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SmartLessons

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More Than Just Hot Air: Carbon Market Access and Climate-Smart Agriculture for Smallholder Farmers

The Kenya Agricultural Carbon Project is breaking new ground in designing and implementing climate finance projects in the agricultural sector. The project is regarded as an innovative example for climate-smart agriculture within and outside the World Bank. For the first time, while increasing productivity and enhancing resilience to climate change, smallholder farmers in Africa will receive payments for greenhouse gas mitigation based on sustainable agricultural land management. Quantification of carbon sequestration is monitored based on a newly developed carbon accounting methodology. This SmartLesson describes the key factors to take into consideration when facilitating the adoption of climate-smart agricultural practices and access to carbon markets for smallholder farmers.

Background

The objective of the Kenya Agricultural Carbon Project is to increase crop yields and to enhance small farmers' abilities to respond to change and variability in climate. As a co-benefit adoption of sustainable agricultural land management (SALM) practices leads to carbon sequestration and thereby greenhouse gas mitigation. Smallholder farmers will be able to access carbon markets and receive additional revenue streams by selling the carbon sequestered.

The project is being implemented by a Swedish nongovernmental organization (NGO) called Vi Agroforestry (ViA), in collaboration with 60,000 smallholder farmers on approximately 45,000 hectares in Western Kenya. The project is located on highly degraded land dominated by mixed cropping systems, mainly for subsistence farming. Average farm size is less than 1 hectare, and farmers have clear ownership rights to the land. Prior to the advent of the project, few improved agricultural practices and technologies were used, and the resulting decline in soil fertility led to low crop yields.

The project developer provides advisory services that respond to the specific needs and questions of farmers. The ViA extension staff are building capacity on a wide range of aspects related to sustainable agricultural production, marketing, and development of farm enterprises. Farmers can select from a wide range of SALM practices that they would like to adopt, including mulching, composting, crop residue management, agroforestry systems, and manure management. The NGO is working with registered farmer groups with whom they sign contracts that detail the rights and obligations of both parties with respect to service provision and carbon revenues. ViA is sells the emission reductions to the BioCarbon Fund of the World Bank on

behalf of the farmer groups. Once payments are made by the Bank (after project validation by an independent third party), almost all revenues will be used to benefit the smallholder farmers, partly in the form of direct payments and partly through the financing of advisory services. The details of the terms and conditions of the sales of emission reductions have been specified in the ERPA (Emission Reduction Purchase Agreement) that was signed between the BioCarbon Fund and the ViA in November 2010.

A key innovative element of the carbon finance project is the MRV (measurement, reporting, verification) system to track the amount of emission reductions generated by the project. The MRV system is being implemented by the NGO and is based on the first carbon accounting methodology for sustainable agricultural land management. While scientifically rigorous, the methodology aims for cost-effective monitoring of emission reductions (ERs) in order to minimize the transaction costs and maximize the benefits for farmers.

Lessons Learned

Lesson 1: "Get the priorities right" — focus project design on smallholder farmers' interests; first come increased crop yields and food security, and then carbon sequestration.

Although the success of carbon finance operations is usually measured by the amount of ERs delivered, an agricultural carbon project should focus on increasing crop yields as a priority. Farmers will only adopt and maintain practices if they realize increases in productivity and incomes. The project team should also not attempt to convince the project developer and farmers to change priorities, since this would create false expectations with respect to the amount of carbon revenues that can be earned. Ex-ante economic and financial analysis of the Kenya Agricultural Carbon Project clearly indicates that the amount of carbon revenues are expected to be small in comparison to revenues from increased crop yields. While farmers' focus is to achieve increased crop yields under changing climatic conditions, they simultaneously provide an environmental service in the form of carbon sequestration. This environmental

service should be rewarded and carbon revenues can constitute an attractive co-benefit for smallholder farmers.

The amount of carbon revenues that a project could generate should be clearly communicated in the early stages. In the case of the Kenya project, the Bank Team communicated the level of expected carbon revenues right at the inception, and the project developer then communicated these aspects to the beneficiaries.

Lesson 2: "Monitor transaction cost" — MRV systems should be cost-effective and user-friendly.

Carbon payments are relatively small in comparison to the benefits of increased crop yields, particularly given the current prices paid for ERs from agricultural land management. However, they can be an interesting additional incentive to transition agricultural production systems until higher productivity levels are reached and soil carbon pools are filled. Therefore, the transaction costs of the additional activities needed to sell the ERs, mainly the MRV system, need to be contained. To the extent possible, a project should build on existing carbon accounting methodologies and integrate the MRV system into the existing monitoring and evaluation (M&E) system of a project. In general, the project should build on the existing institutional structure of the project developer and avoid the creation of new structures for the carbon component only. Working with farmer groups instead of with individual farmers is essential to cost-efficiency.

Lesson 3: "Carefully select project developer" — strong extension systems, innovativeness, interest to learn, and technical and financial capacity are key.

