CAPRi Working Paper No.113 September 2013

DEVELOPMENT OF A PARTICIPATORY ACTION RESEARCH APPROACH FOR FOUR AGRICULTURAL CARBON PROJECTS IN EAST AFRICA

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Presented at the CAPRi/CCAFS Research Workshop on Institutions for Inclusive Climate-Smart Agriculture, September 10–13, 2012, Nairobi, Kenya

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Cite as:
Shames, S., Q. Bernier, and M. Masiga. 2013. Development of a participatory action research approach for four agricultural carbon projects in east Africa. CAPRi Working Paper No. 113. Washington, D.C.: International Food Policy Research Institute. http://dx.doi.org/10.2499/CAPRiWP113.

ABSTRACT

This paper describes an action research process undertaken with four African agricultural carbon projects—CARE's Sustainable Agriculture in Changing Climate Initiative in Western Kenya; World Vision's Assisted Natural Regeneration Project in Humbo, Ethiopia; Vi Agroforestry's Western Kenya Agricultural Carbon Project; and ECOTRUST's Trees for Global Benefits in Uganda—to explore their institutional changes as project managers and communities work to build local capacity for project management. It describes the research protocol as well as the process by which it was collaboratively developed by researchers and carbon project managers. The paper also reports the results of the field work in each of the projects, which will be used to identify actions that they will implement in the next step of the action research process. The tools were generally successful in gathering the desired data, although modifications could allow future efforts to target questions to interviewees more effectively, include additional stakeholder groups such as government agents and project service providers, develop capacity for local-level data collection and analysis, and focus additional attention on local-level innovations and landscape-level coordination. The research yielded diverse topics for action across projects, as the projects are structured differently and are at different stages of development. Common themes included the need for partnership development, enhanced training of trainer programs, improvements in the sense of community ownership of projects, and stronger foundations for collective action throughout project and community institutions.

Keywords: agricultural carbon projects, action research, agricultural development, capacity building

ACKNOWLEDGMENTS

This working paper reflects the insights, ideas, and contributions of many people. The authors particularly thank the project managers of the four participating carbon projects who participated in the research development workshop and served as the focal points for field work. These contributors were Lilian Kiguli and Josephine Nabawanuka (ECOTRUST), Hailu Tefera and Kibret Mamo (World Vision), Rosemary Ogolla, Geoffrey Onyango (CARE), Emmanuel Wachiya and Amos Wakesa (Vi Agroforestry). Additionally, we are grateful to the many other staff members of the carbon projects who supported this work. We deeply appreciate the participation of the many community members and government and NGO representatives gave their time to be interviewed. Louise Buck of Cornell University and EcoAgriculture Partners and Lini Wollenberg of CCAFS provided intellectual guidance and comments on earlier drafts of this paper. Finally, this work would not have been possible without the sustained partnership and support of CCAFS.

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1. INTRODUCTION

Agriculture's role in the mitigation of carbon emissions has become a highly debated topic within international climate policy circles. Agricultural emissions account for 31percent of global greenhouse gas (GHG) emissions (Smith et al. 2007) and land-based sequestration is the only option currently available that takes carbon out of the atmosphere. Meanwhile, international carbon markets and other mitigation finance mechanisms, such as Nationally Appropriate Mitigation Actions (NAMAs), have the potential to provide much needed financing for carbon sequestering and climate-resilient sustainable land management practices (See Shames et al. 2012 for a discussion of climate finance). However, efforts to develop incentives and monitoring systems that support agricultural carbon projects, particularly for smallholders, face substantial challenges due to their institutional complexity and the relatively high costs of project development compared to current carbon prices. Despite the active policy discussions related to smallholder agricultural carbon projects at international, regional, and national levels, the inner workings of these projects have not been well documented, understood, or communicated. Building the knowledge base on agricultural carbon projects will help current and future project managers and policymakers to improve the design of these projects so that they can raise their chances of long-term success as well as the benefits that they provide to farmers.

In an effort to better understand these projects, beginning in 2010, EcoAgriculture Partners partnered with the CGIAR Research Program on Climate Change, Agriculture, and Food Security (CCAFS) and six agricultural carbon projects in Sub-Saharan Africa to assess the institutional arrangements of these projects through case studies. (See Appendix 1 for a summary table of the participating carbon projects.) This process drew cross-project lessons that were applicable to the participating projects, as well as the participants in other projects and policymakers (Shames et al. 2012). The initiative evaluated the projects based on: (1) the capacity to sequester and reduce significant amounts of greenhouse gases and then verify this process, (2) the effective, efficient management capacity that can be sustained over time and adaptability to local and global changes in carbon finance policy and practice, and (3) the capacity to generate adequate financial flows while ensuring sustainable benefits to farmers. CCAFS and EcoAgriculture used the carbon project, which is the entity producing carbon credits, as the unit of analysis. Using this as the unit of analysis allows researchers to focus on project design and management attributes that ultimately may influence community, household, and individual-level behaviors (Reynolds 2012). In addition, by defining

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project stakeholders broadly, researchers were able to work with a range of stakeholders, from individual participants to carbon market representatives.

This first phase of the research sought to identify lessons that could be generalized across the project and could be useful to managers of future carbon projects (Shames et al. 2012). These lessons included the following:

- *Prioritize the non-carbon project benefits of improved agricultural productivity and community strengthening.* Given the low price per ton of carbon in the market, the value of sequestered carbon is unlikely to be the main benefit for the farmer. The main value instead comes from the increased productivity or income generated from the carbon-sequestering activities. This finding reinforces other analyses from other carbon project studies (Palmer and Silber 2012; Tschakert 2004).
- *Cultivate strong relationships between the carbon managers and community groups.* In the case studies, the relationship between the carbon project managers and community groups was the foundation for the development of these projects, and the sustainability of these projects will be based on the strength of this relationship. The carbon project managers in these cases were either international or national non-governmental organizations (NGOs), many with previous experience in implementing agriculture and rural development activities in the areas in which the carbon projects were being developed.
- *Empower local actors to manage projects.* To improve prospects for long-term sustainability, projects have prioritized capacity development of local institutions so that they are able to take over responsibility of carbon project management. This means that project managers must pay attention to the dynamics of local groups and their potential to exacerbate or reinforce social tensions or inequities. This lesson reflects a wide range of experiences from the natural resources and community development literature (Cleaver 2001; Cleaver 2009; Wong 2010; Platteau 2004; Araujo et al. 2008; Agrawal 2001; Mwangi, Markelova, and Meinzen-Dick 2012). Despite the potential pitfalls, past experiences demonstrate the potential for external agents to initiate local-level changes towards equitable participation and benefit distribution from natural resource management projects, by supporting inclusive planning processes (Ratner, Halpern, and Kosal 2011; Komarudin, Siagian, and Colfer 2012; German et al. 2012a).
- *Develop partnerships for scaling up.* The process for moving from hundreds to tens of thousands of farmers, as some smallholder carbon projects are attempting, poses significant challenges for project management. Scaling up is essential both to achieve global environmental benefits and to achieve the necessary carbon emission reductions to connect producers and buyers. (World Bank 2011).
- *Prioritize upfront financing for projects and for farmers.* Most project costs accrue during their early phases due to project design costs, farmer outreach, and the establishment of monitoring and payment distribution systems. Farmers may also be faced with upfront costs in the establishment of low greenhouse gas practices, and these costs may

prove prohibitive to resource-constrained households if they are not supported by the project. Upfront carbon payments may help defray these upfront costs for farmers. (See also Palmer and Silber 2012 and Coomes et al. 2008).

