

**LAND RIGHTS AS A CRITICAL FACTOR IN DONOR AGRICULTURAL INVESTMENTS:**  
Constraints and Opportunities for YieldWise in Kenya's Mango Value Chain

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## **Abstract**

Investment to improve the efficiency of smallholder farmers has the potential to strengthen food security, improve livelihoods, and enhance supply chains. Given the foundational nature of land rights to agriculture, the authors argue it's important to accompany agricultural interventions with land tenure assessments to understand how those interventions can be impacted by – and potentially impact – smallholder's land rights. This paper explores how land assessments in agricultural interventions can highlight barriers affecting program uptake, sustainability, and success, thereby shedding light on new solutions for donors and implementers. The authors draw on the land tenure assessment they conducted for the Rockefeller Foundation on its YieldWise Initiative programming in Kenya as an example, presenting findings and recommendations from that assessment. The authors present six land-related issues and accompanying recommendations to help Rockefeller and program implementers design, implement, and monitor the program to attain more sustainable and equitable outcomes, particularly for women and youth.

**Key Words** Agricultural Investment; Kenya; Land Rights; Women; Youth

## **Introduction**

Investment to improve the efficiency of smallholder farmers has the potential to strengthen food security, improve rural livelihoods, and enhance food supply chains globally. To achieve these outcomes it is critical to implement socially inclusive and contextually sensitive approaches to ensure the meaningful participation of often marginalized stakeholders like women and youth, whose voices are in fact essential to achieving outcomes of sustainable and prosperous rural livelihoods and improved food security. While there are many barriers –both behavioral and institutional – one key constraint to women and youth more fully engaging in agricultural productivity and value chain enhancement projects is a lack of secure land rights.

Without enforceable land rights and secure access to land, farmers risk losing control of their most valuable assets. This risk increases when those assets become more valuable in the market, such as with urbanization, development projects, and increasing land fragmentation. Risks for women and youth may be particularly high. For instance, women may have access to land that is dependent on men, and a woman’s access may vary based on her marital status, the customs of her community, and her family’s composition and attitudes. Such insecurity may affect her ability to make decisions on how to use the proceeds of agricultural efforts, confidence in making long-term investments on her land, and willingness and ability to access credit. Equally, youth may face barriers to engaging in agricultural interventions, as they may not own land; yet, youth are often the best candidates to uptake innovative new practices and support the long-term sustainability of interventions.

This paper explores the land tenure situation of Kenyan mango farmers and the implications of these land tenure situations on the Rockefeller Foundation’s investment through its YieldWise Initiative into post-harvest loss prevention in Kenya’s mango value chain. The authors specifically examine how tenure-insecure situations of women and youth in the project communities in the Eastern and Coast Regions of Kenya impact their ability to fully participate in the YieldWise Initiative, and potential consequences to project success in achieving sustainable and inclusive development outcomes.

The paper begins with an introduction overviewing the YieldWise Initiative, followed by an articulation of why it is important to consider land issues within the context of agricultural investment programming like YieldWise. This is followed by an outline of the research methodology used for assessing land issues related to YieldWise in Kenya’s mango value chain. The authors provide a high-level overview of the land tenure situation concerning Kenyan mango farmers in the researched areas of Makueni, Machakos, Meru, Lamu, and Tana River counties. The findings of the assessment follow, grouped into six main issue areas: (1) challenges related to lack of complete title and registration in some mango growing areas; (2)

gender inequitable land and tree rights; (3) tenure insecurity for youth; (4) boundary conflicts; (5) land pressure and conversion; and (6) the relationship of land rights and access to credit. Each issue identified in the paper is accompanied by both policy recommendations for the government and project-specific recommendations for Rockefeller and project implementers. Of the six identified issues, the authors suggest the risks born of the tenure-insecure situations of women and youth pose the greatest risks to the initiative.

### **YieldWise Initiative**

Over the past half century, donors have invested significant resources to increase food production in response to global food security concerns amidst a rising population and climate change. Yet, less attention has been paid to what happens to that food once produced: somewhere between 30 to 50 percent of the food produced is lost during initial storage, processing, and distribution before ever reaching the consumer (FAO, 2018). In 2016 the Rockefeller Foundation launched the YieldWise Initiative to respond to this challenge.

The YieldWise Initiative brings together private, public, and non-profit actors to tackle food loss with the goal of reducing losses by at least 50 percent in representative value chains. YieldWise is exploring interventions including fostering market linkages, aggregating and training smallholder farmers on post-harvest management, introducing appropriate post-harvest loss technologies, and providing access to innovative finance mechanisms in an effort to reduce post-harvest losses. These post-harvest interventions are currently focused on four value chains in three African countries, including mangoes in Kenya, maize in Tanzania, and tomatoes and cassava in Nigeria. Following an initial three-year phase in these countries, the Rockefeller Foundation plans to scale the model to additional value chains and countries in a subsequent four-year phase.

In Kenya, YieldWise implementing partner TechnoServe is working with farmers in the mango value chain in Kenya's Central, Eastern, and Coast Regions. Kenya's mangoes are predominately produced by smallholders, with production spanning diverse agro-ecological zones; Eastern and Coast Regions are the primary producing areas responsible for 85 percent of national mango production, followed by Central Region (Fintrac, 2015). The mango is a highly perishable fruit with a shelf-life of two to 10 days. It is also susceptible to pests and diseases like fruit flies and mango rust. Through the YieldWise Initiative programming, TechnoServe aims to reduce food losses pre-harvest, during harvest, and post-harvest. TechnoServe is providing new technology, like fruit fly traps and storage units, alongside aggregation and training activities. They are also connecting smallholders to market and working to provide financing options. At the time of this research in late 2016, TechnoServe was working with 13,452 famers, with

plans to increase to 20,000 over the life of the project (Interview with Isaiah Kirema of TechnoServe, August 2016).

In 2016, the Rockefeller Foundation commissioned Landesa to conduct a pilot project exploring whether land rights played a significant role in success and outcomes in the initiative's work in Kenya's mango value chain. The pilot aimed to test the hypothesis that land tenure assessments can be an important tool to better understand how project activities can be designed, implemented, and monitored to achieve objectives and help to holistically improve rural livelihoods.

### **Land Tenure in the Context of Agricultural Interventions Targeting Sustainable Development**

Land rights are an important building block for creating enabling environments that promote agricultural productivity and sustainable growth. Secure land rights have been linked to increased agricultural productivity by providing incentives to invest in land and crop improvements, increasing opportunities for poor families to access financial services and government programs, and creating space needed for more optimal land use. Strengthened land tenure security, particularly of woman's land rights, has been associated with diverse development gains including: increases in productivity and income (Holden et al., 2009; Ali et al., 2014), improvements in food security and nutrition indicators (Espinosa, 2014; Allendorf, 2006), and progress on social empowerment measures (USAID, 2016; Allendorf 2006; Santos et al, 2014).

