



Gender Equity in Climate Change Mitigation

Where are the “mamas”?

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by Jean Lee

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Abstract

Agricultural soil carbon projects that explicitly seek to promote sustainable agricultural land management practices (SALM) are quickly gaining attention worldwide for their promise to deliver the “triple-win”: adaptation, food security, and mitigation. However, as the recent scholarship on green-grabbing suggests, a closer examination of how these projects affect local communities, in particular women who do not have secure land tenure, is necessary. I used the Kenya Agricultural Carbon Project (KACP) as a case study to understand the implications of gender equity on land grabbing. With respect to access, women had less access because they did not have the same level of influence in decision-making as men. On the project level, both men and women had little influence in establishing project requirements and potential benefits, as these were decided upon prior to farmer recruitment. Regarding outcomes, women tended to participate in more project activities, and would in return reap more non-monetary benefits than men. However, the cost of these benefits was non-trivial: women also spent more time on the farm due to the substantial time and effort required to implement SALM practices. While currently the KACP project has not resulted in land grabbing, this is most likely due to the type of practices the project promoted. However, agricultural carbon projects in the future will need to be cautious of how promoted practices may change dynamics in the household and possibly strengthen men’s control over land, especially if men start viewing the land as productive and if the carbon income is substantial.

Keywords: equity, gender, climate change mitigation, agricultural soil carbon projects, Kenya, green-grabbing.

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1 Introduction

Discourse on global land grabbing has focused largely on large-scale land acquisitions by more powerful countries for food security purposes, oil palm plantations, and mining, to name a few. Local communities are often adversely affected by these land grabs. They are dispossessed of their land and excluded from benefits. More recently, “green-grabbing”, land grabbing for “green” purposes such as environmental conservation, has also received much attention from scholars and practitioners (Fairhead:2012). For example, if large tracts of “pristine forests” can conserve biodiversity, palm oil plantations for biodiesel will result in cleaner emissions, and large-scale afforestation projects will sequester carbon dioxide and contribute to climate change mitigation.

Scholarship on green grabbing in land-based climate mitigation projects have focused on large-scale land acquisitions for afforestation/reforestation and their effects on the local community. However, many smaller-scale land-based mitigation projects also risk dispossessing local communities of their land, particularly those already marginalized. The majority of smaller-scale projects encourage tree-planting practices on individual farms. While these projects may not entail large land deals negotiated between international and national governments, the likelihood of smaller land deals among project developers and the local elite exist, strengthening the power and influence of farmers that already have more land.

In addition, entrenched gender norms in the community shape women’s participation in the project and their ability to reap benefits, especially if projects are focused on tree planting. A review of recent agroforestry and carbon forestry literature through a gender equity lens revealed multiple examples of inequities in agricultural mitigation projects. In agroforestry projects in the Dominican Republic and Bolivia, women who were interested in participating could not because they did not have secure land tenure (Boyd, 2002; Fortmann et al., 1997; Nelson and de Jong, 2003; Rocheleau and Edmunds, 1997). Women had little voice in meetings because of poor attendance (competing commitments) or oppression due to local power dynamics (De Jager, 2005; Boyd, 2002; Agarwal, 2001; Rochleau et al., 1996). Timber selection for carbon forestry projects tended to be biased towards high-revenue timber species instead of fruit trees or firewood, which researchers argue is the result of a male-dominated leadership structure (Boyd, 2002; Corbera, Brown, et al., 2007). In addition, projects often strengthened men’s rights or access to resources, but impeded the usufruct rights of or benefits available to women (Smith and Scherr, 2002; Schroeder, 1993; Asquith et al., 2002; Wangari et al., 1996; Greig-Gran et al., 2006; Rocheleau and Edmunds, 1997). For example, in Gambia, developers encouraged men to take advantage of the irrigation systems women had set up for their gardens; these actions were interpreted as exploitative of women (Schroeder, 1993).

While past forestry projects have excluded women, agricultural carbon projects might not. A key difference between agricultural carbon projects and past carbon forestry projects is the inclusion of sustainable land management practices in project design. SALM practices offer a suite of on-farm practices and do not focus on tree planting. However, existing gender norms of women bearing the brunt of farming yet lacking legal land ownership, combined with the monetary benefits resulting from carbon income, suggest that closer examination of whether or not agricultural carbon projects result in localized land grabbing is still necessary. This is especially important in sub-Saharan Africa, where many women do not have rights to land even though they represent 80% of on-farm labor. Thus, examining climate mitigation projects through a gender equity lens is critical to understanding how projects can avoid exacerbating existing inequities between men and women or introducing new ones that shift men and women’s relationship to each other and to the land.

2 Conceptual framework

Looking at projects through a gender equity lens means identifying where inequities could occur, why they do, and how project developers and implementing agencies can address these inequities to decrease the likelihood of localized land grabs. Amartya Sen defines equity as “equal consideration for all” (Sen, 1992), and understanding equity will require understanding individuals’ wealth and capabilities (McDermott et al., 2012). This interpretation of equity and the understanding that gender is socially determined can then be applied to the existing institutional framework to understand what factors mediate access, decision-making, and outcomes for men and for women.

I used Brown and Corbera's framework to analyze the equity implications of climate mitigation projects (Brown and Corbera, 2003). The goal is to examine the development implications of an agricultural carbon mitigation project in Kenya, focusing on whether women are able to engage with the project and the benefits they receive. Drawing on institutional and justice theory, Brown and Corbera propose a three-tiered framework: equity in access, equity in decision-making, and equity in outcomes. Table 1 summarizes gender equity themes from past agroforestry and carbon forestry projects that are relevant to equity in access, decision-making, and outcomes.