- *Manage dynamics within the small groups.* The formalization of carbon rights has the potential to lead to community conflicts, particularly in places where other resource rights regimes are unclear. Carbon payments also have the potential to initiate conflicts within communities, groups, and households. These new rights will interact with existing, dynamic, and complex property rights regimes (Fenske 2011; Williams 2013; Kiptot and Franzel 2011).
- *Manage financial risks for farmers.* Carbon project participation would become a financial risk for farmers in cases where trade-offs occurred between yields and expected cash returns from carbon. Similar risks have been identified by others (Palmer and Silber 2012; Coomes et al. 2008). However, the participants in these projects did not appear to be making this trade-off, as their motivation came more from the livelihood co-benefits of the projects rather than the carbon payments.
- *Consider gender dynamics of project management.* Gender roles were a concern in a variety of elements of the projects, particularly on issues related to land and tree tenure, labor, knowledge, benefit sharing, participation, and leadership. New studies have illustrated the potential of collective action to open up new spaces for social change in gender relationships (Humphries et al. 2012; Friis-Hansen and Duvesgok 2012), as well as the importance of addressing such issues at the household and community level (Bernier et al. 2013; Farnworth and Munachonga 2010).

The lessons from this work served as the basis for a second stage of engagement, which is a Participatory Action Research (PAR) process that aims to identify specific institutional challenges and solutions in four of these carbon projects, to implement solutions, and to track the impact of these efforts.

This paper describes the research protocol developed to identify actions that would improve local institutional capacity in these projects, presents findings from the implementation of the tools, and analyzes these implementation processes to identify strengths and potential areas of improvement. These results indicate that this protocol was largely effective in identifying action research topics and in facilitating the development of action research plans.

2. RESEARCH TOOL DEVELOPMENT AND IMPLEMENTATION

Research Topic Selection: Strengthening Local Institutional Capacity to Manage Agricultural Carbon Resources

To initiate this second phase, EcoAgriculture Partners hosted a workshop in September 2011 with four of the original projects: CARE and Vi Agroforestry in Kenya, Ecotrust in Uganda, and Humbo in Ethiopia. Due to logistical and budgeting constraints International Small Group and Tree Planting Program and the Carbon

Cocoa Initiative did not participate in the second phase. At the workshop, project managers and EcoAgriculture facilitators shared the lessons learned from Phase 1, highlighting the common challenges between the various projects, and discussed appropriate topics for the second phase of the research project.

While the original design anticipated that each project would highlight different institutional challenges, group consensus converged on a common overall topic: *strengthening local institutional capacity to sustainably manage agriculture carbon resources.* The interest in this topic among the projects was based on their interest in developing "exit strategies" for the projects that they had initiated. Agricultural carbon projects are long-term initiatives with contracts that can span decades, which is much longer than the NGOs involved want to take on project management responsibilities. In all cases, the primary mission of the project developers was not carbon project development per se, but rather a combination of rural development and environmental objectives. The project managers believed that these organizational objectives could be better served if local institutions took on increasing responsibility in carbon project management over time. Project managers believed that building the capacity of local institutions to manage the technical and distributional aspects of the project would increase the long-term development benefits of the project. In addition, increasing and developing local-level management capacities would reduce the transaction, staffing, and consulting costs.

This topic of strengthening local institutional capacity highlighted the importance of understanding the role of collective action and rural institutions in ensuring that carbon projects lead to more equitable and pro-poor outcomes (Swallow, Meinzen-Dick, and van Noordwijk 2005). In this context, the institutions that would assume larger roles and greater responsibility in project management include village-level farm groups, larger community-based/farmer-based organizations, local NGOs, and local government agencies. Participation in a carbon project, particularly the need to aggregate farmers to participate in the project, monitor carbon sequestration, distribute carbon payments, and access global carbon markets, poses a unique set of coordination and collective action challenges as local groups take on additional responsibilities. Previous experience from natural resource management suggests that in order to meet these types of challenges and fully benefit from these opportunities, the institutions that govern and relate to land management and farm resource use may require ongoing innovation in order to restructure the patterns of these relationships (German, Mowo, and Opondo 2012). After discussion at the workshop, facilitators and project representatives developed two research questions:

- How effective are the various institutional structures (configurations of public, civic, and private sector actors) and processes (roles, responsibilities, relationships, rules) at enabling farmers and their communities to manage agriculture carbon resources sustainably and to benefit from the activity?
- How effective is the project at building capacities that enable farmers, farmer organizations, and their communities to engage in sustainable agriculture carbon production and marketing?

After workshop participants selected the research topic and questions, the facilitators from EcoAgriculture presented details on the process of the PAR

methods that were to be used for this project. This project sought to create a structured space for these organizations to conduct this research and to collaboratively develop research tools to help facilitate this process while identifying generalizable lessons across projects.

The PAR approach was designed to engage stakeholders in a process that allows them to "explore experiences, gain greater clarity and understanding of events and activities, and use those extended understandings to construct effective solutions to the problems on which the study was focused" (Stringer 2007, 20). The research design has similarities with other action research projects, such as the African Highlands Initiative (AHI), which conducted work on individual projects, but also linked multiple initiatives together to generate cross-project learning (German, Mowo, and Opondo 2012). This PAR protocol follows the trajectory of other PAR projects in that it brings together both insiders and outsiders to develop research questions, design research methods, and to collect data. These conclusions can inform project activities and be used to identify additional research ideas. PAR has been recognized as a useful and appropriate strategy for bringing about social change with project beneficiaries and for highlighting institutional capacity needs (Mapfumo et al. 2013), as well as for identifying and catalyzing institutional change (Hagmann, 1999; Colfer 2005).

Following the PAR tutorial, project representatives worked in collaboration with the meeting facilitators to develop preliminary action research plans. These plans included the categories of indicators to answer the research questions, means of measurement, roles and responsibilities of the various actors, and resources needed to implement the process, as well as a timeline.

Development of Cross-Project Methodology

Over the following months, EcoAgriculture Partners worked with project staff to refine their action research agendas; through this process, the similarities of questions and needs across the projects' plans became increasingly clear. As a result, EcoAgriculture Partners proposed, and the project managers agreed, to use a single data collection tool to identify action research topics. A common research tool would facilitate cross-project comparison and could be more easily adapted by other carbon projects outside of this research initiative for their own purposes. By focusing on "exit strategies," project managers examined the ways in which local institutions, small community groups, as well as local government agencies and NGOs could develop the additional capacities needed to manage these carbon projects. The theory of change developed by EcoAgriculture Partners, CCAFS, and project partners identified four categories of institutional capacities necessary for local institutions to sustainable manage the carbon project. Focusing on the capacities, or the "collective ability," has been identified in the literature as a useful way of understanding and operationalizing capacity (Morgan 2006).

1. *Local institutions can support the implementation and management of sustainable agricultural land management activities (SALMs):*
   Achievement of this capacity requires local institutions to run trainings to communicate knowledge on practice implementation and management, to mobilize resources on their own in order to conduct these trainings, to support the participation of resource constrained households, to integrate

these practices into the group's strategic and implementation plans, to develop collaborations and partnerships with other local institutions, and to actively involve women in the practice implementation and related strategic decisionmaking processes. The importance of mobilizing basic resources and leadership for adaptive capacity has been well documented (Gupta et al. 2010; Morgan 2006).