Given the foundational nature of land rights to agriculture, the authors argue it is important to accompany agricultural development interventions with land tenure assessments to understand how those interventions can both be impacted by – and potentially impact – smallholder farmer's land rights. When agricultural development interventions are implemented in the context of insecure land tenure, their potential impact may be diminished and/or more temporary in nature. If implemented without taking local tenure security into account, these interventions have the potential to cause harm for the most vulnerable and land insecure communities members, particularly women. Without enforceable land rights and secure access to land, farmers risk losing control of their most valuable assets. This risk increases when those assets become more valuable in the market, such as with urbanization, development projects, and growing rural populations.

Recently, an increased emphasis in understanding asset use, control, and ownership *within* the household has resulted in a growing body of evidence demonstrating that women's control and ownership of assets is linked to a positive range of development outcomes (Johnson et al. 2016; Haddad, Hoddinott, & Alderman, 1997; Meinzen-Dick et al., 2011; Quisumbing and Maluccio, 2003). Yet, women are generally

disadvantaged when it comes to asset ownership when compared to male counterparts. Regarding land ownership, fewer women than men in Africa own or have secure rights to the land they cultivate: a study of 10 African countries found that on average 12 percent of women and 31 percent of men owned agricultural land individually, while 39 percent of women and 48 percent of men owned land either solely or jointly (Doss, 2013). Despite this gender gap, few agricultural interventions consider their impacts on individual-level assets within the household. This is problematic, as such gaps are rarely narrowed and, in fact, are likely to be increased as a result of agricultural development interventions (Johnson et al., 2016).

Youth's access, control, and ownership of assets, including land, are additional factors to consider in agricultural development interventions. Youth may face barriers to engaging in agricultural interventions, as they may not own land. Youth access to rural farmland has been constrained by: increased life expectancies, which delay land inheritance; increased population pressure and continued land subdivision leading to unviable land parcels; poorly developed land markets; limited youth access to finance; state land redistribution programs that benefit adult men as heads of households; exclusion of youth land rights in land laws and policies; and youth's limited knowledge of complicated and overlapping statutory and customary land laws and policies (FAO, CTA, & IFAD, 2014; Durand, 2014; World Bank & IFAD, 2017; Bennell, 2010; Deotti & Estruch, 2016). Yet, youth are often the best candidates to uptake innovative new practices and support the long-term sustainability of agricultural interventions.

The authors posit that an understanding of land access, use, and control, particularly for individuals who may be marginalized within a project community, can support project implementers to design, implement, and monitor projects that reflect the holistic nature of rural livelihoods and better ensure long-term gains and sustainability of improved livelihoods. Failing to do so may even have unintended consequences that widen existing disparities within communities.

### **Land Tenure Assessment - Research Methodology**

Following the production of a research report overviewing the current formal and customary land governance system in Kenya, the authors conducted two rounds of participatory field research in select regions where YieldWise Initiative activities are being implemented in Kenya. The research team selected three project sites where the implementing partner TechnoServe is working with mango farmers in Makeni, Machakos, and Meru counties for the initial assessment in September 2016. A second assessment followed in the Coast Region in the counties of Tana River and Lamu in October 2016.

The research methodology featured a combination of semi-structured interviews and focus group discussions with key stakeholders that included women and men mango farmers – both project

participants and non-participants; youth; project staff and partners; farmers' association/group leadership; community and customary leadership; supply chain actors including buyers and processors; financial institutions; national land experts; and government representatives including sub-area chiefs, agriculture officers, land surveyors, representatives of the land registry, and members of the land control board.

### **Overview of Land in the Research Areas**

Land is one of the most productive assets for rural households in Kenya, and decisions over how it is owned, used, and transacted have significant implications for food security, economic growth, and household well-being. Land in Kenya falls into three classifications: public, private (freehold or leasehold tenure), and community land. An estimated 13 percent of Kenya's land is held privately, and an equal amount is considered to be held publicly. The remaining amount (approximately 74 percent) is community land (LANDac, 2016). The primary way people receive land is through inheritance, though purchase and lease are also common in many parts of the country. Most land owned and used by the mango producers under the YieldWise Initiative was acquired and registered prior to the ongoing land reform process<sup>1</sup>, under a body of colonial and immediate post-colonial land legislation.

#### *Makueni and Machakos*

Makueni and Machakos counties are located in lower Eastern Region, covering approximately 8,000 and 6,200 square kilometers respectively. Both are mainly inhabited by the Kamba or Akamba people. A majority of the population in both counties depends on land for their livelihoods. The prominent subsistence crops in the area are cowpeas, beans, pigeon peas, and maize. Both counties are considered semi-arid and prone to droughts. There are relatively few options for diverse agricultural production, and many farmers argue that the mango and citrus trees are the sole cash crops for the area.

The average farm size in both counties is under four hectares (Makueni County Government, 2013; Interview with Mwala sub-county agricultural officer, September 15, 2016). At the time of this research, TechnoServe worked with approximately 3,600 smallholder mango farmers between the two counties (Interview with TechnoServe Business Advisor, October 18, 2016). Most mango growing land in these two counties is held privately through state adjudication efforts beginning in 1965; however, many customary traditions continue to hold sway.

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<sup>1</sup> After the post-election violence in 2007-08, the country embarked on a historic land reform process aimed at addressing legacies of injustice that led to insecure land tenure and inequitable access to land across the country. Hallmarks of this reform effort include the adoption of a National Land Policy in 2009 and a new Constitution in 2010. Yet, the legal and institutional reform of the land sector has been slow and faced roadblocks; early challenges to implementation leave the situation on the ground largely unchanged.

### *Meru and Lamu*

Meru County is generally much less arid than Makueni and Machakos counties, although there is certainly some variation across the county. Subsistence crops including peas, beans, and maize are less risky and more reliable, and there is more diversification of cash crops including coffee, tea, banana, and french-beans. Meru is one of the leading horticulture producers in Kenya, with land predominately utilized for both subsistence and commercial agricultural use. The average land holding per household for Meru County is 1.8 hectares for small scale farmers and 18.25 hectares for large scale land owners (Meru County Government, 2013). TechnoServe is working with approximately 2,800 farmers across Meru and neighboring Tharaka Nithi County (Interview with TechnoServe Business Advisor, September 24, 2016). As part of this research, the team visited communities in Central Imenti sub-county where the Ameru people are the predominant ethnic community.

Lamu County in the Coast Region has a land surface area of over 6,000 square kilometers, including the mainland and over 65 islands. TechnoServe's activities focus in Lamu West sub-county with over 540 farmers (Interview with TechnoServe Business Advisor, October 20, 2016). Several ethnic groups reside in Lamu West, including the Swahilis, Arabs, Mijikenda, Oromo and Kikuyu, who came to the area as settlers from central Kenya beginning in the 1960s (Interviews, October 2016). Most crops are produced by smallholders in a mixed farming system under rain-fed conditions.

As is the case in Makueni and Machakos counties, mango growing land in Meru and Lamu counties is mostly privately owned. The important difference, however, is that this land is not the adjudicated family land of previous occupants (as is predominant in Machakos and Makueni counties), but is rather land the government designated for settlement schemes between 1958 and 2007, granted to those who came from other parts of the country to develop its farming potential.

