



Land Governance in an Interconnected World

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LAND AND TREE TENURE INNOVATIONS FOR FINANCING SMALLHOLDER COCOA REHABILITATION IN GHANA

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Abstract

Expansion of cocoa farming is the primary driver of deforestation in Ghana's high forest zone. Ghana is the world's second largest cocoa producer and cocoa provides significant benefits: improved livelihoods and social welfare, family and corporate income, and foreign exchange earnings growth. However, cocoa yields and production are declining due to old and diseased trees, an elderly cocoa farming population, high cost of cocoa farm rehabilitation, lack of finance and knowledge of agroforestry systems, and land and tree tenure constraints that act as a barrier to tree replanting. USAID partnered with cocoa buying company (ECOM) and chocolate brand (Hershey's) to pilot an approach to increase land and tree tenure insecurity via rights documentation, resolve disputes via ADR, finance cocoa farm replanting, and strengthen community and land resource governance via community advocacy. This paper outlines the pilot's approach, discusses achievements and shortcomings, and concludes with implications for scaling up and sustainability.

Key Words: cocoa, finance, Ghana, smallholder, tenure



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1. Introduction

1.1. Commodity Driven Deforestation: A Global Problem

Forests harbor significant terrestrial biodiversity, produce multiple environmental benefits (Lambrechts, Wilkie, Rucevska, & Sen, 2009), and play an important role in people's livelihoods. However, forests are being lost at an alarming rate. Emissions from land use and forests accounted for approximately one-third of anthropogenic carbon dioxide (CO₂) emissions from 1750 to 2011, and 12 percent of emissions from 2000 to 2009 (Smith et al., 2014). This is driven in part by expansion of internationally traded commodities, with global emissions dominated by large-scale commercial production of soy, palm oil, cattle, and timber products, with other commodities and smallholder production more important in certain countries (Wolosin, 2013; Henders, Persson & Kastner, 2015).

In Ghana the expansion of agricultural lands has been the primary driver of deforestation and degradation in the high forest zone for the past century, with timber extraction and mining also contributing to forest loss. The cocoa-producing high forest zone of southern Ghana had an average annual deforestation rate of 1.7 percent between 2000 and 2010, with approximately 110,000 ha of forests converted to agricultural land per annum during the period 2000-2015. This amounted to 75 percent of the region's total deforestation, and approximately one third of this agricultural conversion was due to cocoa expansion (Government of Ghana, 2016).

In response to commodity driven deforestation, companies are taking efforts to reduce and eliminate deforestation from their supply chains. These efforts catalyzed the creation of the Tropical Forest Alliance (TFA) 2020, a global initiative aimed at reducing commodity induced deforestation. A similar initiative focused on cocoa in Ghana and Cote d'Ivoire – the Cocoa and Forests Initiative – was launched by the World Cocoa Foundation, the Sustainable Trade Initiative, and the International Sustainability Unit of the Prince's Charities in 2017.

1.2. Cocoa Production and Deforestation in Ghana

Cocoa was first introduced in Ghana in 1888 and has since experienced a series of expansions and contractions (Kolavalli & Vigneri, 2011). Ghana is the second largest producer in the world (FAO STAT), and cocoa provides significant economic benefits that include jobs, improved livelihoods and social welfare, expanded tax base, family and corporate income, and foreign exchange earnings growth. In the 1970s, Ghana was the world's largest exporter of cocoa, but its dominance in the world cocoa



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market—along with cocoa’s contribution to foreign exchange earnings—has since been in decline. Cocoa’s contribution to foreign exchange has declined from 45 percent in the 1960s, to 35 percent in the 1990s, to around 25 percent in 2012 (Essegbey & Ofori-Gyamfi, 2012). The decline in production can be attributed to several inter-connected factors: many cocoa trees are old and low yielding, shade trees have been removed from large areas that have stressed cocoa trees and increased disease, and poor farm management practices. Overaged cocoa trees cover 25 percent of total area, and Cocobod estimates that 40 percent of cocoa farms needing replanting. Old and diseased trees are not being replanted fast enough as many cocoa farmers are elderly, there is a high cost to cocoa tree removal and farm renovation and rehabilitation¹, farmers do not have access to finance and lack knowledge of modern agroforestry and farm renovation and rehabilitation best practices, and a subset of farmers have weak or insecure tenure that acts as a barrier to replanting (Roth, Antwi & O’Sullivan 2017).