2. *Local institutions can monitor the carbon sequestering activities:* Achievement of this capacity requires that local institutions are empowered to manage carbon monitoring system, have sufficient resources for these monitoring activities, and have the necessary equipment and skills for collecting and using monitoring information. Such monitoring requires community commitment and participation (Zerfu and Kebede 2013), and for carbon projects, occupies a key and central part of training and program efforts (Visseren-Hamaker et al. 2012).
3. *Local institutions can manage the carbon bonus:* Achievement of this capacity requires that local institutions have a clearly communicated, equitable plan for distributing the carbon bonus, a conflict resolution mechanism for resolving potential disagreements, and the capacity to market carbon credits. In three of the four cases, due to high transaction costs, payments would likely be distributed to groups and not individual farmers. Perceptions of fairness and equity play a key role in project success (Sommerville et al. 2010; Pham et al. 2013).
4. *Local institutions can contribute to farmer and community development:* Achievement of this capacity requires that local institutions have a strategic plan, capacity to mobilize resources, hold regular meetings with bylaws, a stable or growing base of membership, and the ability to adapt over time, a vision to achieve larger development goals, and include women in leadership positions. Long-term sustainability of the carbon projects will require that the local institutions contributing to project management are also contributing the development of farmers' livelihoods, as these livelihood benefits will be the primary motivation for farmer participation (Shames et al. 2012). In addition to direct benefits, carbon project participation can help facilitate access to resources outside of the project and to help communities better articulate development needs (Jindal, Kerr, and Carter, 2012).

Based on this framework, EcoAgriculture and CCAFS researchers, in consultation with project partners, developed a two-pronged research tool designed to develop baseline understandings of local institutional capacity within these categories, to track change over time, and to identify and understand innovations in these areas. The first element of the tool is a questionnaire that asks participants to score a set of statements that reflect the previously described institutional capacities necessary to successfully manage an agricultural carbon project. The second element is a companion focus group discussion protocol designed to deepen understanding on these topics, with an emphasis on understanding the processes, local innovations, and reasoning behind the scoring. Project staff reviewed and revised these tools to ensure that they addressed issues of local concern and

reflected local realities. Table 1 shows the indicators used in each of these four categories.

The research tool targeted two audiences, *project managers* and *stakeholders*. The stakeholder questionnaires were oriented towards focus groups that included members of small groups, officers of small groups, officers of community-based organizations (CBOs), local government officials, and others that hold important training, implementation, or communication roles within these groups. The project staff included the project director, managers, and field staff. The separation was made along these lines, as some of the relevant questions differed between them. The surveys were revised and field-tested at Vi Agroforestry project sites in May 2012.

Table 1: Topics, Questions, and Indicators used in the Research Tools

Topic	Questions/Indicators
Institutional capacity to support the implementation of SALM practices	-Technical capacity
	-Resource Mobilization
	-Strategic Planning
	-Functioning of Management Committees
	-Collaborations with outside agencies and organizations
	-Participation of women
Institutional Capacity for Community-Based monitoring of SALMS	-Characterization of the monitoring system
	-Resource availability and planning
Institutional Capacity to Manage Carbon Bonus	-Development of financial management systems
	-Clearly communicated, equitable plans for distribution
	-appropriate mechanism for conflict resolution
Sustainability of Community groups that support implementation of carbon activities	-Strategic plans
	-Ability to mobilize resources
	-benefits to members of group membership
	-Women well represented
	-Established bylaws and regular meetings
	-Member retention
	-Responsive to changing needs

Source: Authors

Implementation of the Research Protocol

For the stakeholder interviews, each project selected the areas in which to implement the research tool, with a target of three or four locations per project. The projects selected each area based on criteria that could produce varied responses, such as the length of time the area has been involved in the project, or sites from different districts. The facilitators of this process included at least one staff member from the carbon project (ideally the monitoring and evaluations specialist) and one representative from EcoAgriculture. The implementation of the tools occurred in the form of half-day sessions, split between the implementation of a scoring tool and a group discussion. The project staff interviews similarly took a

half-day workshop with all relevant project staff and were administered by the representatives of EcoAgriculture Partners.

In all cases the sessions began with an introduction to the history and objective of the initiative. Each of the members of the interview group was then given a scorecard and a pen or pencil. As the interviewers read out each of the statements on the scorecard, interviewees circled a number from one to five indicating their level of agreement with the statement. A break was taken at the end of this process. Those not able to read or write were paired with someone who could help them circle the correct score.

As it was impractical to fully analyze the results quantitatively during the break period, interviewers used their rough interpretations of the results to direct the group discussions. Areas that showed mixed or low results on the scorecard became areas of emphasis for the discussion. The group discussion questionnaire was too long for each topic to be covered in depth in the allotted time. The interviewees used their discretion in deciding whether the focus group should be split into two. When this did happen, the group was split into one sub-group of stakeholder leaders and people who had a high degree of institutional knowledge and another that included general project participants. These splits were done to increase the number of voices heard during the interviews.

Following the field work, the project managers and representatives of EcoAgriculture Partners drafted reports summarizing results. Based on the findings of the field work, projects were to develop a formal action plan that includes specific activities that the project will undertake over the course of a year in order to meet challenges that have been identified. At the end of this period, there will be another round of data collection to track the impact of the actions, as well any other changes to the project that have occurred over that period. This process is anticipated to continue through 2014.

3. FINDINGS FROM THE IMPLEMENTATION OF THE RESEARCH PROTOCOL

This section presents the findings from the field work, which will lay the foundations for action plans that the projects will develop and implement. Projects were already aware of many of the identified issues, while other topics were newly uncovered. For all of these issues, the research process allowed an opportunity for systematic analysis of challenges and will provide an opportunity to develop the detailed development of action plans and monitoring and evaluation tools to track the success of actions. Each sub-section begins with a brief description of the carbon project and is followed by a discussion of identified areas for action. Additional information on each project can be found in the case studies included in Shames et al. (2012). The section concludes with a summary of themes identified across projects.

CARE

CARE's Sustainable Agriculture in a Changing Climate (SACC) Project, launched in Western Kenya in 2010, and encourages smallholders to integrate agroforestry systems into their farms, sequestering carbon, increasing farm productivity, and building resilience to climate change. Originally framed as a carbon finance project

with an emphasis on the first two elements (with tree planting creating carbon mitigation potential), the project is now transitioning to a *climate-smart agriculture* approach, which focuses more broadly on increasing farm productivity and building resilience to climate change. This project is still relatively new, and CARE is now concentrating on developing the project's institutional architecture. The entry point of the project is through community groups, called Village Management Committees (VMC), representing roughly 30 farmers each. At a higher level of organization, the VMCs are represented by a Sub-Location Management Committee (SLMCs). CARE adopted a flexible approach to the institutional development, working with partners and participants to identify the institutional structure most appropriate. While payments have not yet been made, CARE's preliminary ideas are to use the VMCs to distribute and transfer the payments to the farmers. Extension services are to be provided by resource persons (RPs) who have been trained by CARE and each serves roughly six to ten households. These RPs are meant to be managed by the VMCs. As the project develops, the SLMCs will be aggregated into blocks (CARE currently works in two "blocks," which correspond to the Middle and Lower Portion of the Nyando Rivershed). CARE envisions a new project management entity that will assume long-term control of the project. This project management entity will include representatives from farmers groups, CARE, CCAFS, and government agencies. It will also include the technical expertise necessary to eventually take over the functions of running the carbon project, selling the credits, providing advisory extension services, and distributing carbon revenues to farmers. The project management entity is currently chaired by CARE, but it is anticipated that farmers will take increasing control of the project as it moves forward.

Community ownership and project incentives

Results from the first round of institutional analysis suggest weak community ownership of the project. Currently, the roles of the VMCs and SLMCs have not been fully clarified. VMCs in some cases seemed reluctant to take on larger roles, viewing them at times as more of a burden than an opportunity. Some of the RPs and VMC leaders expressed frustration that project staff did not visit the field more often and that there was not as much interaction as they had hoped with the project staff. Even in areas identified by project staff as being highly motivated (and with high rates of participation in meetings and research activities), participants expressed that there was a need for greater motivation for farmers and group leaders to stay engaged with the project. These incentives might take the form of seeds, subsidized, or free inputs, or possibly even sitting allowances. In addition, some community members do not clearly understand the carbon payment plans of the carbon project.