### *Tana River*

Tana River County is the largest county in Kenya's Coast Region, covering over 30,000 square kilometers. TechnoServe is working with approximately 7,545 farmers in the county. Tana River is home to both farmers (Pokomo community) and pastoralists (Orma and Wardei communities), and the two groups have a history of intensive conflict (Interview with TechnoServe Coast Region Demo TA, October 17, 2016; Interview with TechnoServe Business Advisor, October 20, 2016.)

The county is very hot and dry, and largely non-arable (only about seven percent of the land area is arable). Over 70 percent of the population lives in poverty, and the county has experienced years of

chronic food insecurity in the context of a growing population, increased food demand, and diminishing livelihood opportunities (Tana River Government, 2013). Mango is the main cash crop in the county.

Mango producing lands in Tana River are exclusively located on community land, not yet declared as an adjudication area. Land administration and management are governed exclusively by customary norms and practices with ownership of land vested in families and clans. Under the Community Land Act passed in 2016, communities can now request the registration of their community land. However, the Government of Kenya is still in the process of developing the necessary regulations and guidelines for such procedures. The registered community can allocate part of its registered community land to community members or subgroups, but this does not result in the issuance of a separate title (the separated right is inheritable but not transferable).

Parallel to a community exercising its right to register community land, the government can still decide to declare the community lands as an adjudication area and systematically convert community land into individual/household titles. Whereas this could have advantages for the customary land owners, especially for these engaging in individualized forms of land based investment such as mango production, it could negatively impact on those groups that depend on communal land resources for their livelihoods, such as pastoralists, and the politics around decisions of whether or not to adjudicate are reported to be complex and at times heated.

### **Land Tenure Challenges for Kenyan Mango Farmers**

The authors have identified six central land tenure issues that affect mango farmers in the study area and should be considered in the design of mango value chain interventions, with initial recommendations for each:

1. Land Documentation
2. Women's Land Rights
3. Youth Land Rights
4. Boundary Conflicts
5. Land Pressure & Conversion
6. Land & Access to Credit

Each issue includes a brief description, an articulation of the environmental and institutional factors that contribute to this issue, and an explanation of the programmatic relevance of the issue. Following this, each issue concludes with a list of preliminary recommendations.

## **Issue 1: Many Mango Farmers Lack Complete Land Title and Registration**

### Issue Description

Smallholder mango farmers in Kenya may lack secure legal title to their land for a number of reasons, including: (1) they live on community land where individual title is not available; or (2) they live in private land areas but never received and/or have not registered secure title.

Deficiencies in titling and registration processes in Kenya may, if not addressed, jeopardize the possible benefits and advantages that were anticipated by the Government and Rockefeller Foundation to be realized in the context of investment in the agricultural sector. These include participation in land markets, access to agricultural credit, empowerment of women as land owners on their own account, and incentivizing the youth for investment in agriculture rather than migrating to urban areas, among others. It is important to note that documentation of land rights is not synonymous with security of land rights: in many cases farmers may feel secure enough in their rights to farm productively even without formal documentation. However tree crops represent a more valuable investment in land than do low-cost, annual crops, and some mango farmers indicated a reluctance to plant new orchards, or to invest in capital equipment such as for irrigation, without documented rights. This was especially so in areas where demand for land is rising, where out-migration has been significant, and/ or where land-based conflicts are already high. Furthermore, documented land rights are in some cases important for access to credit in the areas researched.

In Makueni and Machakos, the registration process has been slow, gradually spread over many years. Different data sources on effectively registered land parcels (thus individuals having acquired a title deed) vary from 20-30 percent to 80-90 percent for the same areas.<sup>2</sup> Data for land registration under settlement schemes are more consistent and higher. Arguably there are thus a significant number of smallholders that still need to secure title deeds to their lands.

Even where adjudication processes have been completed, and beneficiaries notified, significant numbers of the villagers involved did not have the means, knowledge, or motivation to actually collect their titles at the county offices. The Makueni County Land Registrar estimates that there are currently up to 50,000 title deeds that remain to be picked up, many of these arguably for ten years.

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<sup>2</sup> Officials interviewed as part of this research at the Makueni and Meru Central land registries (September 2016) reported registered land in mango-growing sub-counties at much higher rates than data reported in county development reports (Makueni County First County Integrated Development Plan 2013-2017, p. 17; Machakos County Integrated Development Plan 2015, p. 27; and First Meru County Integrated Development Plan 2013-2017, p. 30).

Similarly in settlement schemes, rights to land have often not been completely formalized, either because the government never completed adjudication processes, or because beneficiaries never completed all of the steps necessary to obtain and register a deed. In some settlement schemes such as in Lamu, most of the settlers have never received an official “discharge” document for their title. This was available for a small fee at the time of initial allocation. Most people did not pay it at that time, and the fee amount has accrued interest since then, costing between 40,000 and 140,000 KSH (USD 40-140). People perceive that the procedure to obtain the document is lengthy, taking upward of two or more years in some cases, and requiring bribes for expediting. However, in the absence of such a discharge, title holders are not able to subdivide or sell their property.

In Tana River, mango farmers are typically using community land, rather than land held by an individual or family. Under the recently passed Community Land Act (2016), communities can now request the registration of their community land, but the government has not yet taken necessary steps to implement the law.

Perhaps due to the impediments noted above, once smallholder landowners have formalized their rights as a result of first registration, many stop engaging with land administrations. Family land holdings are informally subdivided between heirs, without these subdivisions being registered by land administrations. Hence many of the originally adjudicated and registered parcels remain in the name of their first beneficiaries. This means that a number of legitimate and de facto land owners are not the legal land owners.

Parcels may continue to be legally owned and registered in the name of men who may no longer be alive or who currently do not own the land. According to a Makueni County Land Registry Official, “80-90 percent of rural land may be registered, but in the name of people who don’t exist. Most people don’t have the right documents – the land belongs to people who are already dead” (Interview with Makueni County Land Registry Official, September 2016). This creates a situation where land legally continues to belong to ancestors. This phenomenon seems to occur less on settlement land (e.g., in the research sites in Meru County).

The common practice of informally subdividing land creates insecurity at the household level, as transfers to the next generation are frequently not recorded. This appears to contribute to confusion and, in some cases, tension, around inheritance and can lead to increased conflict among multiple heirs over time. When women’s names are not added to the titles, wives may not be certain that a husband will not sell or lease land without her knowledge, and widows may lack security that their land claim will not be threatened by a male relative.

### Project Impact: Effects on Project Participation, Outcomes, and Sustainability

Although a significant number of project beneficiaries were exposed to land adjudication and title deed registration, not all adjudication and title deed registration processes have resulted in the beneficiary receiving a registered title deed. However, such a deed is often a condition to fully take advantage of direct and indirect benefits created by value chain investment projects. The impact of incomplete land registration processes, poor engagement in land administration duties of land owners and a continued use of customary practices on land that was taken out of the customary sphere could have several important impacts on the project, including:

- Informal, unregistered and prolonged land subdivision processes may have a negative impact on the uptake of the project by women and young men.
- Incomplete land registration and a lack of administrative follow-up on land subdivisions and inheritance reduces possibilities to access credit. Commercial credit provision for farmers mainly operating on family land is difficult given the uncertain land tenure situation amongst family members.