The Government of Ghana is taking steps to boost yield and income while also trying to reduce cocoa driven deforestation. In 2016, Ghana’s Cocoa Board announced plans to more than double cocoa output to 1.6 million tons by 2026. Ghana’s Intended Nationally Determined Contribution to the Paris Agreement on Climate Change includes a 45 percent reduction of greenhouse gas emissions from the cocoa landscape. The government is also participating in the Cocoa and Forests Initiative to promote deforestation free cocoa production and has developed the Ghana Cocoa Forest REDD+ Program to reduce deforestation in the high forest zone to be funded by the Forest Carbon Partnership Facility.

These two objectives of increasing cocoa production and reducing deforestation require a new approach to sustainable cocoa cultivation that controls forest cutting, builds back shade trees and secondary growth forests on fallowed cocoa lands, and increases cocoa productivity. Expansion of shaded cocoa systems would help Ghana achieve its greenhouse emission and cocoa production targets, improve the livelihood and resiliency of Ghana’s cocoa farmers, and increase the sustainability of the global cocoa value chain, thereby benefitting global producers and consumers. However, to do this, the tenure, finance, and knowledge barriers to replanting unproductive farms with agroforestry systems need to be overcome.

1.3 Supporting Sustainable Cocoa and Reducing Deforestation

¹ This paper refers to farm rehabilitation to encompass cutting and replanting of cocoa trees; elsewhere this practice is referred to as farm renovation with rehabilitation limited to pruning and farm management.



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The Ghana Cocoa Forest REDD+ Program (GCFRP) is Ghana’s approach to reducing deforestation and increasing yield in the cocoa-growing region. GCFRP will leverage private sector investment in cocoa and government funding, and combine this with payments from emission reductions from the Forest Carbon Partnership Facility (FCPF) to help deliver results. It will be jointly coordinated by the National REDD+ Secretariat at the Forestry Commission (FC) and the Ghana Cocoa Board, in partnership with a broad set of private sector, public sector, civil society, traditional authority, and community stakeholders. GCFRP is being developed to reduce deforestation and forest degradation in the high forest zone through five pillars that comprehensively address key barriers to forest conservation and sustainable cocoa production. These five pillars are: i) institutional coordination and measurement, reporting, and verification; ii) landscape planning within hotspot interventional areas; iii) increasing yields via climate-smart cocoa; iv) risk management and finance; and, v) legislative and policy reform – including tree tenure (Government of Ghana, 2016).

Table 1: Strategies to Curb Deforestation and Increase Forest

	Strategy	Constraint	Impact on Deforestation
	Maintain 30-40% forest canopy through planting of shade species, conservation & controlled cutting	Forest canopy cover is less than the 15% minimum requirement to be categorized as forest ²	Builds back forests on cocoa farms via agroforestry to offset natural forest loss elsewhere
	Increase landowner incentives to practice bush fallow thereby increasing secondary forests	Landholder suffer from logging offtake that prevents restoration of forest cover for shaded cocoa	Helps to expand secondary growth forests off-reserve helping to offset deforestation elsewhere
	Promote land and tree tenure security and provide financial and extension support to rehabilitate cocoa	Over-aged cocoa farms are not rehabilitated because tenants risk losing their farms once the trees are cut down driving cocoa expansion	Incentivizes rehabilitation of existing cocoa farm land, reducing expansion into natural forests. Requires government and community mechanisms to curb encroachment
	Increasing jobs and incomes outside primary cocoa cultivation to reduce human pressure on land	Increasing land scarcity drives encroachment into gazetted forests regardless of cocoa intensification strategies due to	Increase skills and employment opportunities that enable shifting labor out of primary cocoa cultivation and into value added,

² In line with requirements under the Clean Development Mechanism (CDM) and REDD+ readiness efforts, Ghana has defined its open forests as being a minimum of one ha, having at least 15 percent canopy cover, and containing trees that are at least five meters (m) tall (Emissions Reduction Program, 2014). Ghana excludes agricultural plantations regardless of height and canopy cover from its forest definition, yet shaded cocoa is included under forest in Ghana. The shade trees in the cocoa agroforest would constitute a forest if they offer enough canopy cover and are taller than five meters in height. However, in 8 of 10 districts studied by Acheampong et al. (2014) crown cover did not qualify as forests because measurements fell below the 15 percent minimum threshold.



