projects**

To improve prospects for long-term sustainability, projects sought to develop the capacity of local institutions so that they would be able to manage the different components of the carbon project – including agricultural extension, carbon monitoring and distribution of carbon payments. This process was particularly important for the projects managed by international NGOs, which did not see themselves as long-term managers of carbon projects; thus their exit strategies focused on developing local management capacity. While the primary local actors in these projects were community and farmers' groups, there is potential to involve a wider range of actors, including government

agencies, local companies, or a combination of these, as projects mature. For example, Vi Agroforestry was studying ways to reduce its presence by building the management capacity of its community facilitators (the position that links the community groups to the NGO) and was thus developing a new project management entity separate from Vi Agroforestry, which would manage the project over the long term.

► **Develop partnerships for scaling up**

Moving from hundreds to tens of thousands of farmers (or more), as some smallholder carbon projects are attempting to do, poses significant challenges for project management. As projects grow in size, they could try to partner with other agricultural, rural development and conservation stakeholders within the landscape to achieve synergistic outcomes. From the outset, project developers in the CCI case worked entirely through the well-established national cocoa farmers cooperative in Ghana. In other projects, the role of partnerships with agricultural and conservation actors grew over time.

► **Prioritize upfront financing for projects and for farmers**

Most project costs occur in the startup and early project phases when costs accrue for project design, farmer outreach and the establishment of monitoring and payment distribution systems. These costs vary depending on the project managers' experience, the information available and the scale that the project eventually wants to reach. For projects that are pilot testing new development models, these stages will add to the upfront costs. Among the projects observed, the costs for farmers were highest during early stages, due to demands on their time and labour, as well as cash when farmers were responsible for buying their own tree seedlings. Sources of pre-financing

were difficult to access in carbon markets, which operate with ex-post credits issued only after carbon reductions or sequestration has been verified. One of the projects, ECOTRUST, used the Plan Vivo certification, which allowed for pre-payment based on the logic that farmers would maintain the carbon-rich practices over time because of their agricultural benefits. In most cases, though, initial costs were not covered by the issuance of credits, and instead projects have relied on donors or private investors for financing. However, because private investors have been difficult to involve due to low carbon returns, philanthropic donors have often played the role of financier and will likely continue to do so unless the conditions of carbon markets change significantly.

► **Minimize financial risks for farmers**

The concern of financial risk to smallholder farmers arises only when farmers are asked to make a trade-off between their short-term livelihoods and expected cash returns from carbon. In these six projects however, farmers did not appear to be making this trade-off. Improved agricultural practices and tree planting provided benefits to farmers even in the absence of carbon payments. Nonetheless, farmers who expect payments may encounter delays and carbon price volatility when the price is not set for the duration of the project. This risk is mitigated to an extent through clear communication with farmers, in which the concepts of global climate change and carbon markets are clearly discussed. A system of guaranteed payment levels throughout can be helpful when possible. Some projects used the promise of benefits from carbon payments as an entry point to support farmers' financial management capacity. ECOTRUST was particularly innovative in working with farmers to open accounts at banks, which accepted the project's carbon contracts as collateral for loans.

► **Support conflict resolution mechanisms within farmer groups**

Formalizing carbon rights can lead to community conflict, particularly in places where resource rights regimes are unclear. Carbon payments also have the potential to initiate conflicts within communities. Most farmers in these projects belonged to a small group that either engaged in carbon contracts directly, or at least played a central role in extension and monitoring. The dynamics within these groups were critical to ensure equitable distribution of carbon payments, particularly for women. Many of these groups institutionalized rules to promote equity, although they needed further strengthening. For example, each TIST cluster had a leader, a co-leader and an accountability officer, who were elected on a rotational basis every four months, such that no officer kept the same position for more than this period. This system improved the participation of women in leadership roles. Legitimate community decision-making processes, linked to pre-established conflict resolution systems, are needed to manage potential disagreements that could arise as a result of a carbon project.

► **Address gender dynamics of the project**

Gender roles were a concern in many aspects of the projects, particularly on issues related to land and tree tenure, labour, knowledge, benefit sharing, participation and leadership. Recognizing the challenge of women's participation, some projects instituted measures to improve women's access to project benefits. Women were in a better position to claim benefits where contracts were signed with small groups and where participation did not require land ownership. In some cases, training targeted women by employing female facilitators and scheduling them to ensure that women were able to participate. CARE's focus on the inclusion of 'women's trees' – that provide firewood, fodder, shade and fruits, and not just poles and timber often desired by men – is another way of increasing benefits to women.

## Implications for policy

The experiences of the six carbon projects analyzed in this research point to international, national, and local policy actions that can support the expansion of these projects, and others like them, while enhancing the benefits they produce for farmers.