Table 1. Themes from past projects on equity in access, decision-making, and outcomes

Access	<ul style="list-style-type: none"> • Eligibility requirements (e.g. land ownership) tend to exclude women • Participation requires activities that are not allowed by cultural norms (e.g. women do not plant timber species) • Household duties limit employment possibilities and attendance at trainings • Uncertain access to trees
Decision-making	<ul style="list-style-type: none"> • Women are not comfortable talking at formal meetings • Women’s opinions often not incorporated or addressed
Outcomes	<ul style="list-style-type: none"> • Benefits: diversity in tree species (fruit and firewood) • Negative Impacts: <ul style="list-style-type: none"> ○ Reinforce men’s control over land ○ Exploitative of women’s labor

Ribot and Peulso defined access as “the ability to benefit from things” (Ribot and Peluso, 2003), and Brown and Corbera define equity in access as people's “access to information, knowledge, and networks, as well as access to land and forest resources.” (Brown and Corbera, 2003b). For example, if a project advertises through the radio or newspapers, those that do not have a radio or are illiterate will have limited knowledge of the project. Projects that require tenure security or high upfront costs will exclude poorer populations.

Equity in decision-making pertains to stakeholders’ voice in project design and implementation (Corbera, Brown, et al., 2007; FAO, 2009; Corbera, Kosoy, et al., 2007). Projects often do not involve local communities in project initiation and design, which results in oversight of community needs. In addition, decision-making privileges are often held by a few key actors (often the project broker and intermediary or the local elite) (Nelson and de Jong, 2003; Corbera, Kosoy, et al., 2007).

Equity in outcomes addresses the distribution of costs and benefits, as viewed by the recipients and stakeholders (Boyd, 2002; Verchot et al., 2006; Corbera, Brown, et al., 2007; Corbera, Kosoy, et al., 2007; Van Noordwijk et al., 2007). Equity in outcomes is often directly linked to equity in access and decision-making (Smith and Scherr, 2002; Brown and Corbera, 2003a; Asquith et al., 2002; McDermott et al., 2012; Greig-Gran et al., 2006; Corbera, Kosoy, et al., 2007). Analysis of outcomes

traditionally has had a heavy focus on economic costs and benefits for the communities, as project design is often chosen to maximize efficiency and effectiveness (Corbera, Kosoy, et al., 2007; Locatelli et al., 2008; Börner et al., 2010; Milder et al., 2010; Visseren-Hamakers et al., 2012; Pagiola, 2008). However, non-monetary benefits will also need to be captured when studying equity in outcomes, particularly when understanding equity implications for women (who in many countries do not handle formal monetary transactions). Table 2 identifies a set of variables and indicators examined to understand and evaluate equity.

Table 2. Equity dimensions and key research questions examined

Equity Dimensions	Guiding Research Questions	Analytic variables to understand equity dimensions	Indicators to evaluate equity implications
Access	<ul style="list-style-type: none"> • Where did farmers learn about the project? • What are the barriers to adoption? 	<ul style="list-style-type: none"> • Source of knowledge about project • Assets that prevent adoption 	<ul style="list-style-type: none"> • Multiple venues for dissemination of information exist • Limiting assets addressed
Decision-making	<ul style="list-style-type: none"> • What project-related decisions do farmers make related to the project? 	<ul style="list-style-type: none"> • Input on project management • Choice of farm practices • Type of benefits desired 	<ul style="list-style-type: none"> • Project input allowed • Diverse practices promoted • Desired benefits incorporated • Women’s opinions and desires recognized and acted upon
Outcomes	<ul style="list-style-type: none"> • What are outcomes of the project? 	<ul style="list-style-type: none"> • Current benefits of the project (monetary and non-monetary) • Projected benefits of the project (monetary and non-monetary) 	<ul style="list-style-type: none"> • Benefits delivered to both men and women • Benefits contributed to sustainable livelihoods • Benefits crafted to be sensitive to differential needs

3 Case study and methods

3.1 Description of Kenya Agricultural Carbon Project

Kenya's Agricultural Carbon Project (KACP) is the first agricultural carbon project worldwide. Thus, this project can serve as a good test case for understanding gender equity and land grabbing in such projects. Established in January 2009, the carbon project area covered 86,000 ha of agricultural land in Kisumu and Kitale counties. Agriculture is the primary economic base in Western Kenya, and there is growing pressure on the land due to the increase in population growth and the high population density (150-350 people/km²). The average size of farms in the area is 0.6ha; while most farmers do not have official land titles, land tenure is secure and usually unquestioned. The primary crops are maize and beans, supplemented with vegetables and other subsistence crops such as ground nuts, cassava, and sugarcane.

The World Bank BioCarbon Fund identified the project area as a suitable candidate for piloting an agricultural carbon project. The area suffered from soil fertility depletion from farming activities such as mono-cropping and over-cultivation. (Kenya Agricultural Carbon Project: Environmental and Social Assessment 2010). The World Bank's interest in this area was multifold: successful carbon sequestration would also increase soil fertility, consequently contributing to smallholder food security. Vi-Agroforestry, a Swedish based NGO, implemented the KACP project and served as the project developer and carbon broker. At the end of six years, the project will have recruited 64,800 households to adopt sustainable agricultural land management practices, resulting in 1.2 million tonnes CO₂e sequestered over the next 20 years (estimated soil carbon sequestration rate of 1.4 tonnes of CO₂e ha⁻¹ year⁻¹). At project inception, 4USD/tCO₂e was the expected price of carbon. The projected total number of carbon credits generated for sale is projected to be 494,549 tons (including the 60% non-permanence buffer).