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		population growth, poverty, and lack of alternative employment	non-farm wage employment to reduce land use pressure
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Ghana’s government faces an enormous challenge in balancing demands for higher cocoa production with plans to minimize deforestation, environmental degradation, and biodiversity loss. Strategies aimed at preventing or reducing deforestation could play out differently in different contexts. For example, increasing tenure security and facilitating cocoa rehabilitation (intensification) may fail to reduce deforestation if land scarcity, continued population growth, poverty, and lax enforcement encourage encroachment. Or, they may reduce deforestation in zones where land use pressure is less extreme. There are multiple pathways that could reduce deforestation in Ghana, with greater or lesser relevance depending on context or location. Strategies aimed at afforestation and promoting agro-forestry indirectly offset lands lost through deforestation; other strategies help to control deforestation directly (Table 1).

Intensification would reduce pressure on primary and secondary forests regardless of the size of forests left which is small and shrinking. But if Cocobod continues to increase cocoa production targets beyond limits that enable sustainable cocoa cultivation and forest conservation, and there isn’t better policing or incentives to protect natural and secondary forests, further deforestation would be dampened but not deterred. Beyond strategies aimed at increasing tenure security and rehabilitating cocoa, other policy mechanisms will be required to effectively curb deforestation: land use planning to support and validate land use governance; public advocacy; a comprehensive strategy on optimal forest and cocoa production; increasing community livelihoods from sustainable forest management; and supporting non-farm employment opportunities as a profitable alternative to resource extraction, among others. Increases in tenure security may play a larger or lesser role in facilitating these strategies, but play an extremely important role nonetheless.

2. USAID Funded Improving Tenure Security to Support Sustainable Cocoa Pilot

In 2016, the US chocolate company, Hershey’s, and their supplier of Ghanaian cocoa, ECOM, began collaborating with the USAID funded Tenure and Global Climate Change (TGCC) project on how to address tenure and financial constraints that inhibit cocoa productivity and contribute to deforestation around smallholder cocoa farming in Ghana. The collaboration was split into two phases.

The first phase comprised an initial assessment (Roth, Antwi & O’Sullivan, 2017) of challenges that confront Ghana’s efforts to address the productivity-deforestation linkage. Large areas of the cocoa landscape are comprised of old age or diseased cocoa trees with low yield that need replanting. Historic



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government-held rights to shade trees combined with a desire to remove shade trees to boost short term yield incentivized the removal of shade trees from the cocoa landscape at the expense of biodiversity, carbon stocks, and long-term productivity. High costs of tree removal combined with insecure tenure among smallholders create barriers to replanting. As a result, smallholder farms are stuck in an inefficient deadlock between lack of access to finance and seedlings, knowledge of good agroforestry practices, and contestations around ambiguous land and tree tenure terms that encourage farmers to keep unproductive cocoa farms in use. Unblocking this deadlock would help create a conducive atmosphere for farmers, landowners, and customary and statutory authorities to mediate and negotiate standard terms for existing customary tenure arrangements and provide support to improve productivity over the long term as well as reduce deforestation. The assessment report concluded there is an urgent need for tenure and cocoa sector reform that:

- Improves coordination between customary and statutory structures;
- Reduces conflict between landlords and tenants;
- Clarifies and documents rights in different contractual arrangements to strengthen tenure security;
- Transfers rights over timber trees to landowning groups;
- Channels payments from revenue-sharing schemes to cocoa farmers; and,
- Assists smallholders with cocoa rehabilitation to increase land use value.

The assessment report informed the second phase, which consisted of implementing an on-the-ground pilot over an 11-month period from February – December 2017 in Nyame Nnae, a cocoa farming community in the Asankrangwa district of the Western Region of Ghana. The overall goal of the pilot was to collaborate with Hershey's and ECOM to better understand and test the components of a model for public-private collaboration to help smallholder cocoa farmers in Ghana increase tenure security, replant old cocoa farms, and increase yields and productivity, that would over time reduce deforestation and degradation (O'Sullivan & Norfolk, 2017). The learning objectives contained in this overall goal are premised upon the following theory of change:



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Theory of Change

IF land tenure of women, youth, vulnerable, and other smallholder cocoa farmers can be clarified and made more secure, and IF tenure of shade trees of these cocoa farmers can be clarified and made more secure, and IF cocoa farmers receive technical and financial support to replant old, unproductive cocoa farms, THEN unproductive cocoa trees will be cleared and replanted, shade trees will be better protected and encouraged within cocoa farms, rights and access to finance of a broad group of cocoa farmers will be improved and THEN over time this will result in increased biomass and crown cover in cocoa farms, increased cocoa yields and farmer incomes, improved livelihood and environments of men, women, and young cocoa farmers, and reduced pressure to expand cocoa production into forest.