### ► **Strengthen and clarify the incentives system for agricultural mitigation**

International climate change policy discussions have focused on industrial emissions leading to a history of bias against land-based climate mitigation within the United Nations Framework Convention on Climate Change (UNFCCC). As a result, it is mainly voluntary carbon markets and donor funds that have financed African agricultural carbon projects. While opportunities for terrestrial mitigation have improved over the past few years, implementation of these projects, particularly those involving smallholder farmers, has been slow. For agricultural projects to gain a significant foothold in the Clean Development Mechanism (CDM), or any other international regulation-driven carbon markets, these platforms should allow land-based credits and focus resources on establishing the institutions and measurement methodologies required to support them.

Within the UNFCCC system, Nationally Appropriate Mitigation Activities (NAMAs) offer a potential alternative source of financing to the CDM that could support the development of larger scale mitigation projects. NAMAs would allow developing countries to be compensated for mitigation actions, including policy and programme development and implementation, but the emission reductions would not necessarily be translated into carbon credits as in the CDM (Hänsel 2012). As NAMA systems develop, opportunities may emerge to integrate agricultural carbon projects into these national frameworks. Beyond this, groups might take advantage of burgeoning

eco-certification systems that provide incentives for low-emission agriculture.

### ► **Link projects to climate adaptation and agricultural development resources**

Sustainable agricultural land management practices implemented in these projects provided benefits not only for mitigation, but also for climate adaptation and agricultural development generally. Within international climate change policy discussions, climate finance streams for adaptation and mitigation are treated separately. Sources of finance for these objectives are rarely blended into a single project or programme. Beyond harmonizing mitigation and adaptation efforts, support for climate-smart agriculture may have the potential to link with conventional agricultural development programmes that are designed to benefit smallholder farming communities. These blended funds could support initiatives with multiple objectives and be used for training on sustainable agricultural land management practices, rural credit programmes and landscape planning (Shames et al. 2012).

### ► **Clarify tenure and carbon rights**

Clear and equitable property rights, laws and regulations for land and carbon are necessary for successful smallholder carbon projects and can create incentives for farmers to invest in the long-term productivity of their land. In areas where these rights are not secure, confusion and conflict could arise once project benefits begin to flow. Jurisdictional rights related to these projects should be clear and coordinated so that all rights holders and stakeholders are confident that they are dealing with the correct authority. Tenure systems should suit long-term and dynamic social and economic development needs and not be driven by the introduction of a carbon project. Tenure reform may require the provision of technical support for mapping and delineation of rights. Communities will

also need robust and locally legitimate conflict resolution systems in place to handle tenure related conflicts that may arise from the implementation of a carbon project.

► **Support efficient monitoring systems to capture the full range of benefits of agricultural carbon projects**

An important barrier to further development and scaling up of these projects is the complexity of the carbon Monitoring, Reporting and Verification (MRV) methodologies. These systems have received increasing attention over the past few years from carbon developers and researchers, and additional investments should be made to improve and simplify the methodologies. Approaches such as the SHAMBA tool, designed as a user-friendly modelling approach for estimating the mitigation potential of changes in smallholder agricultural practices, are already moving in this direction. Additionally, efforts to develop agricultural carbon projects, and climate-smart agriculture projects more generally, will be closely linked to their ability to measure and communicate non-mitigation benefits – for climate resilience, livelihoods, food security and ecosystems. While work is ongoing to improve mitigation measurement systems, more research is needed to establish adaptation metrics for agriculture, as well as affordable and easy-to-use integrated indicators for the effectiveness of climate-smart systems covering their full range of livelihood and ecological benefits.

## Conclusion

Smallholder agricultural development and climate-smart agriculture in Africa are severely underfinanced. Given a supportive institutional context, carbon market projects provide an opportunity to access new sources of funding to meet some of these needs. The development and management of these projects have confronted project-level institutional challenges, which have

been exacerbated by low-carbon prices and an uncertain future in carbon markets. However, innovations are beginning to emerge that could support the scaling up and replication of these project models under the right conditions. Even if the smallholder carbon market project model does not succeed in its current form, lessons from these experiences will be critical to the development of other mechanisms to support smallholder climate-smart agriculture such as NAMAs, integrated adaptation and mitigation funding programmes and eco-certification schemes.

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This policy brief focuses on the institutional and policy challenges of designing effective and equitable smallholder agricultural carbon projects that mitigate climate change and provide livelihood benefits for participating farmers. It is based on a synthesis of six case studies, developed through collaborative research with carbon project managers, of projects currently being implemented in sub-Saharan Africa.

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