Agricultural carbon projects put high demand on the project developer, particularly since this approach is still in its infancy. A project developer needs to be very innovative, flexible, and willing to spend sufficient resources on the complex technical nature of carbon finance operations. The entity should be interested in learning those aspects thoroughly, in particular how to make them operational. Requirements for project approval and verification of ERs under the existing frameworks can be a rather long process. Adequate time is required to allow the project developer and farmers to become familiar with the concept and the implications of participating in a project of this nature. The project developer should be made aware of those implications from the very beginning.

Currently, the Bank is limiting its support of carbon finance operations to technical assistance and the purchase of ERs. This implies that the project entity requires strong financial support from other sources for implementing the project. The most important aspect, however, is that the project developer should have a strong and demand-driven advisory system in place. Without a well established advisory system, adoption and maintenance of practices leading to a sustainable increase of crop yields and carbon sequestration will not happen. Therefore, selection of the project developer is of utmost importance, which in the case of the Kenyan project included the following steps: i) a pre-feasibility assessment of the carbon sequestration potential in Kenya's agricultural sector; (ii) a workshop plus a public call for project ideas to identify technically sound and financially viable mitigation activities; and (iii) an in-depth capacity assessment of short-listed project developers and their project ideas and coaching support to enable them to develop a realistic and high-quality proposal.

Lesson 4: "Technical assistance and capacity building are key to project success" — providing smallholder farmer access to carbon revenues requires special technical expertise.

The Bank Task Team should be ready to spend time and resources to dig into a new technical subject area. If one of

the objectives is to actually facilitate the flow of carbon revenues to smallholder farmers, MRV issues need to be dealt with thoroughly. Technical expertise from outside the Bank should be tapped into, since the Bank does not have the human resources to address the issues in necessary depth. Therefore, additional financial resources need to be identified early on to provide first-class and practical implementation-focused technical assistance. In this project, additional Trust Fund resources were mobilized. Another promising option — also with respect to scaling-up — would be to link such activities with Bank-supported investment operations. Further, contract only consultants who have actually worked on MRV issues related to land management projects, ideally an agricultural carbon project. Otherwise, one runs the risk of supporting an academic exercise with no operational relevance to the project. At the same time, however, it is crucial that capacity for generating ERs for market access is transferred systematically to in-country institutions.

Lesson 5: "Focus on areas with high agricultural potential" — Carbon sequestration potential is higher in areas with high biomass growth.

If the objective is to design a project that leads to actual carbon payments to farmers, it should focus on areas with high agricultural potential. The amount of emission reductions generated by a carbon finance project based on adoption of SALM practices is mainly determined by the actual biomass yield and how the residues are treated. Biomass yields increase with favorable agro-ecological conditions. While there is certainly a huge potential for sustainable land management projects in less favorable conditions focusing primarily on adaptation, which can also lead to carbon sequestration, the number of generated ERs might not justify a carbon finance transaction.

Conclusion

The ERPA of the Kenya Agricultural Carbon Project was signed in November 2010, and project validation is scheduled for the first half of 2012. Farmers have started to adopt SALM practices, and the MRV system is being implemented. The intensive preparation phase and the first year of implementation have provided important lessons which are broadly applicable, independent from region, country, or specifics of project design. Obviously, the more farmers are included and the more diverse the farming systems, the more complex the technical dimension becomes. However, complexity should not be

an excuse, given the importance of learning by doing and the need for exploring practices and solutions for climate-smart agriculture on the one hand, while finding mechanisms for rewarding small-scale farmers for the provision of environmental services on the other hand.

The SALM carbon accounting methodology has been developed as part of the project and has been approved by the Verified Carbon Standard (VCS). The methodology is in the public domain and can be used for similar projects, thereby lowering transaction costs significantly. More technical work needs to be undertaken and innovative approaches explored to further reduce transaction costs for MRV (without compromising on the accuracy of the system).

We also need to "connect the dots" for more effective work on the ground. The Kenya Agricultural Carbon Project is adding knowledge and evidence at different levels. It is being used as a good practice example for capacity building of interested project developers in East Africa — an effort supported by the World Bank Institute. ViAgroforestry and the World Bank have been continuously informing a wide range of interested stakeholders, including Civil Society Organizations, Government officials within and outside Kenya, national and international research organizations, private sector and development partners, about the project concept and its progress. Public awareness raising and consultations are an important element of further scaling-up climate-smart agriculture in Africa and other regions. The project also serves as the basis of technical assistance on "Readiness for Climate-Smart Agriculture" in Kenya supported by the Danish Ministry of Foreign Affairs, which aims to mainstream climate change considerations in Kenya's agricultural development strategy and programs. Further, the project is informing the integration of climate-smart agriculture into the Comprehensive Africa Agriculture Development Program (CAADP), with the potential of scaling up climate change aspects in investment plans and operations.