The KACP project is registered with the Voluntary Carbon Standard, and an Emissions Reductions Purchase Agreement was signed in November of 2010. The World Bank Biocarbon Fund has committed to buying 350,000 credits a year for 9 years. The pilot project now uses the "Adoption of Sustainable Agricultural Land Management by Landholders and Farmers" methodology (VCS VM0017). Farmers track their adoption of SALM practices, and emission reductions are measured by quantifying belowground carbon sequestration through the Roth C method and above ground carbon sequestration through approved AR methodologies.

Farmers able to sequester at least 0.5 metric tons of CO₂e per year were eligible to participate in the project. At time of study, KACP reported that 20,000 farmers had been recruited; most had started implementing SALM practices (though KACP does not have the exact numbers recorded). The first payment was initially scheduled for 2012, but payments have been delayed indefinitely due to problems with verification of sequestered carbon. Eventual payment will be determined by total carbon sequestered, and distribution and investment of the amount will be determined by the community groups contracted with Vi-Agroforestry. .

3.2 Methodology

The fieldwork was conducted over 9 months in Kenya during 2012. I held 18 focus groups and 30 semi-structured interviews with farmers. Not all focus groups and semi-structured interviews addressed all equity dimensions due to limitations on time. Focus groups and semi-structured interviews were drawn from members of the communities where KACP was involved. The goal of the focus groups was to identify key areas to explore in subsequent semi-structured interviews. I conducted focus groups and interviews with two groups of farmers: (1) men and women of different socioeconomic classes who had adopted different SALM practices and (2) female farmers who had been unable to adopt practices. After the initial interviews, I held additional focus groups to further explore themes that had emerged from the semi-structured interviews. Participants for the final focus groups were chosen by KACP staff based on the following criteria: 1) early adopters and late adopters of SALM practices 2) farmers from different socio-economic classes 3) households where the head of household (usually the male) does not live in the area.

Holding gender-separated focus groups allowed men and women to speak freely about the elements that affected their adoption (or non-adoption) of practices and the results from their adoption of practices.

In addition to speaking with farmers, I also conducted 26 semi-structured interviews with the KACP staff and extension agents to capture their perspectives on gender barriers. Their insights also provided a broader picture of the project's target areas and the cultural reasons behind some of the barriers. I also attended the KACP-sponsored farmer trainings, meetings, and workshops to probe

social factors that could affect equity. Themes emerging from focus groups and interviews with both staff and farmers were manually coded in HyperRESEARCH.

Table 3. Demographic breakdowns of farmers and staff interviewed

Gender composition	Number of focus groups (first and second round)	Number of semi-structured interviews	Number of staff interviews
Women and men	12*	N/A	N/A
Women only	4	15	N/A
Men only	2	15	N/A
Total	18	30	26

* In five of the 18 focus groups two or fewer men were present.

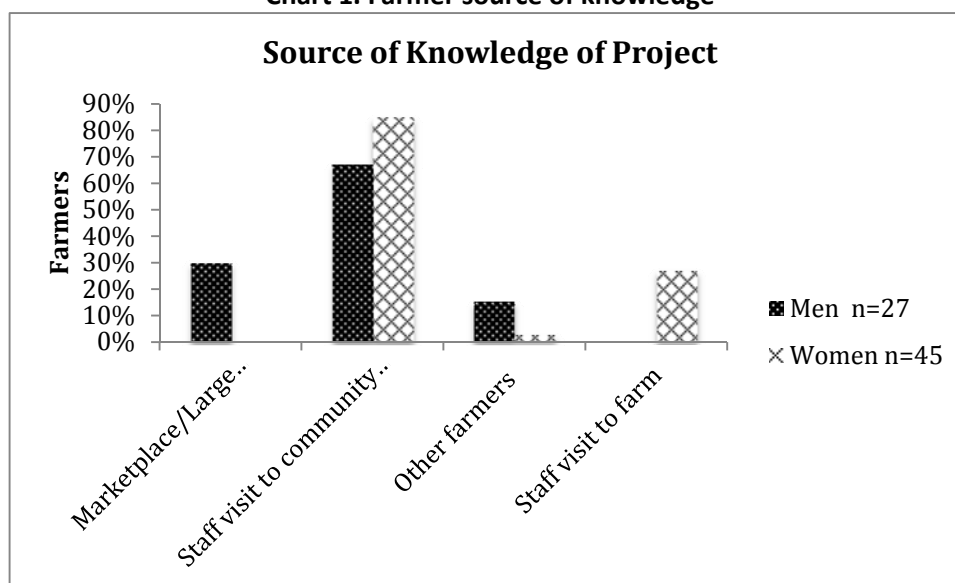
Aside from interviewing parties involved with KACP, I examined Vi-Agroforestry and World Bank documents to understand project design and implementation. I was interested in seeing whether the requirements and outcomes of the project paid specific attention to women’s constraints and needs. The complementary methods from multiple data sources allowed for the triangulation necessary to ensure internal validity and provided a more complete picture of the equity implications of climate mitigation projects.