Improve outreach and extension activities

The process identified several potential problems in developing an effective and sustainable extension service. Overall, group members seem satisfied with the technical capacity and training that they have received. However, in nearly all the areas, group members reported difficulties engaging farmers in training and ensuring the continued motivation and participation of local RPs locally-based trainers. Project staff also recognized that the turnout for the RP-organized

trainings is much lower than for trainings organized by CARE directly. Many groups reported that farmers were not particularly motivated by these RP trainings to adopt the practices. Project staff noticed this phenomenon and recognized the need to work with RPs to better communicate benefits of the project. However, project staff also believed that while the RPs are not as effective in reaching community members through formal trainings, they are effectively transferring knowledge through informal methods. The staff would like to better understand the mechanisms and types of knowledge that are being shared informally. Project staff are also working with the line ministries to provide long-term support for the project and building the capacity of other technical service providers. Project staff worked hard to secure the support of the line ministries at the beginning of the project and hope to build on those relationships.

Resource constraints to practice implementation

A common message expressed across all sites was that labor, inputs, and finances were all key constraints to the adoption of the agroforestry and other sustainable agricultural practices being introduced by the project. Farmers often cannot easily afford—nor find—certified seeds. Group members face significant resource constraints at the time of planting and land preparation of the fields. In addition, members complained that they only had the resources to cultivate smaller pieces of land, not the larger pieces that would generate significant economic returns. The communities have adopted various strategies to overcome these resource constraints. For example, in Kotiang the VMC identified barriers to participation and pooled the group's resources (mainly labor) to help dig holes, plant trees, and dig water pans. Despite these interventions, communities remain frustrated that these constraints do not allow them to adopt the practices at the scale or scope that they would like. In addition to providing continued training on resource mobilization, project staff proposed to introduce less resource intensive agricultural interventions. These would include local vegetables and other crops that have ready markets but do not require the investment in chemicals and inputs that are needed by others.

Tree management

In some areas of the project, low rates of tree survival are common, due to drought and free grazing. Furthermore, affordability and availability of seedlings serves as a major constraint for participation in the project, as the ideal time for seedling planting overlaps with the period of hunger months, introducing competition for scarce resources. Thus, having a community supply of low-cost, project-approved tree seedlings is necessary to replace those that have died and ensure carbon revenues. The monitoring tools that groups are using enable them to identify successful practices that help to improve tree survival. However, many of the VMCs were not able to realize their plans for developing tree nurseries.

Linkages between village savings and loan programs and agricultural interventions

CARE has introduced village savings and loan programs (VSLA) to enable farmers to invest in agricultural practices, with a goal of linking these to the carbon project; however the linkages between the carbon projects and the VSLA vary across the

project sites. In some areas, nearly all SACC participants are members of a VSLA, while in others, only a few. The spillover benefits from VSLA include more regular meetings, greater ability to mobilize resources and plan for the future, and better visioning and strategic plans. However, despite the value that is placed on VSLAs, project staff and participants note that it is not often used for investment in agricultural production, but rather to pay school fees or purchase additional food. Project staff also noted that men are more likely than women to invest in agricultural income generating activities.

Vi Agroforestry

The Western Kenya Smallholder Agricultural Carbon project, managed by the NGO Swedish Cooperative Centre-Vi Agroforestry (also known as Vi Agroforestry), is the test case for the first Voluntary Carbon Standard (VCS) methodology, which provides a mechanism for generating carbon credits by building organic matter in agricultural soils. Vi Agroforestry takes a holistic approach to project implementation which includes a focus not only on carbon, but also on improving farm productivity and livelihoods. It combines the implementation of sustainable agricultural practices, VSLAs to overcome credit constraints, and the development of farmer enterprises.

Vi Agroforestry offers an intensive extension outreach in the first three years of engagement in a particular area of the project after which it gradually phases out its extension services. The project approach is based on the idea that the long-term success of the project depends on the development of strong farmer group organizations. It trains a cadre of community facilitators, who work with village level organizations to offer training, and these organizations contract with Vi Agroforestry to offer carbon credits. The village-level organizations are also grouped into CBOs, and the village organizations and CBOs play a major role in the monitoring of farmer activities, collecting the data relevant for carbon monitoring. Vi Agroforestry is in the process of transitioning to an approach of working with even more partners. Instead of being directly engaged in service provisions, it has begun to identify groups (local, regional, and national) that can provide services that it has been providing. It will work with these groups to develop their capacity to deliver the required quality and quantity of these services.

Improve capacity for locally-based technical training

The views expressed by community groups varied in their assessment of the quality of their own technical capacity to implement the sustainable agricultural practices. In general, the leadership of the CBOs, including the Community Facilitators (CFs), who serve as the primary community-based trainers, believe that they have sufficient and adequate capacity to oversee and manage the elements of the project for which they are currently responsible. However, they also suggested that the CFs have trouble identifying which farmers to target for training and how best to motivate them. CBOs complained that there are not enough CFs to meet the demand and that there is a need for more demonstration plots and farmers to serve as role models. CFs found that farmers, who are used to receiving sitting allowances or transportation costs, do not frequently attend the trainings they organize. Distance and the opportunity costs of travel make it difficult to reach

farmers, although village organizations do usually offer small payments for transportation. One CBO suggested that communities respond better to facilitators who are not from their same ethnic group. Several farmers voiced a lack of faith in the technical capacity of the CFs as a reason for low turnout and participation. Staff identified the need for more demonstration sites, as well as a system to better incentivize the CFs to take on long-term training responsibilities.

Collective action in enterprise development

Some groups complained that many farmers do not participate in efforts to develop joint marketing groups and that this lack of interest frustrates efforts to improve farmer enterprises that could be stimulated by the introduced sustainable agricultural practices. However, groups are at varying stages of organizational development, and some of the groups are developing effective joint marketing schemes. These marketing issues will require additional attention if the project is to maintain long-term incentives for farmers to participate in the project.

Access to germplasm and seeds

Across all sites, accessing seeds and germplasm was identified as a constraint to the implementation and adoption of sustainable agricultural activities. Some groups emphasized that they needed additional training around the production and harvesting of seeds and seedlings. These costs and accessibility issues make it difficult for farmers to replant when crops are destroyed or lost, and it threatens the long-term sustainability of the project.

Capacity building for monitoring

While groups across the project sites seemed to be managing the carbon monitoring system well, some of the groups voiced concerns about the time commitments required for monitoring. Women conducted much of the monitoring, which required time away from their home and increased their already heavy household workloads. Groups also identified a need for additional training with farmers, so that they understand the importance of accurate reporting and monitoring. Project staff identified the need for CBOs to improve their capacity to analyze, interpret, and use the data.

Carbon bonus plan development

Plans and capacity around the management of the carbon bonus were generally considered to be insufficient relative to other topics discussed. Groups expressed a desire for more clarity on the timing and process for the distribution of the carbon bonus. In general, across the sites, communities expressed a desire for a higher level of communication from the project on the topic, and were waiting for Vi Agroforestry to take initiative in communicating how carbon payments should be spent. However, there were some groups that had already developed plans for the carbon bonus distribution.