### Recommendations

- Project donors and implementers could work together with the Government of Kenya to raise awareness on land administration processes for landowners. A number of awareness raising activities could be targeted to project intervention sites as part of an early engagement strategy. This should focus on informing mango growers on the need to complete registration procedures to receive a title deed.
- The Government of Kenya could embark on a rigorous information campaign on implementation of the Community Land Law for areas classified as unregistered community land such as in Tana River. In these areas, communities will need to make a decision to either adjudicate land for individuals and families (first registration) or to maintain a community approach to future land management. The new Community Land Act provides opportunities for individuals and families to take their land out of the community tenure shell, but there are some restrictions attached to this, and a robust, focused sensitization campaign will be critical to ensure that all who are affected in these areas understand choices and are involved in decision-making processes for the community.
- The Government of Kenya could take important steps to improve performance of land administrative service delivery. The performance of county land administrations will need to be improved to respond to the needs to maintain an updated land registration system and respond to

the needs of smallholders to actively participate in this. This will require substantial effort and investment which fall beyond the scope of the project and will need specific funded support. In the near term, project implementers could increasingly interact with county administrations where it deploys its activities to encourage and support efforts to address outstanding land administration reforms, including:

- Further decentralization of land administration and increased capacity building at the county level, as the current distance between service delivery and client is too large resulting in extra costs, including opportunity costs;
- Reducing bureaucracy and costs associated with administrative subdivision of registered land and land transfers;
- Creating more transparency on the process, costs and conditions for land registration and updating information;
- Considering systematic action rather than on-demand interventions for updating land registration data; this can take the form of specific “campaign” interventions, which will also reduce costs
- Proactive publicity for picking up land title deeds without considering possible penalties for delayed pick-ups; and
- Considering new approaches to reduce survey costs.

## **Issue 2: Land and Tree Rights are Inequitable for Women**

### Issue Description

Women play an important role in management of mango trees within many of the project households: women may be the ones managing the mango in regards to initial planting, applying fertilizer, spraying pesticides, fending off animals, and harvesting. However, very few women are considered to be the ultimate owners of mango trees or the land upon which the mango is planted.

Despite constitutional and legal safeguards for women’s land rights, in practice, customary rules and institutions often exclude women from exercising rights and community decision-making on land and property. Lack of awareness of legal rights and weak institutional and political motivation to implement legal provisions limit women’s access to land and tree rights.

The authors’ findings suggest where project participants have constricted and insecure land and tree rights they also lack control of the proceeds from those land and trees. In the case of female YieldWise participants, this may mean that within the household, husbands may have exclusive interaction with

mango traders and complete control over the allocation of the mango proceeds. Illustratively, one respondent said, “Even if you give [payment] to a woman, she has to transfer the money to her husband. It’s culturally an issue because at the end of the day, the land still belongs to the man. The male factor comes in at the end of the day in financing [and] if it’s a man, it may not get home to the family.”

This financial control may pose problems within the household. Research participants reported that women and men tend to use this income differently: women are more likely to use the income to support household well-being, such as investing in school fees, food, or household and farm improvements while men more often than women use the proceeds for entertainment purposes, such as expenditures on gambling, alcohol, drugs, or prostitution. According to one TechnoServe Business Advisor, “When the man gets the cash, he is not seen at home, and he goes around Hola Town. When he returns, he is drunk and violent. Women go to hospitals. Families are earning but children are not going to school.” This statement also points to a link between women’s insecure land rights and intra-familial disputes, which range from disputes between husbands and wives over re-allocation of land to a new spouse, a husband leasing or selling the family’s land without consulting the wife; or a widow contesting a brother-in-law taking her and her husband’s land after his death. Conflict over the use of mango proceeds was also reported as a key driver of intra-familial disputes, including those escalating to domestic violence.

The following three classifications illustrate how a particular marital status, household situation, and community customs may impact a woman’s rights over land and trees.

*a. Women in Monogamous Marriage*

The communities visited as part of this research are organized on the basis of the family and extended family or clan, and all groups practice patrilocal marriage traditions (upon marriage, the wife moves to her husband’s home village), and at least mostly patrilineal inheritance traditions (land and trees are passed down through generations through male family members). While it is possible in some communities for women to inherit land and trees from their parents, purchase/lease land, or receive allocations from elders and chiefs of reserve lands, the most common path for a woman to access land is through her spouse. When women do inherit land, our research showed that it is smaller portions than that inherited by men.

Under the patrilineal system, the patriarch (male head of the family) has almost exclusive powers as a landowner and land manager. In some cases the patriarch may be the father or grandfather of the male head of the (nucleus) household. The patriarch is the land use planner over family land, making decisions

on land allocation for family members, his wife and children. He manages his land and is the owner of most of its resources, including fruit trees.

*b. Women in Polygamous Marriages*

As in other research project areas, land in Tana River County is predominately acquired and accessed by inheritance through male lineage: fathers pass some portion of family land and mango trees to their sons at their time of marriage. In Tana River County, however, there is the additional consideration of inheritance and land allocation in the context of polygamist households. Polygamy is the norm for the community and having up to four wives is common.

Each time a husband marries a new wife he reduces and reallocates the rights to land and trees of each existing wife and her children, including adult married sons. When a husband marries a second wife, for example, she receives one half of the land and trees that were initially shared between the husband and the first wife. This is true even where the husband and first wife have had adult, married sons to whom they have allocated some portion of their total parcel. This causes a great amount of tenure insecurity among the wives and sons, who can never be sure when the amount of mango orchard they are allocated will be halved or even further reduced, which inhibits the incentives of wives and sons to plant and maintain mango trees.

*c. Widowed and Divorced Women*

Widows' rights to land and trees vary considerably between visited project sites. In the majority of areas visited, wives have very strong customary rights to inherit parcels held in their husband's name. These women continue to tend to the mango trees, and report mango sales are an invaluable income source that enables them, as single women, to continue to support their households. Some reported that without the mango proceeds, they would need to sell their land in order to pay for school tuition, but the income from the mango has allowed them to keep their land and continue to invest in their family's futures.

However, there are some exceptions observed in which widows face threats to maintain the land. Widows may be chased from the land by their in-laws upon their husbands' deaths, especially if they have no adult sons or if they do not agree to marry one of the husband's brothers. In Tana River, where the impediments to widows are particularly pronounced, if a widow has adult sons, she is generally allowed to stay with them on her husband's family's land, but if a widow has no children, she is expected to leave her deceased husband's land. If widows are allowed to stay on the land, in-laws may steal and sell the mangoes at the time of harvest. Female YieldWise participants in Makueni County reported, for instance,

that there were multiple cases before the chief to resolve disputes between widows and brothers-in-laws who had taken portions of land with planted mango.