4 Results

4.1 Equity in Access

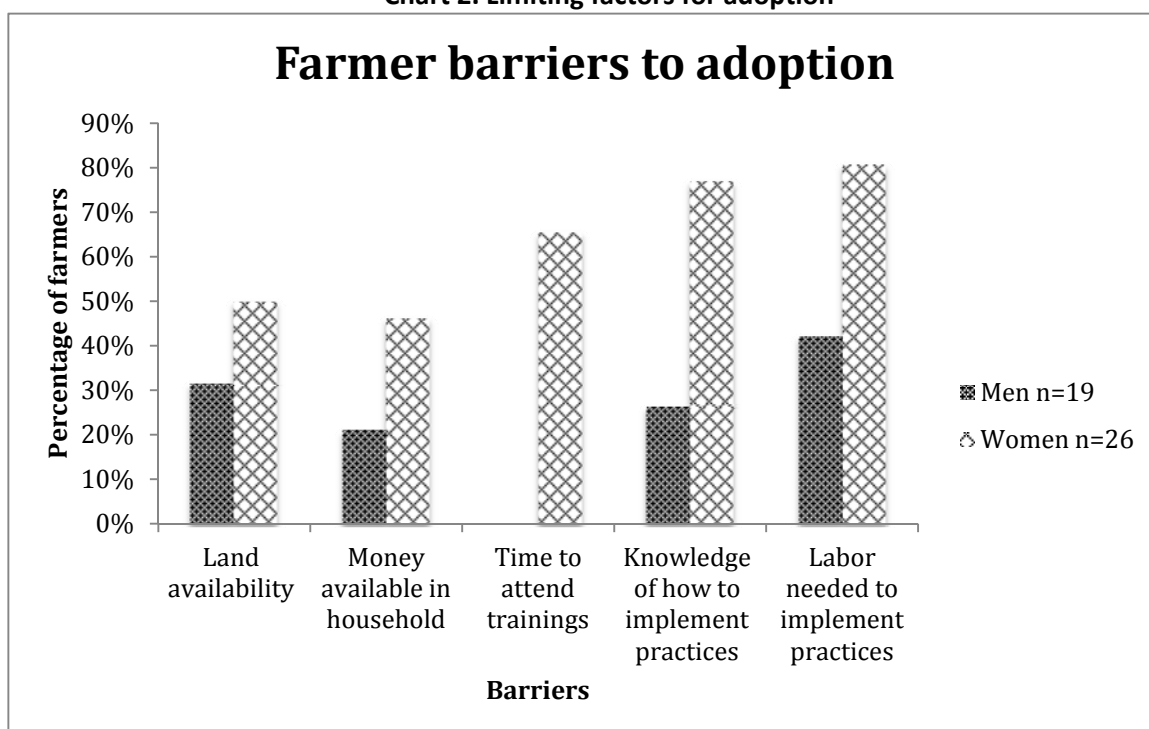
This section examines equity in access by studying: (1) how farmers came to know about the project and (2) the barriers to adoption that men and women experienced resulting from limited resources. How farmers came to know about the project was primarily influenced by the social spaces they occupied. Men tended to be more involved in public spheres, especially marketplaces. Women tended to stay in private spheres, remaining on their farms to attend to domestic duties. Methods of dissemination of project information varied by the venue and was strongly influenced by communication within farmer networks. Chart 1 highlights the source of knowledge for men and women.

Chart 1. Farmer source of knowledge



Women learned about the project almost exclusively from KACP field officers visits, whether to their farms or to farmer community groups. Contrastingly, men learned about the project through social interactions, which were divided between marketplace bazaars (gatherings), communication with other farmers, and staff visits to farmer community groups (Chart 1). Of the men surveyed, none learned of the project from staff visits to their farms. This could be because men are rarely on the farm, but perhaps also because field staff intentionally sought out women during visits because of their role as the primary farmers in the area. In addition, staff said women were generally more open to new ways to improve farming, and men were unwilling to adopt new practices until they saw positive results. KACP staff found it was more effective to work with women to encourage adoption of practices. Many men surveyed said they learned about the project through other farmers; while women may have also learned about the project from other farmers, it is possible that women found the staff visits more useful or refreshingly different from the cultural norm. Chart 2 summarizes the data on the main barriers to adoption.

Chart 2. Limiting factors for adoption



While both men and women cited lack of land, labor, or money as reasons they did not adopt SALM practices, their reasoning behind the barriers differed. Men argued that limited land areas restricted their ability to adopt SALM practices; however, many staff said that this was an excuse to delay adoption practices until they saw evidence of efficacy. Contrastingly, when women discussed land as a barrier, they were talking about a lack of *control* over the land – their lack of authority to make decisions. Even though the most recent constitution passed in 2010 stipulates that women can own land, most women in Kenya still do not own land or have control over decisions on the farm, despite being the primary laborers. Some women were able to adopt SALM practices if their husbands gave them a parcel so they could “be free and decide” (to use the words of a female farmer) which practices they wanted to adopt. More commonly, women had to ask men for permission before they could implement practices on the farm. One woman in Kisumu noted, “our land is in the name of the husband. If he dies, the brother takes over the land and says that he owns it.” Another, “we are sometimes scared to ask the men.”

Fifty percent of women surveyed cited time as a barrier to adoption, whereas none of the men thought time was a limiting resource. This is likely due to the division of labor on the farm: women did more on-farm management activities and had a better grasp of how much time would be needed to implement and maintain practices. Women’s additional perception that time is a barrier suggests that men do not fully understand the time required to upkeep SALM practices because they are not involved with the day-to-day operation of the farm.

The gender division of labor on farms is pronounced: women are typically responsible for activities such as weeding, planting, and watering; men are usually responsible for the larger tasks like initial plowing. Men perceived that they do the “heavy work” on the farm; this translates over to their perception of barriers to implementation of SALM practices. For example, men were concerned about the additional labor needed to dig compost holes or terraces—both practices that are labor intensive. Some characteristic comments from farmers regarding the labor barrier to SALM practice implementation include “labor can cause some financial obstacles” (man in Kitale) and “we want to, but we have no help” (woman in Kisumu), and “older mamas [women] do not have a lot of strength” (woman in Kitale).