ECOTRUST

Environmental Conservation Trust (ECOTRUST) is a nonprofit environmental conservation organization that was established in Uganda in 1999 and has found a niche in the field of conservation finance. ECOTRUST's Trees for Global Benefits (TFGB) Program is a community-based initiative linking small-scale farmers to the voluntary carbon market based on the Plan Vivo carbon credit certification system. Under the TFGB, ECOTRUST assists small-scale farmers to develop carbon credits from on-farm tree planting. Currently, activities under the program are located in Bushenyi and Kasese Districts in southwest Uganda, and Hoima District in Midwest Uganda. Additionally, a new project has been started in Northern Uganda with Tree Talk, a core implementing partner. ECOTRUST is also extending the TFGB program to the Mt. Elgon region of Eastern Uganda. The ECOTRUST model is mature, particularly in the areas where it first started. However, as it moves to new locations and attempts to scale up they have identified significant opportunities for innovation, particularly for the newer areas of operation.

Partnerships for scaling up

The ECOTRUST model is somewhat different than the others highlighted in this paper, in that the project managers are currently in the process of moving their operations to new areas within Uganda, and their institutional mode of operation can differ from place to place. In ECOTRUST's original sites they provided extension services directly to small groups of farmers (roughly 30 each) with no formal links between the groups. These groups were united only by the fact that there were visited by an ECOTRUST extensionist. When ECOTRUST expanded to Northern Uganda they used a different model in which they worked with a strong local partner, Tree-Talk, which assumed much of the training responsibility. In this case Tree-Talk implements ECOTRUST's technical specifications and capacity building methods to help farmers start tree planting activities. As ECOTRUST moves to new areas it can develop new plans of engagement from the ones they originally followed when the project began. In these new areas, the role of ECOTRUST can transform from one of a direct technical service provider to one of a trainer of trainers or of an intermediary between groups of CBOs and carbon buyers.

Cooperation among farmer groups

A common theme that emerged from the research is that some of the groups saw themselves as small and disparate entities that were unconnected with the experiences of the other groups operating under the TFGB project. Although the experience of the three groups interviewed in this study (Bitereko, Hoima and Kiyanga) differed somewhat, in all cases additional cooperation between groups could help to build the capacity and confidence to recruit new members and take on additional project management responsibilities. In particular, stronger linkages among groups could improve access to trainings. Where ECOTRUST works with groups of more than 80 members, such as in Bitereko, groups are able to mobilize training for its own members. One option raised was that groups could form regional associations or model themselves on the cluster model employed by TIST (see Shames et al. 2012).

Adapting tree planting practices to changing conditions

As time has passed in the original TFGB sites and ECOTRUST looks to expand its programs to new areas, the program has encountered changing conditions that have prompted it to consider new models for tree planting and tree species selection. As land becomes scarcer and land values increase, opportunity costs for woodlots and boundary planting—the primary modes of tree planting for ECOTRUST partner farmers—are rising. Farmers have expressed a desire to learn more about more complex agroforestry systems in which different trees may be selected for different purposes including not only carbon sequestration and timber, but also for soil fertility improvement, crop shade, and fruit for commercial purposes and household needs. However, communities often have limited exposure to these best practices outside of their local area. As farmers express this interest, ECOTRUST's training activities will need to evolve to bring this knowledge to communities so that they become institutionalized locally.

World Vision

World Vision's project in Humbo, Ethiopia is the first large-scale African afforestation/reforestation project to be registered under the Clean Development Mechanism (CDM) of the UN Framework Convention on Climate Change (UNFCCC) carbon crediting scheme, which allows developed countries to offset a portion of their carbon emissions through the purchase of emissions credits from projects in developing countries. The project works with seven farmer-controlled cooperative societies to employ the land rehabilitation technique of Farmer Managed Natural Regeneration (FMNR). The period of this research is a key moment for the project, as carbon funds have begun to flow to the cooperative societies, and World Vision has begun the process of giving up certain project management responsibilities. The project has been in operation since 2006, and World Vision is in the process of significantly reducing its engagement with the cooperatives, planning to end some activities entirely in 2013. World Vision trainings on FMNR largely stopped in December 2011. World Vision, however, continues to serve as the intermediary between the carbon buyer—the World Bank Biocarbon Fund—and the cooperative societies. It is also the entity in charge of ensuring that carbon data is collected properly. All carbon payments go to the cooperative societies to pay for community development activities, such as grain mills. It is possible that World Vision will leave the project entirely after 2017, when the current carbon contract expires. World Vision is already in the process of reducing its footprint in the Humbo area as the World Vision Humbo Area Development Program (ADP)—a broad program of development activities including health, agriculture and education among others—which has been in operation for 28 years is scheduled to conclude activities in the area by the end of 2013. While the ADP is managed separately from the carbon project, many of the ADP-related staff and relationships have provided an institutional foundation for the carbon project.

Communication of the strategic plans from cooperative society leaders to general members and enforcement

The Humbo project generally is mature and well managed and supported. The cooperative societies are very well organized, with an executive committee that

meets every two weeks and a group leader for each village responsible for organizing participants for training, patrols, and credit. Each cooperative holds a meeting of its General Assembly every three months, with an annual meeting held at the end of each year in which the executive committee reports on the accomplishments and finances of the previous year, finalizes the annual work plan for the following year, and evaluates internal roles and responsibilities. While this governance structure provides a strong framework for project management, the research identified important areas in which the decisions and plans of the executive committee were not being fully communicated to members.

These identified issues differed somewhat between the three cooperatives visited, and will likely vary for the other four that we did not visit. Two indicative topics raised were patrols and trainings. Patrols are coordinated by the cooperative, but organized at the village level. Some cooperatives raised questions as to whether these patrols were happening as regularly as they should be. Training of the Trainers (TOTs) is the method used by World Vision and government agents to disseminate knowledge on FMNR practices. Some wondered whether the trainers were fully meeting their obligations to train others within the cooperative on the practices. Although World Vision will have less direct engagement with the cooperatives as time progresses, these are issues that they plan to support the groups to address.

Increased role for local government agents in project backstopping

As World Vision transitions out of certain project responsibilities, particularly around FMNR trainings, local government agents will be taking on more of this role in backstopping the locally based training system within the cooperatives. These agents have been partnering with World Vision throughout the life of the project to deliver these trainings to the cooperatives, but this role is set to increase. The transition period will be crucial as World Vision, the government agents, and the cooperative societies will need to clearly lay out the responsibilities of each group and develop mechanisms to ensure that these responsibilities are met.

Roles of the cooperative union

The project has long planned for the development of a cooperative union which would link together the seven cooperative societies into a single unit that could eventually support marketing for both agriculture products and carbon, and possibly increase communication among the cooperative societies. Until 2017, World Vision will maintain control over the Emissions Reduction Purchase Agreement (ERPA), but afterwards the union could potentially take control of this as well. The leadership of the union will be drawn from the seven cooperatives, and will be supported by a government office specifically dedicated to cooperatives and possibly some outside technical professionals. The union was scheduled to be operational by 2012, but these plans have been delayed. The societies are concerned about this delay and are eager for the union to form. As the union does become operational, and World Vision disengages, it will be very important that all actors clearly understand the roles that the union will fill.

Improving benefits to resource constrained farmers and women

World Vision has always emphasized the importance of targeting vulnerable communities and resource poor farmers and women in the carbon project, and cooperative society bylaws call for quotas for women in leadership positions. However, women and youth are underrepresented in the leadership of the cooperatives. This is an issue that cooperatives say will be addressed in their next round of elections in 2013. Cooperatives have begun to develop credit facilities for members, as carbon funds have become available. Women and resource poor farmers have been prioritized as beneficiaries of the credit, and cooperatives plan to track the success of this targeting over time.

Cross-project insights on local capacity needs

While the research methodology was designed primarily to support individual carbon projects in taking stock of their local institutional development and identifying areas for action, by applying it across four projects a few lessons about strengthening institutional capacity can be drawn.