Divorced women appear to have few if any socially recognized rights to land and mango trees held within the marriage. Divorced women may attempt to return to their birth village, where their father and/or brothers will sometimes be able to provide them with a small portion of land. In other cases they try to lease-in farmland, or rent a place in town to live, earning money by washing clothes or through other small businesses.

### Project Impact: Effects on Project Participation, Outcomes, and Sustainability

The tenure insecurity of women poses potential barriers to participation and uptake, but also jeopardizes the project's sustainability and success in achieving its objectives, particularly around contributing to stable and growing farmer livelihoods. Ultimately, a mango intervention that does not take cognizance of gender issues will disproportionately benefit men and exacerbate gender inequality. Each of the impacts is explored in more detail below:

#### *a. Project Participation*

TechnoServe has committed to ensuring at least 35 percent of the YieldWise participants in Kenya are women. Across all of its projects, TechnoServe implements a gender policy to advance gender equality out of the recognition that “maximizing the inclusive economic growth that is required to achieve widespread prosperity requires the full and unencumbered participation of women and girls” (TechnoServe, 2015). Given the barriers to land and tree ownership women face, TechnoServe staff report they were close to that target participation number, but had not been successful in reaching 35 percent across all regions at the time of this research (Interviews with TechnoServe Business Advisors, September and October 2016). In order to reach and surpass this metric, additional efforts may be necessary to address the underlying land rights issues that play a factor in women's ability to participate in the project.

Beyond measuring participation quotas, it is also vital to look at the underlying rationale for purposeful efforts to include women's participation: that is, to maximize inclusive growth, women must be involved, and this involvement must be meaningful. The findings of this study suggest that women may not be able to realize the full benefit of participation in YieldWise, even if they are registered participants, because they are generally not considered to own land or mango trees, and so often cannot control the proceeds from the mango harvest or make decisions about long-term uses of the land. Furthermore, women may not have certainty that planted trees will remain in their care, as a change to their family structure through

divorce, marriage to a second wife, or death of a husband could impact their access to the land. Underlying land issues must be identified and addressed to support meaningful participation.

*b. Meeting the Initiative Goal and Direct Impact Targets*

When married women participate in YieldWise, findings suggest it is often on behalf of their husbands, which limits their ability to fully participate. For Rockefeller to meet its initiative goal to improve millions of rural lives through food loss reductions and its direct impact objective to contribute to “stable and growing smallholder farmer livelihoods and improved rural lives,” the findings of this study indicate that it is crucial to enable women to take a more active role in the decision-making within the household, particularly over the mango proceeds. As these proceeds comprise the single greatest source of cash income for the family throughout the year, this determination can be pivotal for the family’s well-being.

Women interviewed as part of this research largely reported they have less economic power than men and rarely are even present at the mango sale to know the amount of the payment. One female mango grower stated, “We as the women care for the trees – we are the ones who are always present at the trainings – but when it comes to the time of money, the women aren’t there... we feel uncomfortable about this.” Another woman participant shared, “We are very happy with the work TechnoServe is doing, and the training we are receiving. It would be good if steps [could be made] to equalize women with the husbands so we have something to be proud of. Right now, we have nothing at the end of the day. We are just workers.”

Currently, men almost exclusively control the cash from mango sales, and project participants and implementers alike report that men are less likely than women to spend their earnings in ways that benefit the entire household. As a result, the exclusion of women from participating in YieldWise means that impacts of the project on health, education, and food security outcomes are limited.

*c. Project Sustainability*

Land insecurity for women also poses a threat to the sustainability of project interventions and the targeted medium- and long-term benefits. YieldWise may invest significant time and resources in aggregating women into business groups and providing them training and access to technologies to improve their household’s mango yields. However, without secure rights to the land, women may lose access to the planted mango after the death of a spouse, a divorce, or a decision by her husband to take a second or third wife.

Several current female YieldWise participants reported they were engaged in ongoing disputes with a male relative who had taken the land with planted mango following the death of a husband, and according to the respondents, after a brother-in-law saw the value of the mango investment on the land. As outlined earlier in this paper, re-allocations of land within a household to accommodate new wives emerged as a prominent challenge for participants in Tana River County. Such practices cause a great amount of tenure insecurity among the wives and sons, and could undercut potential medium- to long-term project gains. Beyond this, according to a broad range of interviewees, this reshuffling often causes significant conflict within the family with some reported cases of disputes escalating to fatal violence.

### Recommendations

- Donors and project implementers must set guidelines for gender inclusion in agricultural interventions like the YieldWise Initiative. These guidelines should be based on an assessment of needs and gaps and potential best practices in addressing these (for example, strategies should include clear objectives, monitorable indicators, and commitments to gender disaggregated data collection).
- The Rockefeller Foundation and/or TechnoServe could consider adding an element to its YieldWise Initiative to enhance direct access of women to farmland through purchase or lease. This could include, for example, assisting groups of women to purchase or lease-in land for mango production outside of “family land” areas.
- Project implementers could increase efforts to ensure meaningful participation and benefit by women mango farmers through sensitization, training, and capacity building on women’s land rights. For example, TechnoServe could leverage its existing business groups (which feature regular meetings, governance structures, and involve a training and capacity building component) to strengthen efforts to sensitize YieldWise participants at the household level about women’s land rights and benefits of including wives fully in project benefits.<sup>3</sup> Activities that could be added to existing programming could include:
  - In early engagement with a business group, conduct a gender sensitive land-focused needs assessment, to include identification of insecure tenure situations among women in the community, land tenure aspirations among women in the community, and women’s expectations for participation in the project around empowerment.

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<sup>3</sup> TechnoServe staff is already implementing measures to include the participation of women, including sensitization at the household level and participation quotas. Participation quotas are often a key starting block, but they alone are not sufficient and should be coupled with sensitization, training, and capacity development to result in greater benefits to the project.

- Based on the gender-sensitive needs assessment, together with the women participants identify action steps for activities to include in the programming. These could include awareness-raising activities to ensure that women and men understand what rights women have, and have space to discuss these rights, as well as training activities on topics like: formal legal rights and protections for land and property rights; customary protections and barriers; intra-household land dispute analysis; conflict resolution tools; community processes and resources; assertiveness and communications training; and budgeting and financial planning tools. YieldWise implementers could find support in partnerships with local organizations working in areas of land and property rights, women's empowerment and governance, and community resource management to design and implement such activities.
- In addition to complementary training activities, consider additional project safeguards, such as requirements that multiple members of the household are present at the point of sale. Initial research indicated that TechnoServe is already implementing several project safeguards to ensure gender sensitivity, such as taking into account meeting times with women's responsibilities and permitting the attendance of young children to trainings to encourage mother's attendance. Such project design and staffing decisions should continue to promote meaningful participation of women in the initiative.

### **Issue 3: Land and Tree Rights are Inequitable for Youth and Cause Intergenerational Conflict**

#### Issue Description

Most youth are often among the adept and motivated at learning new skills and technological advances. It is therefore critical for organizations, governments, and communities to engage youth as equal partners in agricultural value chains to boost rural agricultural productivity and food security. Ironically, in most parts of sub-Saharan Africa including Kenya, youth are often excluded from vital rural development and poverty reduction efforts, partly because young people generally have limited access to productive assets such as land.