Achieving the final objective of reducing pressure on forests would require additional work on land use planning, regulations, and enforcement, which was unfortunately beyond the scope of the pilot. The overall goal contained four specific objectives:

1. Increase tenure security of smallholder cocoa farmers through clarifying and documenting the rights of landholders and tenants that discourage removing old cocoa trees under stranger tenancy (*abunu* and *abusa*) arrangements.³
2. Promote the increase in carbon stocks in cocoa farms over the long term by explaining new Forestry Commission policy on tree tenure and documenting tenants' and landlords' beneficial interests in shade trees.
3. Replant old, unproductive cocoa farms to increase productivity over the next 5-10 years. This requires developing a financing model to replant old cocoa farms and provide extension services to farmers.
4. Develop lessons and recommendations for the Government of Ghana, Ghana's Cocoa Forest REDD+ Program, the World Cocoa Foundation, TFA 2020 partners, and others working on

Box 1: Pilot Results

- 190 farms mapped and tenure rights documented (37 percent women)
- 71 farms rehabilitated
- Three model tenure templates developed for mapped farms
- Community level dispute resolution training
- Agroforestry and tenure training for ECOM extension agents
- Development of a financial model for cocoa rehabilitation

³ Stranger tenancy arrangements are those in which the cocoa farmer is not a member of the customary community. Rather the farmer develops varying arrangements with the customary landowner specifying what percentage of the crop they receive (*abunu* or *abusa*) and the nature of their property rights in the land. These arrangements are undocumented and frequently ambiguous to the parties involved, made more so over successive generations.



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related topics with smallholder farmers that will allow the pilot to be replicated and scaled up over time.

2.1. Nyame Nnae Community Characteristics

A household survey and set of focus group discussions were undertaken to better understand the tenure, finance, land-use decision making dynamics within the community. The survey was administered to 181 respondents (27 percent women) who farmed 306 farm plots. The majority of respondents were migrants (87 percent) who arrived between 1958 and 2017, with arrival dates widely distributed. However, as noted below, it is perhaps more relevant to understand the percentages of migrants who access land under a tenant arrangement versus those who have long-term ownership through *asides*.

Farmers reported an average farm size of five acres, a median of 3.2 acres, and a range of less than one acre to 115 acres with 96 percent of farms planted with cocoa and 64 percent of farmers only growing cocoa. The average age of cocoa trees was 13 years, with a median of 11 years. These findings suggest that Nyame Nnae's cocoa production is not in as poor a condition as much of the rest of the country, as farms of an average age of 13 years will still be at peak production for some time in the future (yields of cocoa under shaded cocoa cultivation begin to peak around 25 years of age).

3. Land Tenure

Customary agreements are erroneously generalized in contemporary literature as sharecropping agreements, misinterpreting the Akan words *abunu* (half share) and *abusa* (a third share) which are used to describe them. *Abunu* and *abusa* are generally used in rural areas to describe an array of customary land agreements that range from true sharecropping arrangements to land agreements that “create property in land” for the tenant or stranger farmer (Roth, Antwi & O’Sullivan, 2017). Unwritten *abunu* and *abusa* arrangements have evolved to govern farmer-landowner relations. During the rush to establish cocoa lands, agreements were often unwritten, hastily prepared, or sketchy on terms and conditions. As forests have dwindled and cocoa farms have passed their productive age, ownership can be contested, terms reinterpreted, and conflicts can occur between landlord and farmer (Acheampong et al. 2014). Of particular importance for cocoa rehabilitation is the common *abunu* provision that landlords have the right to repossess land owned by stranger farmers once cocoa farms are cut for replanting. Given present day land scarcity, indigene usufruct families want to regain land for the extended family, while the allodial titleholder wants to renegotiate rights they have long lost to usufruct families.