Identifying local partners to build management capacity

Local capacity is not only a capability of lone actors, but is dependent upon the relationships and partnerships of an entire system (Aragon, Macedo, and Carlos, 2010). Longer running projects demonstrated the importance of partnerships that could facilitate access to outside resources and technical support. For example, the Humbo project will rely on local ministries to provide backstopping, while ECOTRUST's evolving identifies potential training partners with which to work. Vi Agroforestry and CARE are in earlier stages of their efforts, and are still searching for appropriate partnerships. The importance of identifying partners throughout the project's life suggests a need for explicit efforts to map potential partners at various key moments in project development and to identify their capacities to provide services need by projects and communities.

Need for effective "training of trainers" programs

A recurring theme across projects was a need to develop the capacities of community leaders (RPs in CARE, for example, and the CFs of Vi Agroforestry) to play significantly larger roles as technical trainers within projects. This role will be particularly critical for projects that are still in a growth stage as they engage additional participants. Indeed, given the difficult finances of carbon projects it is unclear how a project could operate without an effective training of trainers (ToT) system at its core. The Humbo project has an established ToT program to support FMNR program, but trainees have called for improved effectiveness.

Community ownership

As external project manager's transition out of management roles and local institutions take on additional responsibilities, participating community members will need to stay motivated to participate in the project. This motivation will likely be tied to not only the benefits that individuals and communities receive from the projects, but also to their sense of engagement and ownership. Some CARE

stakeholders suggested additional incentives from the project for participation, while Humbo community members call for more effective communication on project activities from community leaders. Each project will need its own methods to strengthen and maintain a sense of ownership.

Collective action

Effective collection action institutions play an essential role in these projects, from enabling/monitoring participating to establishing rules and enforcement penalties to aggregating carbon and coordinating the sale of carbon credits. In fact, the objective of developing these institutions can be even more important than the direct livelihood benefits of the project. For example, Vi Agroforestry views the ultimate objective of their project as developing strong and effective farmer organizations (personal communication). However, all projects were facing difficulties in facilitating the foundational components of collective action including trust, reciprocity, and communication. This challenge is a theme of the other cross-project lessons included above. An additional example of this phenomenon is that many project staff and participants reported that farmer-to-farmer learning seemed undervalued by participants and that additional efforts were needed to engage non-participating community members.

4. ANALYSIS OF THE RESEARCH PROTOCOL

In the process of implementing the research methodology and synthesizing the results, researchers also analyzed the effectiveness of the research tools and protocols and the ways in which they could be improved. This section presents the findings of this assessment.

Benefits of participation in the research process for carbon project stakeholders

The primary incentive for projects and project stakeholders to participate in the action research process is that it provides support for them to identify areas for project improvement, and eventually to implement actions that ideally lead to improved outcomes. The ability to identify and track advances in projects' institutional development, and the ability to communicate this progress, may be more important in carbon initiatives than it is in more conventional agricultural development and sustainable land management projects. Carbon developers and managers must convince carbon buyers that the institutional structures on which the carbon interventions are based are indeed sustainable and that they will generate benefits for project participants in addition to the carbon bonus, which is often an insufficient incentive for farmers to continue to implement practices.

A clear indicator of success of this process would be the integration of these research tools by the projects into their internal monitoring and evaluation activities so that they are institutionalized in some form even without external support. Projects' monitoring and evaluation staff have been targeted as field partners in this process so that they can consider how these methods can complement their other work. The extent to which this integration happens will not be known until the research period ends, but projects expressed enthusiasm about the prospects of

incorporating this research methodology into their normal monitoring and evaluation activities. For example, Vi Agroforestry has expressed an interest in using this methodology in other carbon projects that they are now initiating. At the community level, groups saw this project as an opportunity to take stock of their engagement with the carbon project, to report on their successes, and to identify project improvements that will increase project benefits.

Research methodology structure

The protocol generally succeeded in creating conversations among targeted groups on the topics related to carbon project institutions and in identifying followup action items. Interviewees mostly viewed this process positively, although there were times in which community groups appeared to perceive questions as a criticism of their progress and their efforts. There were also occasions on which some participants felt as if they were being asked questions that were inappropriate for their level of knowledge.

The scoring tool fulfilled its role in identifying areas on which to focus the followup group discussion. Occasionally, the scoring tool created confusion for participants, especially in understanding what the range of scores represented for certain questions. In some cases, this manifested itself in participants giving only scores of 1s or 5s. This experience suggests that any future attempts to implement this methodology may need to pay more attention to the training of facilitators and to the explanation of the process to community groups and other participants, so that they do not feel targeted or criticized. In addition, using the tool repeatedly will help to build the critical thinking and reflections skills that are needed for its implementation. Fischer (2010) suggests that these skills are the most sustainable type of capacity building. Other experiences suggest that these types of scoring tools can be successful and useful for generating meaningful results, but can take time to fully integrate them into monitoring and evaluation systems (Chambers 2010).

The stakeholder survey was developed with a model in which farmer groups were the actors that held the overwhelming share of responsibility for project implementation outside of the project managers. However, we discovered that there may be other key actors who require tailored methodologies. For example, in the Humbo project, government agencies played a particularly strong role and interview sessions were organized specifically for them. In this case, we adapted the stakeholder group interview tool for the discussion which served the purpose, but a dedicated set of government-targeted tools may have also been helpful. ECOTRUST's experience suggests that further engagement with outside service providers to the project—such as agricultural input suppliers and carbon validators—may also yield important insights that would not otherwise be gathered. Thus, having a flexible understanding of stakeholders that allows for changes over time will be important in capturing the projects' efforts to build collaborative relationships with other actors.

Capacity for research partners to implement the protocol

The research protocol was developed in partnership with project managers, who through their participation in workshops received training on action research

planning and implementation. The projects also acted as co-researchers during the first round of data collection. This collaboration and long-term engagement has deepened the capacity of project staff to implement the research protocol on their own should they choose to do so without the support of outside researchers. However, this issue of capacity to implement the research once the facilitators leave is a perennial challenge to action research projects (German et al. 2012b). For this type of tool to be useful—and to generate discussions—it should be used repeatedly over time (Sayer et al. 2007), with the necessary space for discussion (Fisher 2010). Future stages of the research should focus on creating capacity for more locally led data analysis.

Variation in identified needs based on a project's stage of development

The types of issues that projects identified as areas for future action depended in large part on their stage of development. For example, for CARE, the research time period overlapped with the phase in which it was working to establish the institutional roles that will eventually manage the project. As the roles were not entirely set, it was easier for them to consider project-wide institutional innovations. World Vision, by contrast, is in the process of phasing out much of their direct engagement and is using the research process as an opportunity to reinforce their plans for the transition and to suggest more locally tailored interventions. These differing emphases may make cross-project synthesis more difficult than if all projects were at the same stage of development, but this variation also improves the opportunity for younger projects to learn from more mature ones.

Expanding the unit of analysis

Discussions following the scoring activities revealed a number of local level innovations that had been implemented to ensure that resource constrained households and women were able to participate in and benefit from these projects. Some of the local organizations articulated clear strategies to reach out to women and resource constrained households. By focusing overall on the intervention at the project level (the unit of analysis), the research may have missed an opportunity to recognize and encourage local level innovations. Practitioners and scholars have noted that valuing and recognizing such local level innovations are critical and often overlooked (Waters-Byer et al. 2006). Thus, future rounds of the research could make adjustments to capture not only local level innovations, but also to look beyond the project at efforts to coordinate activities with other activities throughout the landscape (Scherr, Shames, and Friedman 2012).