Youth rarely own land or mango trees in the five counties subject to this assessment, and few young people are independent mango farmers or YieldWise Initiative participants. Elderly men own most land used for mango production, and therefore the trees on this land, generally not passing land rights down to their sons until the time the sons are married (in Tana River), upon death of both parents (Lamu), or upon death of the father or at the time that the father considers that his sons are old enough to care responsibly for the land (Eastern).

The Kenyan National Land Policy and Constitutional provisions underscore the importance of secure youth access to land for sustainable youth livelihoods. However, across the five counties visited, research findings suggested that the underlying land tenure and land rights laws and customary practices make it difficult for young men and young women to participate in the YieldWise Initiative. Progressive constitutional and land policy provisions have not been implemented to advance and safeguard youth land rights in visited areas. In all project areas, cultural biases against young people persist and the biases prevent unmarried sons and daughters from owning land and mango trees. Land use and ownership decisions are dominated by village elders, chiefs, and government authorities.

According to the 2009 Kenyan National Land Policy, poor and vulnerable Kenyans including youth lack voice, power, and representation in society, which limits their opportunities to access, use, and own land and land based resources; and the land rights of vulnerable individuals and groups are not adequately protected and are subject to bias and discrimination. The policy also notes that vulnerable groups lack cohesive institutions to represent their interests. In Eastern and Coast regions, the team found no evidence of active youth engagement in land-related decision making processes. In all project areas, the absence of rural institutions working to advance youth access to land and participation in agricultural value chains including the YieldWise Initiative was evident.

Inheritance is one of the main ways youth acquire land, but the opportunities for young men to acquire land and mature mango trees through inheritance patterns are few. Cultural norms also make it very improbable that young women would become owners of mango trees, although in isolated cases a father may pass one to two trees on to his daughter. While youth could, in some cases, acquire land by purchase or settlement (rather than through inheritance) for the purpose of planting new trees, this would require upfront capital for a long-term return on investment, which reportedly deters young people in the areas visited.

In all areas visited by the team, there seemed to be a fairly high level of distrust between parents and their children in regard to the land.

This creates tension particularly between fathers and sons. A number of farmers reported the existence of intra-family conflicts between sons and parents over mango trees and land within the research area. Intra-household land disputes were common in all of the visited communities, ranging from disagreements over what to plant, parcel boundaries, leasing or selling without proper consultation, sub-division, and inheritance. Because mango is a high value, long term crop, in some cases, this can heighten such disputes into physical violence. The following anecdote comes from a YieldWise participant in Makueni County:

*A son had planted mango trees on land his father informally gave to him, but his father then took a new wife, and wanted to give his step-children the land. His son refused, so the father burned the son's planted mango trees. In retaliation, the son murdered his father.*

It is critical to secure youth access to land to prevent potentially volatile disputes resulting from land insecurity. Conflicts between youth and parents over land access have escalated to violence with some frequency. A TechnoServe official reported that there are cases in Kilifi County where sons have killed their fathers so they can take over land ownership and also to prevent the fathers from marrying second wives whose sons would increase competition on family land.

In addition to the barriers constructed by insecure access to land, there are other challenges inhibiting youth involvement in the YieldWise Initiative, including difficulty accessing upfront capital, impatience to invest in a slow-maturing crop, and attitudes that prefer new opportunities in cities as opposed to the “old ways.” Aware of both the need to include youth and the challenges in achieving this, TechnoServe is working to try to better engage youth in aspects of the mango value chain that appeal to these attitudes, including crop maintenance with pesticides and transport of produce to market.

#### Project Impact: Effects on Project Participation, Outcomes, and Sustainability

Youth lack tenure security over land and trees, and therefore have less incentive and ability to engage proactively in mango farming or the YieldWise Initiative. Most mango farmers and YieldWise participants are elderly men; youth are largely missing. This may have important short- and long-term consequences for project success.

First, a number of stakeholders shared that uptake of new technology and innovation is low among elderly male farmers. If this is so, it will impede immediate project success and also the longer term possibility of increasing the value of the mango harvests in Kenya, including for export markets. One mango buyer expressed concern over the sustainability of production, stating, “I only see security in the future of the mango plant for 10 years, until the elderly male farmers pass away...I would like to be a major mango exporter in 10 years' time. But unless youth have greater and clearer rights to land, production will be phased out in 10 years' time.”

Second, the project will not benefit from the vibrant voice and energy of young people in decision-making and leadership.

#### Recommendations

- Project donors and implementers should set guidelines for youth inclusion in agricultural interventions, like the YieldWise Initiative, based on an assessment of needs and gaps and potential best practices in addressing these.
- The Rockefeller Foundation and/or TechnoServe could consider adding an element to YieldWise activities to directly enhance access of youth to farmland through purchase or lease. This could include, for example, assisting youth groups to purchase or lease-in land for mango production outside of “family land” areas. In particular, in areas where inequitable youth access to land results more from cultural biases and less from land scarcity, as in Tana River, steps could be taken to advocate for youth access to unused land away from the river. Group access can be promoted to facilitate cooperative mango farming by youth-led groups such as the Wachakome Youth Branch in Tana River.
- TechnoServe could expand engagement of youth in various components of the YieldWise value chain. TechnoServe is already taking steps to engage youth in parts of the value chains that both interest them and are possible without land access, such as pesticide application and transportation. Such efforts should be continued in addition to exploring the options identified above for improving youth access to land, so they can engage more fully in the initiative and support the sustainability of project interventions in the long term.
- The Government of Kenya, with support from donors like Rockefeller, could promote youth access to land and mango tree ownership through collaborative youth-oriented land rights advocacy and educational campaigns at the local and national level.

#### **Issue 4: Boundary Conflicts Can Impede Tenure Security for Mango Farmers**

##### Issue Description

Boundary disputes were present in all visited areas, with variance in the number and severity of reported disputes across the different mango growing areas.

In Eastern Region and in Lamu County, most boundary conflicts occur within families, largely between brothers who move boundary markers to get access to more fertile land or land with planted mango trees. Farmers and government officials also cite some cases of disputes between neighbors over moving boundary markers at night, although these inter-family disputes appear less common and predominately occur in the case of a neighboring absentee landowner. In the visited areas of Machakos and Makueni, the land surveyor plays an important role in the resolution of such boundary disputes (the land surveyor will

convert the general boundary into a legal boundary by surveying the boundary lines); in Meru, the area chief (a civil servant) and customary leaders both play important roles in dispute resolution.

In the Kenyatta 1 settlement scheme in Lamu County, farmers raised two related concerns. First, the government informed original settlers that they were each receiving 10-acre plots. However the approximations used at that time were not accurate, and many of the parcels are less than 10 acres (8-9 acres). Second, people sometimes remove the original survey markers in order to expand the area they are farming, or to attempt to legitimize the full area they have been farming. Double allocation of “reserve” land by customary and administrative authorities has also led to conflict in newly settled areas, such as in the swath of public forest land between Mpeketoni and Witu in Lamu County. Settlers bring boundary disputes to elders and the administrative chiefs, who are usually able to resolve them.