In addition to knowledge of KACP projects, technical knowledge of *how* to adopt practices is also important for the eventual and continued adoption of practices. Both men and women learn the skills necessary to adopt SALM practices through trainings KACP staff conduct with community groups. Even with these trainings, some men and women said they did not adopt more practices on the farm because they lacked the knowledge of how to implement practices. Characteristic comments included: “technology keeps changing, it is difficult to keep up” (male farmer in Kisumu) and “we do not always know how to do something this or something that ” (women farmer in Kitale referring to SALM practices). Group trainings do not address the specific needs of individuals, and farmers who had tried and failed often became disheartened. There is a big push for KACP field officers to visit individual farms; this helps farmers customize practices for their farm’s specific needs, and reaches out to women who do not have time to attend trainings because of responsibilities at home.

4.2 Equity in Decision-Making

This section examines equity in decision-making by assessing the following:

- decisions that farmers make with regards to project related activities,
- decision-making in project management, and
- decision and action correlation.

Neither men nor women were included in any strategic planning sessions on project design (e.g. contract terms, benefit distribution). This was because the World Bank BioCarbon Fund had already decided to start a pilot project using a specific carbon calculation strategy (VCS VM0017) and a specific project developer (Vi-Agroforestry).

Community members (regardless of gender) did not take part in management decisions such as how the project should be implemented and what benefits they should receive. However, on the ground level, KACP staff were cognizant to involve women and men in practice adoption decisions. In contrast to carbon forestry projects, this VCS methodology possesses a great diversity of practices, giving households relatively more freedom to decide what practices to adopt.

While households did have the freedom to decide on practices, women did not experience the same freedom as men. Men made the “larger decisions” (farmer’s words) on the farm. This includes outwardly visible changes to the farm, such as crop selection and terracing structures. Similar to the

way farmers described division of labor, women were often limited to decisions that were less significant in scale, such as manure management. This inequity in decision-making within the household has ramifications in adoption of practices and eventual flow of benefits.

Staff addressed women's lack of voice by specifically working with women to exercise the decision-making that their cultural and household rules allowed – suggesting practices that women could adopt without necessarily needing men's approval. Surveyed women were appreciative of the voice KACP afforded them and the targeted help from project staff. Staff also aided with enterprise development and obtaining financial support from village savings and loans associations (VSLA), even though these were outside of project requirements.

Women's lack of voice in the community groups and in the household has implications for equity in benefit distribution. When the carbon revenue arrives, community groups have liberty to distribute the money to farmers as they see fit. Opinions differed greatly on how to distribute the carbon revenue—some thought the payments should go into group projects, and others thought it should be given to individuals based on land size or the number of practices adopted. A characteristic response from both men and women was, "Vi-Agroforestry tells us we should keep it at a group, but we will decide when we get it." In some interviews, both men and women said payments should be distributed to individuals based on hard work, but others said they wanted it to stay at a group because "Vi tells us the money will be more if we keep it with the group."¹ A larger proportion of men said they wanted the payments to be distributed to individuals, and KACP staff feared that men would co-opt the process because they held more prominent leadership roles in the community. However, at the time of research carbon payments had not yet been paid to community groups, so it remains to be seen whether or not there will be inequities in decision-making on benefit distribution.

Women's lack of voice in the household and community adversely affects their ability to participate in the project activities and also could negatively affect decisions on use of carbon payments. Staff hope to shift the paradigm towards complete gender equity in decision-making. Thus, the project is taking steps to address inequities in decision-making at a community and household level. KACP staff worked to develop female leadership in community groups and encouraged women to attend trainings and share with their husbands what they learned.

Ultimately, farmers – both men and women – still do not have equitable decision-making within the project. This exclusion of local communities and their lack of input is not unique to the KACP project. In past carbon forestry projects, local communities' inputs have not been taken into consideration in project design (Nelson and de Jong, 2003; Boyd, 2002). Farmer's lack of involvement in the project and limited knowledge could also affect their ability to bargain for benefits in the future.

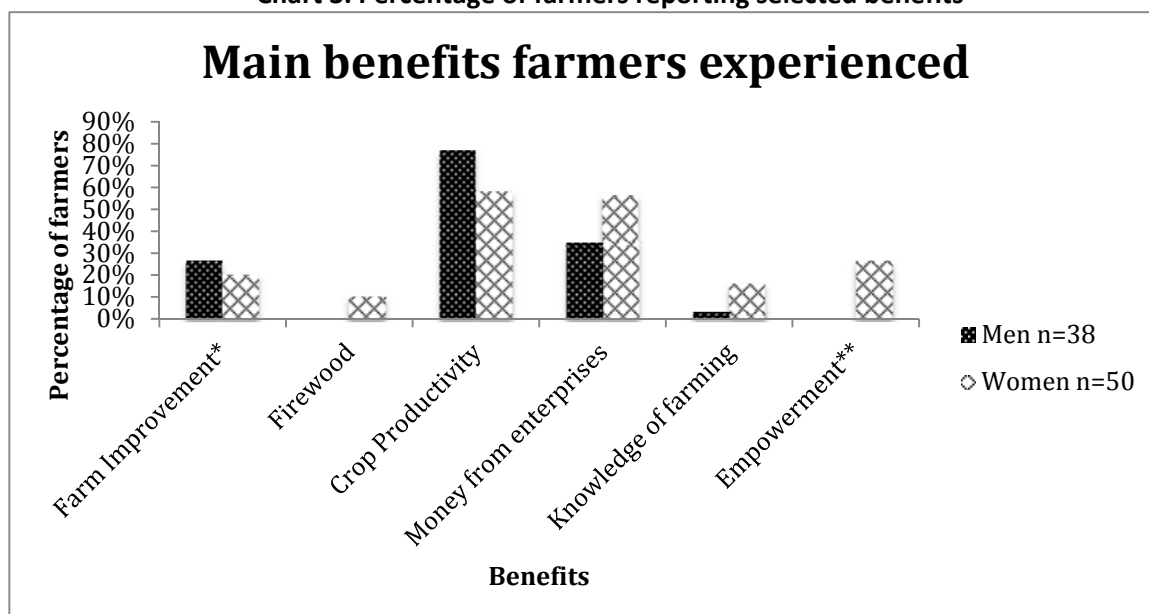
4.3 Equity in Outcomes

This section examines equity in outcomes (distribution of benefits) from the following angles:

- remuneration from carbon sequestration activities,
- non-monetary benefits from participation, and
- potential risks farmers are exposed to due to participation in the project.