Method as facilitator of social learning

This research process has significant potential to encourage social learning both within and among projects. Social learning refers to the "collective action and reflection that takes place amongst both individuals and groups" (Keen, Brown, and Dyball. 2005, 4.), and it occurs through the co-production and sharing of knowledge (Harvey et al. 2012). Successful social learning is demonstrated through changes in knowledge or understanding by a large community of practice which occurs as a result of person-to-person exchanges through social networks. To

succeed, this action research process will require social learning to take hold within projects and communities. However, participatory processes do not always stimulate social learning (Reed et al. 2010). During the next step of the action research process, as specific actions are identified and implemented, attention to the lessons from the literature on enabling and encouraging social learning will become increasingly important.

5. CONCLUSION

The action research process described in this paper has served to identify important areas for African agricultural carbon project managers and participating communities to improve the capacity of local institutions to manage projects while also providing a unique opportunity for cross-project learning, which could yield insights for other carbon project managers and potentially policymakers. The research methodology development and implementation process has demonstrated that project managers are keenly interested in identifying mechanisms to improve local institutional capacity to manage projects. The methodology has been generally successful in gathering the desired data, although modifications could be made in the future to more effectively target questions to interviewees; include additional stakeholder groups, such as government agents and project service providers; develop capacity for local-level data collection and analysis; and focus additional attention on local level innovations and landscape level coordination.

The research has yielded diverse topics for action across projects, as the projects are structured differently and are at different stages of development. However, across projects, actions have been identified in areas including partnership development, ToT programs, improving the sense of community ownership of projects and building the foundations for collective action throughout project and community institutions. Due to the project managers' participation in the development of the methodology, these managers are well placed to incorporate these survey tools into their normal monitoring and evaluation activities and to continue this iterative process after the research funds end. Formalized action plans for each project will provide clarity and discipline to support the implementation of actions identified during the research.

The next steps in this process will be for projects to create detailed action and monitoring plans and then to implement them. Once these have been completed, an analysis will be conducted of the effectiveness of the actions in each of the projects along with a synthesis of lessons learned across projects.

APPENDIX 1: SUMMARY OF CARBON PROJECTS FROM PHASE 1 OF RESEARCH

Project Title	Location	Project Manager	Other Key Actors	Project scale target	Start date of project planning	Mitigation activities
CARE Sustainable Agriculture in a Changing Climate (SACC)	Middle and Lower Nyando River Basin, Kenya	CARE Kenya	CARE International, World Agroforestry Centre (ICRAF), CBOs, Rockefeller Foundation	100,000	2009	Agroforestry, woodlots
Cocoa Carbon Initiative	Bosambepo, Ghana	Nature Conservation Resources Centre (NCRC); Katoomba Incubator; Ghana Forestry Commission (FC); Traditional Councils	Community Resource Management Areas (CREMA) Board, Cocoa industry stakeholders	110,000	2008	Increasing Carbon Stocks of non-cocoa trees (shade trees) on farm and within agricultural landscapes
Humbo Assisted Regeneration Project	Humbo Ethiopia	World Vision Ethiopia, World Vision Australia	Woreda (district) Bureau of Agricultural and Rural Development (MoARD), Forestry Development Coordination Office (ARDFCO); Community Forest Protection and Development Cooperative Societies	2,728	2004	Farmer Managed Natural Regeneration (FMNR)
International Small Group and Tree Planting Program (TIST)	Meru, Kenya	TIST	Clean Air Action Corporation, USAID	4,597 already accomplished, with plans to grow	2005	Agroforestry, woodlots
Trees for Global Benefits Program	Hoima, Bushenyi, and Masindi, Uganda	ECOTRUST	ICRAF; Edinburgh Centre for Carbon Management (ECCM), Plan Vivo foundation, District Farmers Associations	1000	2003	Agroforestry, woodlots
Western Kenya Smallholder Agricultural Carbon Project	Kisumu and Kitale, Kenya	Vi Agroforestry	World Bank Biocarbon Fund, Swedish International Development Agency (SIDA), CBOs	45,000	2007	Sustainable Agricultural land management (SALM) including minimum tillage, crop residues on fields, livestock enclosures, composting, agroforestry

Source: Shames et al. 2012.

REFERENCES

Agarwal, B. 2001. Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. *World Development* 29 (10): 1623–1648.

Aragón, A. O., Macedo, G., and Carlos, J. 2010. A 'Systemic Theories of Change' Approach for Purposeful Capacity Development. *IDS Bulletin 41*(3): 87–99.

Araujo, M. C., F. H. G. Ferreira, P. Lanjouw, and B. Ozler. 2008. Local Inequality and Project Choice: Theory and Evidence from Ecuador. *Journal of Public Economics* 92: 1022–1046.

Bernier, Q., P. Franks, P. Kristjanson, H. Neufeldt, A. Otzelberger, and K. Foster. 2013. Addressing gender in climate-smart smallholder Agriculture. ICRAF Policy Brief 14. Nairobi, Kenya: World Agroforestry Centre (ICRAF)

Chambers, R. 2010. A Revolution Whose Time Has Come? The Win-Win of Quantitative Participatory Approaches and Methods. *IDS Bulletin* 41(6): 45–55.

Cleaver, F. 2001. Institutions, Agency, and Limitations of Participatory Approaches to Development. In *Participation: The New Tyranny?* B. Cooke and U. Kothari, eds. London: Zed Books. Pp. 36–55.

Cleaver, F. 2009. Rethinking Agency, Rights, and Natural Resource Management. In *Rights Based Approaches to Development: Exploring the Potential and the Pitfalls*. S. Hicks and D. Mitlin, eds. Sterling: Kumarian Press. Pp. 127–144.

Colfer, C.J.P. 2005. *The Complex Forest: Communities, Uncertainty and Adaptive Collaborative Management*. Washington, D.C. and London: Resources for the Future.

Coomes, O.T., F. Grimard, C. Potvin, and P. Sima, 2008. The fate of the tropical forest: carbon or cattle. *Ecological Economics* (65): 207–212.

Farnworth, C.R. and M. Munachonga. 2010. Gender Aware Approaches in Agricultural Programmes—Zambia Country Report. UTV Working Paper. Stockholm: SIDA.

Fenske, J. 2011. Land tenure and investment incentives: Evidence from West Africa. *Journal of Development Economics* 95 (2): 137–156.

Fisher, C. 2010. Between pragmatism and idealism: implementing a systemic approach to capacity development. *IDS Bulletin* 41(3): 108–117.

Friis-Hansen, E. and D. Duvesgok. 2012. The Empowerment Route to Well Being: An analysis of Farmer Field Schools in East Africa. *World Development* 40: 414–427.

German L., J. Mowo, and C. Opondo. 2012. Integrated Natural Resource Management: From Theory to Practice in I*ntegrated Natural Resource Management in the Highlands of Eastern Africa: From Concept to Practice*, L. German, J. Mowo, T. Amede and K. Masuki. eds. New York: Earthscan.

German, L., W. Mazengia, W. Tirwomwe, S. Ayele, J. Tanui, S. Nyangas, and L. Begashaw. 2012a. Enabling equitable collective action and policy change for poverty reduction and improved natural resource management in the eastern Africa highlands. In "*Collective Action and Property Rights for Poverty Reduction*", E. Mwangi, H. Markelova, and R. Meinzen-Dick, eds. Philadelphia: University of Pennsylvania Press: 189–234.

German, L.A., A.M. Tiani, A. Daoudi, T.M. Maravanyika, E. Chuma, C. Jum, N. Nemarundwe, E. Ontita and G. Yitamben. 2012b. *The application of participatory action research to climate change adaptation: a reference guide*. Ottawa: IDRC.