In Tana River, where most land is communally owned,<sup>4</sup> boundary conflicts within families are common. People call on family and clan headsmen to resolve these types of conflicts but, nonetheless, some escalate into violence. The following anecdote comes from a YieldWise participant in Tana River:

*One man who had a number of sons decided to divide his land so that each son (upon marriage) got a parcel, but only the first one shared a boundary with the river—the others were layered back from there toward the interior. When the father died, the sons who received plots without water access disputed the way the father had divided the parcels. The conflict escalated, and the sons who wanted water access ended up destroying all the mature mango trees along the river.*

Although adjudication could help to create clarity with boundaries, the political environment related to adjudication is complex. Some farmers and officials perceived that pastoralists in Tana River have politically impeded efforts to adjudicate the community/family land holdings near to the river, in order to retain a status quo that allowed them more flexibility to access the river for their livestock, especially during the drought periods.

While the issue of double allocation does not appear to be as serious in Tana River, issues do arise in relation to confusion over customary rules about “abandonment.” In general, when the clan elders grant land to a family or an individual, it is under the condition that it will be cultivated. But there do not appear to be any hard and fast rules about what portion needs to be cultivated, nor for how long a plot can be abandoned before it can be claimed by another. This ambiguity results in conflicts.

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<sup>4</sup> Mango producing lands in Tana River are exclusively located on community land, not yet declared as an adjudication area. Because community land has not been adjudicated, boundaries are often unclear, and conflicts between families and clans are common. Under the 2016 Community Land Act, community land can be registered to community members and subgroups but the registration does not yield separate land titles for individual community members. But without some form of title, certificate or other written document, boundary conflicts, double land allocation and overlapping land claims will likely continue.

### Project Impact: Effects on Project Participation, Outcomes, and Sustainability

Reported cases of violence and destruction of mango trees linked to boundary disputes suggest that farmer-to-farmer and intra-household boundary conflicts can potentially affect YieldWise participation, uptake, and sustainability. It may be difficult for farmers with disputed land rights to participate in the project and if they do enroll, their mango trees could be destroyed by aggrieved neighbors, family members, or pastoralists.

In Coast Region, farmer-pastoral land-related conflicts could threaten the YieldWise Initiative if they lead to violence, death, and displacement of farmers, as witnessed during the 2012 clashes between the Pokomo farmers, agro-pastoralist Orma, and pastoralist Wardei tribes in Tana Delta.

### Recommendations

- The Government of Kenya could support and strengthen alternative local dispute resolution and arbitration mechanisms to address farmer-pastoral conflicts and intra-household boundary disputes that may lead to violence and disruption of YieldWise Initiative activities. This includes supporting administrative chiefs and village elders' capacity to swiftly, fairly and competently resolve land-based disputes.
- The Government of Kenya could take robust steps to implement the Community Land Act, which will lead to the formal demarcation of clan and village boundaries.
- The Government of Kenya, through its county governments, could facilitate robust participatory land use planning processes to improve community awareness on individual, clan and village boundaries.
- The Government of Kenya ought to continue to support ongoing initiatives to promote lasting peace in Tana River, including efforts to demarcate livestock routes and grazing areas to prevent farmer-pastoral conflicts.
- The Government of Kenya, with support from project implementers, could support the verification and certification of project participants' land sizes and boundaries in mango growing areas in settlement schemes.

## **Issue 5: In areas where demand for land is increasing due to development, land currently held in mango orchards may face intense pressure for conversion to other uses**

### Issue Description

Despite the relatively high value of mango trees relative to other agricultural crops, the risk that agricultural land with mango trees is converted into other uses is real. Drivers for such land use changes include the following:

In Eastern Region counties such as Machakos and Makueni, agricultural land faces increasing pressure for real estate and commercial development, mainly induced by the proximity of Nairobi and its fast expansion. In other counties such as Meru, projected road infrastructure development increases land values mainly for future habitation and may price out the agricultural use of land, including for mango production.

The application of legislation such as the Environmental Management and Coordination Act may have a negative impact on agricultural land use. Regulatory provisions do not allow agricultural activities within a 100m wide strip from river beds (Interview with TechnoServe Business Advisor, October 20, 2016); this area is however prime land for Tana River agriculturalists, including for mango producers who irrigate their trees.

Future adjudication of community land in areas classified as unregistered community may also interfere with existing customary ownership rights and mango tree tenure arrangements. It will depend on how this adjudication is conducted to assess whether current mango tree owners may lose some access. It could have a negative impact if existing customary family and clan claims are not respected. Community land use planning under the new Community Land Act may also cut access to mango tree land if not well implemented.

### Project Impact: Effects on Project Participation, Outcomes, and Sustainability

In the event that land under mango trees is converted into other uses or alienated from its legitimate/legal owners, identified beneficiaries cease to be project participants. Hence it is important for the project to take measures to i) prevent the occurrence of such changes and/or ii) to ensure that proper compensation is paid in case land acquisition or conversion cannot be avoided.

### Recommendations

- To improve land tenure security in mango growing areas, the Government of Kenya could take steps to implement land use planning measures at the county and community levels, including:

- Conduct participatory land use planning exercises in a way that encourages clarity of rights among various users, and includes protection of mango growing areas (and areas used for other high value fruit production) where possible;
  - For mango growing land near to or within conservation areas, apply existing legislation (such as the Land Act of 2012, article 19) in such a way that standing mango trees in protection areas (100m from river beds) can continue to be managed and used in an environmentally-sustainable way; and
  - Take robust steps to implement the Community Land Act.
- Donors can envisage (and implement through the support of qualified partners) rapid land use planning at the community level in the initial phase of the project, in the event that such plans do not yet exist. This exercise could be used to identify and address land use threats to mango orchards, and to eliminate certain fragile or possible disputable lands from project participation.

#### **Issue 6: Access to Credit Using Land as Collateral is not Straightforward**

##### Issue Description

Credit is important to agricultural production for several reasons. Perhaps most importantly, it can help smallholder farmers to plan and balance out expenses for inputs (working capital) over the course of the growing cycle and year, enabling important purchases such as fertilizer, soil preparation, pesticides and equipment, at the beginning of the growing cycle rather than over time as revenues come in from the harvest. Credit can also be an avenue for smallholder farmers to make large-scale, longer-term purchases, like irrigation systems, or value-added production facilities, and to invest in new time and money-saving technology such as post harvesting technology (cold storage). Indeed, the Rockefeller Foundation has identified “access to capital” as one of the primary medium-term objectives for the first phase of YieldWise.

Land and tree tenure is closely tied to access to credit for mango farmers in Kenya, in at least four significant ways.

First, where mango farmers use community land, rather than private land, it is not possible for them to use their land as collateral for a loan. In Tana River, for example, the mango orchards are located on untitled community lands, which the local Equity Bank branch is not able to accept as security. Likewise, Equity Bank does not accept deeds to family land as collateral, as they noted the extremely high potential cost of

trying to foreclose on even deeded land that was ancestral (versus settlement lands, for example), due to social pressure to keep this land intact as a larger family holding.