¹ Farmers do not get more money if they keep the payments at a group level, but Vi-staff were trying to communicate that the money would go further if they kept it at a group level because the lump sum could be invested in enterprises.

Chart 3. Percentage of farmers reporting selected benefits



* Farm improvement includes decreased wind erosion, increased water retention, creation of composting holes.

** Empowerment for women means speaking up more, feeling heard and valued, and being able to decide how to spend the money they make from small enterprises

Both men and women experienced several positive outcomes from adopting practices. Households had more food – staff said many families were eating three meals a day instead of two. It is worthwhile to note that men and women had different definitions of crop productivity; men primarily spoke of it in relation to production increase, whereas women were referring to food available for direct consumption (e.g. from kitchen gardens). One woman said “I now have sukuma wiki for my children” (woman in Kisumu). Another woman said “Now I do not ask my husband for money to buy maize for ugali ” (woman in Kisumu). Men were oblivious to production from kitchen gardens and household maize consumption, a direct result of cultural norms in divisions of household labor. Kitchen gardens are considered “women’s work” and are primarily grown for household consumption, though the excess is sometimes sold at markets. Maize production is also a status symbol and culturally significant. Thus, men were more concerned with visible, on-farm maize productivity, as they want to be perceived as successful within the community.

Income from enterprises was another benefit both men and women discussed, but once again there is a difference between men and women in the type of enterprises and their benefits. Women usually adopt the smaller enterprises (poultry or kitchen gardens), whereas men prefer livestock (cows and goats). Cows and goats require greater initial costs, but the milk they produce is more lucrative. In addition, cattle is considered a status symbol and often used as credit if farmers need to borrow money.

The women interviewed during focus groups said that the men were not interested in the small on-farm enterprises or kitchen gardens because it only generates “small, small” money. However, the income generated from these enterprises were significant for women, because now women had personal income to purchase household items and avoid the conflict over household finances. Women also noted an increase in farm resources such as manure and crop residue that could then be incorporated back into the soil to increase fertility, reducing the need for inorganic fertilizer.

While the general categories of benefits overlapped between men and women, one significant difference is women felt more empowered from working with KACP staff. Empowerment for women occurs at the community level as well as the household level. In some cases, women have been invited to give talks to other farmer groups, and they felt like their opinions were valued. Women felt more empowered to speak up in the household, because men were more inclined to hear their opinions after they saw that the SALM practices were effective. One woman said, “My husband knows I am not wasting time if I go to trainings because I come back with knowledge” (woman in Kitale). Several women said, “my husband listens to me now.” In addition, many of the women believe they are less dependent on the men than before. One farmer said, “I do not have to wait for my husband now before I plant, because I know when a good time to plant is,” and another said, “before we had large plots of land.... now that it is subdivided we can manage it on our own.”

In addition, staff and farmers (both men and women) said that women make more decisions in the community and in the household. For example, many of the men interviewed said that Vi-Agroforestry taught them the importance of listening to women. One man said, “I have seen my wife knows. Now, I am okay with her going to the meetings” (man in Kitale). Another said, “I have seen changes on the farm so now I listen to her more” (man in Kisumu), and “now we believe in the mamas” (man in Kisumu). Some women have also said that men are more receptive to women’s ideas, especially when men see that the farms are more productive. One woman said, “I can go to trainings now without asking for permission” (woman in Kitale), and another one said “He sees this works and now we talk together” (women in Kisumu).

However, not all the outcomes of the project intervention were positive. Women reported working more hours on the farm because upkeep of SALM practices were labor intensive. While I asked about the hours women and men spent on adopting practices, they were unsure of the specific number of hours for many of the practices – many practices took multiple days to implement and farmers did not dedicate the entire day to implementing a practice. Thus, it was difficult to quantify the labor and time costs of adopting a practice, and as of yet it is still unclear whether women are doing more work on the farm without reaping the benefits of increased income from crop production. In addition, the end beneficiary from the carbon payment is still unknown; KACP staff believe that if community groups choose to invest the carbon income in enterprises, women are more likely to benefit from investment in smaller enterprises. Table 7 summarizes some of the equity implications of the project for women in the project area.