Gupta, J. K. termer, J. Klostermann, S. Moijerink, M. vanden Brink, P. Jong, S. Nooteboom, and E. Bergsma. 2010. The adaptive capacity wheel: a method to assess the inherent characteristics of institutions to enable the adaptive capacity of society. *Environmental Science & Policy* 13(6): 459–471.

Hagmann, J. 1999. *Learning Together for Change: Facilitating Innovation in Natural Resource Management through Learning Process Approaches in Rural Livelihoods in Zimbabwe*. Weikersheim: Margraf Verlag.

Harvey B, J. Ensor, L. Carlile, B. Garside, Z. Patterson, and L.O. Naess. 2012. Climate change communication and social learning—Review and strategy development for CCAFS. CCAFS Working Paper No. 22. Copenhagen, Denmark: CCAFS.

Humphries, S. L. Classen, J. Jimenez, F. Sierra, O. Gallardo, and M. Gomes. 2012. Opening Cracks for the Transgression of Social Boundaries: An Evaluation of the Gender Impacts of Farmer Research Teams in Honduras. *World Development* 40: 2078–2095.

Jindal, R., J.M. Kerr, and S. Carter. 2012. Reducing Poverty Through Carbon Forestry? Impacts of the N'hambita Community Carbon Project in Mozambique. *World Development 40*(10): 2123–2135.

Keen, M., V. A. Brown, and R. Dyball. 2005. Social learning: a new approach to environmental management. In *Social learning in environmental management: Towards a sustainable future*. M. Keen, V.A. Brown, and R. Dyball, eds. Oxon: Earthscan. Pp. 3–21.

Kiptot, E. and S. Franzel. 2011. Gender and Agroforestry in Africa: Are Women Participating? ICRAF Occasional Paper 13, Nairobi: World Agroforestry Centre.

Komarudin, H., Y. L. Siagian, and C. J. Pierce Colfer. 2012. The role of collective action in securing property rights for the poor: A case study in Jambi Province, Indonesia. Chapter 8 in *Collective Action and Property Rights for Poverty Reduction*. E. Mwangi, H. Markelova, and R. Meinzen-Dick, eds. Philadelphia: University of Pennsylvania Press.

Mapfumo, P., S. Adjei-Nsiah, F. Mtambanengwe, R. Chikowo K.E. Giller. 2013. Participatory action research (PAR) as an entry point for supporting climate change adaptation by smallholder farmers in Africa. *Environmental Development* 5: 6–22

Morgan, P. 2006*. The concept of capacity*. Maastricht, The Netherlands: European Centre for Development Policy Management,

Mwangi, E., H. Markelova, and R, Meinzen-Dick, eds. 2012. Collective action and property rights for poverty reduction. Philadelphia: University of Pennsylvania Press.

Palmer, C., and T. Silber. 2012. Trade-offs between carbon sequestration and rural incomes in the N'hambita Community Carbon Project, Mozambique. *Land use policy* 29(1): 83–93.

Pham, T.T., M. Brockhaus, G. Wong, L.N. Dung, J.S. Tjajadi, L. Loft, C. Luttrell and S. Assembe Mvondo. 2013 Approaches to benefit sharing: A preliminary comparative analysis of 13 REDD+ countries. Working Paper 108. Bogor, Indonesia: CIFOR.

Platteau, J.-P. 2004. Monitoring Elite Capture in Community Driven Development. *Development and Change* 35(2): 223–246

Ratner, B. D., G. Halpern, and M. Kosal. 2011. Catalyzing collective action to address natural resource conflict: Lessons from Cambodia's Tonle Sap Lake. CAPRi Working Paper 103. Washington, D.C.: IFPRI.

Reed, M, A.C. Evely, G. Cundill, I.R.A. Fazey, J. Glass, A. Laing, J. Newig, B. Parrish, C. Prell, C. Raymond, and L. Stringer. 2010. What is social learning? *Ecology and Society*.

Reynolds, T. W. 2012. Institutional determinants of success among forestry-based carbon sequestration projects in Sub-Saharan Africa. *World Development* 40(3): 542–554.

Sayer, J., B. Campbell, L. Petheram, M. Aldrich, M.R. Perez, D. Endamana, Z. L. Nzooh Dongmo, L. Defo, S. Mariki, N. Doggart, and N. Burgess. 2007. Assessing environment and development outcomes in conservation landscapes. *Biodiversity and Conservation 16*(9): 2677–2694.

Scherr, S. J., S. Shames, and R. Friedman. 2012. From climate-smart agriculture to climate-smart landscapes. Agriculture and Food Security 1: 12.

Shames, S., R. Friedman, and T. Havemann. 2012. Coordinating Finance for Climate-Smart Agriculture. Ecoagriculture Discussion Paper No. 9. Washington, D.C.: EcoAgriculture Partners.

Shames, S., E. Wollenberg, L. E. Buck, P. Kristjanson, M. Masiga, and B. Biryahwaho. 2012. Institutional innovations in African smallholder carbon projects. CCAFS Report No. 8. Copenhagen: CCAFS.

Smith P., D. Martino, Z. Cai, D. Gwary, H. Janzen, P. Kumar, B. McCarl, S. Ogle, F. O'Mara, C. Rice, B. Scholes, and O. Sirotenko. 2007. Agriculture. In *Climate Change 2007: Mitigation. Contribution to Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* B. Metz, O.R. Davidson, P.R Bosch, R. Dave, and L.A. Meyer, eds. Cambridge and New York: Cambridge University Press.

Sommerville, M., J.P.G. Jones, M. Rahajaharison, and E. J. Milner-Gulland. 2010. The role of fairness and benefit distribution in community-based Payment for Environmental Services interventions: A case study from Menabe, Madagascar. *Ecological Economics* 69 (6): 1262–1271.

Stringer, E. T. 2007. *Action Research* (Third Edition). Thousand Oaks, CA: Sage.

Swallow, B. M., R. Meinzen-Dick, and M. Van Noordwijk. 2005. Localizing demand and supply of environmental services: interactions with property rights, collective action and the welfare of the poor. CAPRi Working Paper 42. Washington, D.C.: IFPRI.

Tschakert, P. 2004. The costs of soil carbon sequestration: an economic analysis for small-scale farming systems in Senegal. *Agricultural Systems* 81(3): 227–253.

Visseren-Hamakers, I. J., C. McDermott, M.J. Vijge, and B. Cashore. 2012. Trade-offs, co-benefits and safeguards: current debates on the breadth of REDD+. *Current Opinion in Environmental Sustainability* 4(6): 646–653.

Waters-Bayer, A., L. van Veldhuizen, M. Wongtschowski, and C. Wettasinha. 2006. Recognizing and enhancing local innovation processes. PROLINNOVA Working Paper 13. Netherlands: PROLINNOVA.

Williams, L.G. 2013. Putting the pieces together for good governance of REDD+: an analysis of 32 REDD+ country readiness proposals. World Resources Institute Working Paper. Washington, D.C.: World Resources Institute.

Wong, S. 2010. Elite Capture or Capture Elites? Lessons from 'Counter-Elite' and Co-opt-elite' Approaches in Bangladesh and Ghana. Working Paper 2010/82. Helsinki: United Nations University-World Institute for Development Economics Research.

World Bank. 2011. Opportunities and challenges for climate-smart agriculture in Africa. World Bank Policy Brief. Washington, D.C.: World Bank.

Zerfu, E. and S.W. Kebede. Filling the Learning Gap in Program Implementation Using Participatory Monitoring and Evaluation Lessons from Farmer Field Schools in Zanzibar. IFPRI Discussion Paper 01256. Washington, D.C.: IFPRI.

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