Second, it is often not possible for farmers to use rights to land held individually in settlement schemes as collateral, because many of these farmers have never received a “discharge” letter from the Government of Kenya, which would allow them to officially transfer their land. As noted above, these letters may be costly and take numerous bureaucratic steps to obtain. According to an officer at the Equity Bank branch in Meru County, proof of ownership of farmland is necessary for loans upward of 100,000 KES (or approximately USD 1,000). This was necessary for a loan application whether or not the land would actually be used as collateral.

Third, cultural norms and fear of foreclosure on land may keep some farmers from accessing credit, even if they are able to qualify for it. In Lamu, Machakos, and Makueni, farmers stated an aversion to collateralized credit, saying they were afraid of foreclosure given the risky nature of mango farming. Some based this aversion on negative past experience with loans. They also mentioned a general cultural taboo against credit involving interest rates.

Fourth, while some financial institutions may accept mango trees as collateral, this is also complex due to the high frequency of tenure disputes over trees - usually within families and often related to disputes over the land that lies beneath the trees. The Equity Bank manager in Tana River described the high transaction costs the bank must pay to determine who is the real owner of the trees, though noted that the bank did accept trees as collateral, given their very high social value and the unlikely event that anyone would risk losing them through non-payment of a loan. The branch manager recounted one situation involving losses to the bank from intra-family conflict, where at the time of sale (and thus repayment of the loan) two brothers showed up at the harvest site to claim the income, which resulted in an escalating conflict between them that ultimately left the mangoes rotting on the ground and the bank loan unpaid.

#### Project Impact: Effects on Project Participation, Outcomes and Sustainability

Lack of security and clarity of land tenure in the YieldWise Initiative area undermines a primary objective of Phase 1, which is to improve access to credit for all actors in the mango supply chain. Constraints on access to credit could undermine the ability of mango farmers to leverage any gains in profits or income (achieved through reductions in post-harvest loss) in order to increase production or invest in improved post-harvest loss technologies. This in turn could have longer-term negative impacts on food security.

## Recommendations

- Through YieldWise and similar programs, donors like Rockefeller can continue to work with banks to design “alternative” lending products more suitable to smallholder farmers. Lending to groups of farmers, such as those aggregated within YieldWise by TechnoServe, could prove much safer than lending to individuals.<sup>5</sup> This underscores the importance of YieldWise’s farmer aggregation component, and the need to continue efforts already underway by YieldWise implementers in Meru to work closely with financial institutions in designing alternative products suitable for small farmers.

## **Conclusion**

The assessment on land tenure linkages within Kenya’s mango value chain has highlighted some important areas for further focus and investigation. The assessment has also underscored a number of areas where TechnoServe and Rockefeller have succeeded – in both project design and implementation – in benefiting Kenya’s mango farmers. Some of these successes build on gains realized through Project Nurture,<sup>6</sup> and include the potential benefits of small farmer aggregation in accessing credit and other services, as well as the work with financial institutions to develop and make available well-targeted financial products to mango farmers in the project area. TechnoServe’s goal that 35 percent of YieldWise farmers be women is a good guidepost and starting point, and implementing staff appear committed to bolstering women’s meaningful participation.

At the beginning of every supply chain are the farmers, and the land that is the source of their livelihoods. For a stable, dependable supply of production over the long term, it is important that farmers hold secure rights to their land. Otherwise, motivation to improve production may be limited, as farmers must divert energy and time into defending land against potential or actual conflict. Within pluralistic and customary systems of land governance, like those that exist in Kenya, rights to land for women and youth are often particularly tenuous.

Looking at the YieldWise Initiative activities in Kenya through the lens of land tenure security underscores several areas for improvements in uptake, participation, and success. These include taking steps to support the completion of registration processes related to privately owned land, so that farmers

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<sup>5</sup> The branch manager for Equity Bank, Tana River confirmed this, stating that the bank’s track record for loans to groups of farmers under Project Nurture was very good, with a zero percent default rate in 2014-15.

<sup>6</sup> Project Nurture was a five year partnership between The Bill & Melinda Gates Foundation, The Coca-Cola Company (TCCC), and TechnoServe that aimed to double the fruit incomes of more than 50,000 smallholder farmers in Kenya and Uganda. In many ways, Project Nurture can be viewed as a building block for the YieldWise Initiative, and there is some overlap between YieldWise and Project Nurture participants.

may experience maximum security of their rights, and fully participate in land and credit markets. These also include supporting the implementation of long-awaited legislation on community lands, giving project participants in these project areas greater clarity over their rights and, in turn, greater incentives to invest in their land.

Most importantly, the assessment has brought to light land-related constraints on the ability of women and youth to participate in and benefit fully from YieldWise. These, in turn, could have significant implications on the ability of the project to achieve its food security goals, at least as these pertain to rural households in project areas.

Regarding youth participation, the authors found that elderly men own most land and trees used for mango production, while youth rarely own land or mango trees. Interviews revealed that few young people are independent mango farmers or YieldWise participants, as the youth have less incentive and ability to independently participate in the YieldWise Initiative or engage proactively in mango farming. However, limited participation of energetic and technologically savvy youth in the mango value chain may threaten project success and sustainability; a number of interviewees reported concerns over the long-term sustainability of the mango industry if it were to only be a “retirement crop for old men.” The authors provide several recommendations, including that Rockefeller should set guidelines for youth inclusion in the Initiative and work with the government in intervention areas to promote youth access to land through collaborative, youth-oriented educational campaigns.

Women face similar issues in full and meaningful participation in the initiative activities. Women play an important role in management of mango trees within many of the project households. However, very few women are considered to be the ultimate owners of mango trees or the land upon which the mango is planted. The authors’ findings suggest where female project participants have constricted and insecure land and tree rights, they also lack control of the proceeds from those land and trees. Currently, men almost exclusively control the cash from mango sales, and project participants and implementers alike report that men are less likely than women to spend their earnings in ways that benefit the entire household. As a result, the exclusion of women from fully participating in YieldWise means that impacts of the project on health, education, and food security outcomes are limited. To address these issues, Rockefeller could develop program-level guidelines for gender inclusion, including requirements for gender disaggregated data collection, and implementing partners should increase efforts to ensure meaningful participation and benefit by women mango farmers by integrating land rights awareness, training, and capacity building in beneficiary recruitment and programming activities.

The Rockefeller Foundation's land tenure assessment of YieldWise shows that land tenure assessments within agricultural interventions can highlight barriers affecting program uptake, sustainability, and success through a different lens. With this added perspective, donors and project implementers can identify risks and develop effective steps within a project to address land-related challenges to design, implement, and monitor projects in a manner that reflects the holistic nature of rural livelihoods and better ensures long-term gains and the sustainability of improved livelihoods. These authors' findings suggest that land tenure assessments are particularly useful tools for better understanding the barriers vulnerable groups like women and youth face in fully and meaningfully participating in agricultural projects and helping stakeholders identify solutions to support the deepened participation of these groups.

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