Table 7. Summary of results of gender equity implications for the KACP project

	Positive	Negative
Equity in Access	<ul style="list-style-type: none"> • Women had opportunities to learn about the project and practices through different venues • Women could still adopt some practices (e.g. manure management or composting) 	<ul style="list-style-type: none"> • Women have to ask men for permission to adopt practices • Women did not have enough money or labor to adopt practices
Equity in Decision-making	<ul style="list-style-type: none"> • Women have experienced increased leadership in small groups • Some men say they now listen to women more 	<ul style="list-style-type: none"> • Women are still kept from prominent leadership roles • Men still make majority of on-farm decisions • Women needed to consult men before making decisions
Equity in Outcomes	<ul style="list-style-type: none"> • Addresses some practical 	<ul style="list-style-type: none"> • Uncertain if women will

	<p>gender needs, i.e. household food security</p> <ul style="list-style-type: none"> • Addresses some strategic gender needs, i.e. more access to credit through VSLAs and empowerment. • Women who were unable to adopt practices could still benefit through enterprise development 	<p>benefit from carbon payment</p> <ul style="list-style-type: none"> • Women do more work on the farm to implement SALM practices
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5 Discussion

Study of the KACP project revealed that cultural context and project design play important roles in determining equity in access, decision-making, and outcomes for women. The approach and mission of the implementing agency also play an essential role in making progress towards achieving equity in access, decision-making, and outcomes. In contrast to carbon forestry projects, the diversity of practices allowed within project requirements can promote equity in access for women. Project staff can further equity in decision-making if they make it a priority to include women in the activities and decisions. Lastly, while both men and women receive benefits from the project, future projects will need to be cautious about perpetuating existing gender norms.

In the discussion section below, I highlight the major factors that influenced equity in access, decision-making, and outcomes in this project.

5.1 Equity in Access

Results show that both project design and cultural norms are drivers that determine equity in access. Initial knowledge hinges upon how staff reach out to farmers and the roles farmers occupy; barriers to adoption arise from resource limitations for both men and women, though for women limitations are heavily influenced by cultural norms and intrahousehold dynamics.

My results indicate that even though KACP successfully reached out to both men and women in their domain and that women and men faced many similar barriers to participation, women’s lack of voice in the household and lack of control over land and resources are significant factors that affect their ability to choose what practices to adopt on the farm. My results also indicate that secure land tenure, a common influencing factor in excluding farmers from adopting practices, has not been an important factor in adoption of practices for either men or women. Several possible reasons exist. Most households meet the minimum land size of 0.5ha, and even if there is no formal land title, farmers know the boundaries of their farm are clearly demarcated. In contrast to previous projects in which women were excluded from participating, the diversity of practices allowed under the SALM methodology allows women to adopt practices that would not be perceived as significant changes to the farm. In addition, women’s role as de facto farm managers has made it easier for projects to involve women, even though cultural norms that dictate men as heads of households still affect women’s ability to make more significant decisions on the farm.

Results also highlight that many of the barriers farmers face to adoption are not unique to men or women, and the limitations of resources are interrelated. For example, limitations on labor would not be a barrier if farmers had enough money to hire laborers. Similarly, time would also not be a limiting factor if farmers had the money to hire laborers. While this suggests that projects could provide monetary support to encourage adoption of practices, KACP’s method of encouraging

farmers to start from the resources they have on the farm and the loans they can get from the village savings and loans associations show that alternatives to upfront monetary payments are possible and can also provide additional benefits of encouraging self-reliance and strengthening community institutions.

5.2 Equity in Decision-making

Results on the current inequities in decision-making for both men and women reflect how international requirements of the project and top down program design create difficulties not just for women in particular but for communities overall. In addition to the current lack of equity in decision-making on important components of project design, lack of equity in decision-making in the future exists as well. Farmers do not have sufficient knowledge of the rules and requirements of the carbon project. Even though Vi-Agroforestry intends for farmers to engage in decision-making in the future and bargain for carbon payments, the complicated rules for calculating carbon sequestered and the channels through which payments will be distributed suggest that this is highly unlikely given the current lack of equity in decision-making. If projects want farmers to engage in decision-making in a meaningful way, program design will need to account for farmers' current exclusion from the global market despite being affected by it.

Results that farmers are willing to participate in the project even though they have very little input in project design indicates the importance of appropriate incentives and the need for short-term, immediate benefits to entice farmers. Farmers were willing to participate because they wanted benefits such as food security, enterprise development and access to funds. Results on equity of decision-making at the community and household level confirm that existing cultural norms make it difficult for projects to include women in decision-making and highlight the need for a diversity of practices to increase the opportunities women have for making on-farm decisions. This can lead to an increase of decision-making ability in the household if men see practices increase farm productivity. Results support previous recommendations that projects should focus on both the socio-political and economic roles of women when considering decision-making in the community (Boyd, 2002).

5.3 Equity in Outcomes

Results indicate that soil carbon projects can lead to more gender equitable projects than the more prevalent afforestation/reforestation projects. The SALM methodology addresses farming practices, and focusing on practices that are synergistic with farmers' livelihood strategies can lead to more equitable outcomes for communities and especially for women who do not have as many opportunities as men to work outside of the farm and engage with the local market sector (e.g. buying and selling livestock or timber).

Unlike previous projects, the project has not strengthened men's control over land or substantially increased resources available to men at the expense of women. However, results also show that the main difference between men and women and their ability to benefit from the project is control and voice in decision-making. This reflects existing gender norms and confirms that projects cannot expect that payments to the community and to the household will "trickle down" to women. Admittedly, the flow of cash in a household is difficult to track, but projects that take steps to ensure women are comfortable speaking up in the household and in the community groups will increase the likelihood of equitable carbon payment distribution. If not, projects will risk exploiting women for their labor. In addition, projects that promote women-friendly on-farm practices without addressing their lack of voice in the household risk reinforcing current gender roles of women bearing the brunt of farming and responsibility for food production.

Results show that project developers and funders hoping that carbon payments will generate substantial benefit for farmers' and women's livelihoods is overly ambitious. Neither men nor women experienced any benefit from the carbon payment. Instead, livelihood strategies that are synergistic with the approved practices are necessary for equity in outcomes for women. Even though the results of the KACP project show that the project currently meets the practical and strategic gender needs of women (e.g. providing for practical needs such as money and strategic needs such as empowerment), this was not listed as objectives in the project documents. The multiple benefits women experience reveal the importance of a development-focused intermediary, as evidenced by the benefits stemming primarily from income related to enterprise development and village savings and loans associations.

As agricultural climate mitigation project developers figure out the mechanisms for equitable benefit distribution, one option that can lead to more equitable outcomes for women would be to keep the carbon payment at a community group level and require or encourage groups to invest the money in smaller enterprises (e.g. poultry or fruit production), which are of more interest to women and have been shown to benefit women more and contribute to poverty alleviation (Gladwin, 2001, Guye, 2000).

Results suggest that in addition to decreasing costs related to outreach and technical support, working with groups and building social capital can facilitate equity in access, decision-making and outcomes. To increase the likelihood of equity in access, staff can encourage community groups to use money from VSLAs for adoption of SALM practices or for community groups to share labor so women can adopt the time and labor intensive practices. Results from equity in decision-making reflect staff sensitivity to local context and highlight the importance of encouraging female leadership. To increase the likelihood of decision-making, project staff can continue to encourage leadership and work with both men and women. Lastly, results show that community groups can potentially increase the likelihood of equity in outcomes through group investments in enterprises and to help both men and women adopt more practices in the future.

5.4 Implications for land grabbing

Thus far, KACP has not resulted in land grabbing by either the local elite in the community or the man of the household for many reasons. One, the project promotes agricultural practices on the farm, which are not perceived as lucrative. Farms, even with increased productivity, are still primarily for subsistence purposes. Two, staff did not emphasize carbon payments that would result from adoption of SALM practices, and at the time of research (2012) carbon payments had not arrived. Thus, men did not think SALM practices would generate substantial income. Three, the project did not promote alternative income generating activities that would compete with on-farm food production, e.g. eucalyptus, that men would be more interested in because of its high timber value.

While this case study of KACP suggests that agricultural carbon projects may indeed be a solution to increasing food security and contributing to climate change mitigation without the danger of land grabbing, agricultural carbon projects in the future will need to be cautious of how SALM practices may change dynamics in the household and possibly strengthen men's control over land if men start viewing the land as productive and if the carbon income is substantial. In addition, the project's focus on reaching out to women when promoting agricultural practices risk reinforcing current gender norms of women shouldering the brunt of farming responsibilities. Thus, project developers will still need to address equity in access, decision-making, and benefits not just in the beginning stages of the project but throughout its course, especially if women continue to lack secure land tenure.

6 Conclusion

This paper has analyzed the equity implications of the world's first soil carbon project to understand the relationship between gender equity and land grabbing. I found that equity in access, decision-making, and outcomes for women depended on women's decision-making ability in the household and community. Additional results showed that some factors influencing equity were not unique to women but rather to the top-down design of many climate mitigation projects. Projects can decrease the risk of land grabbing and adverse effects on women if projects have a gender-specific strategy and partner with development-focused intermediaries that understand local cultural norms. While agricultural carbon projects currently pose little risk of land grabbing and dispossessing women of their access to land, the long-term ramifications of the projects are still uncertain. Without sufficient attention to equity, agricultural carbon projects may follow the trajectory of other land-based mitigation projects and become yet another example of green grabbing.

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A convergence of factors has been driving a revaluation of land by powerful economic and political actors. This is occurring across the world, but especially in the global South. As a result, we see unfolding worldwide a dramatic rise in the extent of cross-border, transnational corporation-driven and, in some cases, foreign government-driven, large-scale land deals. The phrase 'global land grab' has become a catch-all phrase to describe this explosion of (trans)national commercial land transactions revolving around the production and sale of food and biofuels, conservation and mining activities.

The Land Deal Politics Initiative launched in 2010 as an 'engaged research' initiative, taking the side of the rural poor, but based on solid evidence and detailed, field-based research. The LDPI promotes in-depth and systematic enquiry to inform deeper, meaningful and productive debates about the global trends and local manifestations. The LDPI aims for a broad framework encompassing the political economy, political ecology and political sociology of land deals centred on food, biofuels, minerals and conservation. Working within the broad analytical lenses of these three fields, the LDPI uses as a general framework the four key questions in agrarian political economy: (i) who owns what? (ii) who does what? (iii) who gets what? and (iv) what do they do with the surplus wealth created? Two additional key questions highlight political dynamics between groups and social classes: 'what do they do to each other?', and 'how do changes in politics get shaped by dynamic ecologies, and vice versa?' The LDPI network explores a range of big picture questions through detailed in-depth case studies in several sites globally, focusing on the politics of land deals.

Gender Equity in Climate Change Mitigation: Where are the "mamas"?

Agricultural soil carbon projects that explicitly seek to promote sustainable agricultural land management practices (SALM) are quickly gaining attention worldwide for their promise to deliver the "triple-win": adaptation, food security, and mitigation. However, as the recent scholarship on green-grabbing suggests, a closer examination of how these projects affect local communities, in particular women who do not have secure land tenure, is necessary. I used the Kenya Agricultural Carbon Project (KACP) as a case study to understand the implications of gender equity on land grabbing. With respect to access, women had less access because they did not have the same level of influence in decision-making as men. On the project level, both men and women had little influence in establishing project requirements and potential benefits, as these were decided upon prior to farmer recruitment. Regarding outcomes, women tended to participate in more project activities, and would in return reap more non-monetary benefits than men. However, the cost of these benefits was non-trivial: women also spent more time on the farm due to the substantial time and effort required to implement SALM practices. While currently the KACP project has not resulted in land grabbing, this is most likely due to the type of practices the project promoted. However, agricultural carbon projects in the future will need to be cautious of how promoted practices may change dynamics in the household and possibly strengthen men's control over land, especially if men start viewing the land as productive and if the carbon income is substantial.



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