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3.1. Customary Land Tenure in Nyame Nnae

Access to land for cocoa farming in Nyame Nnae is gained through three core interests in land: i) usufruct or customary freehold (9 percent); ii) *asidee* (migrant farmer perpetual holdings – 45 percent); and, iii) *abunu* (46 percent). The history, contents, rights and obligations of these interests in land were captured through field work and detailed in Table 2.

Table 2: History of Usufruct or Customary Freehold, *Asidee*, and *Abunu*

Attribute	Elaboration
Usufruct / Customary Freehold Held by Indigenes	
History	Land held by subjects of a stool/skin or members of a family. It is the highest form of ownership or interest a subject or member of a family or stool/skin can hold. The usufruct in Nyame Nnae are of Wassa descent who have either their mother or father coming from Asankrangwa or neighboring towns within the Wassa catchment area. A usufruct however must seek consent from his or her family head (<i>abusuapanin</i>) before entering the desired land.
Rights	Usufruct has perpetual rights – can give out <i>abunu</i> and sell, mortgage, and/or bequeath the land without the consent of the allodial.
Stranger Landowner (<i>Asidee</i>)	
History	A variant of usufruct that was established when strangers who migrated to the community acquired tracts of land directly from the allodial roughly 50 to 60 years ago when land was in abundance. Land was acquired through forms of purchase from the allodial. Consideration for purchase at that time was either cash or service rendered in kind. Alcoholic drinks were offered to seal the land transaction.
Rights	Stranger landowner has perpetual rights: they can sell, but only with consent of the allodial at a fee (reported to be one-third of the sale price); grant <i>abunu</i> ; and, bequeath the land.
Obligations	The <i>asidee</i> must make a yearly payment, referred to as <i>afahyetoɔ</i> , which is set on an annual basis by the allodial. The fee is a flat rate and does not vary with size of land holding. It is subject to taboos and any traditional prohibitions regarding land use that is mandated by the allodial.
<i>Abunu</i>	
History	Refers to land rights gained through a land agreement whereby a stranger or migrant or (in rare occasions) an indigene, acquires land for farming purposes only. In Nyame Nnae, the landlord provides uncultivated land to the farmer to grow agreed upon cash crops (generally cocoa), which are shared between the parties at a specified time.
Stages	The <i>abunu</i> arrangement undergoes four main stages: 1) stranger farmer identifies suitable land for farming; 2) stranger farmer approaches a landowner, agrees on terms and pays a token for the use of land (currently GHC 200 per acre) in the presence of witnesses from both parties; 3) the farmer then goes into occupation and starts cultivating the land. Before a farm is shared, the farmer keeps all food crops without sharing with the landowner; and, 4) the farm is shared equally (split in two) after a period of time



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	(often five to seven years) in the presence of witnesses. After sharing, the farmer gains <i>abunu</i> land rights over their part of the farm. At this stage, the oral agreement may be written with a site plan and then signed at the Asankrangwa palace.
Rights	Can rehabilitate farm (cut and replant cocoa) with consent of landowner, can sell with consent of landowner, and can bequeath. Good management ensures continued partnership.
Obligations	The <i>abunu</i> land rights holder is to make a yearly payment to the allodial, referred to as <i>afahyeto</i> . This is a flat fee that applies to all applicable land rights holders independent of the extent of land holdings. The level of <i>afahyeto</i> is determined and varied on an annual basis solely by the allodial. It is subject to taboos and any traditional prohibitions regarding land use that is mandated by the allodial.

Abusa is an additional approach to accessing land through a sharecropping arrangement where a caretaker is paid with cocoa beans; it does not create an interest in the land.

From a household survey conducted, 28 percent of farms were owned through a land agreement with a landowning family (*abunu*, *abusa*, other) with 18 percent reporting a land agreement with the chief. Fifteen percent inherited their plot through their mother’s line, five percent through their father’s line, and 13 percent received the farm as a gift primarily from their father-in-law, husband, wife, or other family member; one individual had received farms as a gift from a chief. Five percent of farms were obtained through direct purchase.

Given that 87 percent of the farmers interviewed were migrants, but only 28 percent access land through *abunu* or *abusa*, it can be assumed that many of the migrant farmers have full, secure tenure and transferable rights through *asidee* arrangements. This is reflected in the farmer’s reported autonomy over their land (see Table 3). There were still approximately 30% of farmers with low autonomy over land, which was

Table 3: Farmer’s decision-making autonomy on land disposition (household survey)

Farmer’s ability to:	Positive response
Sell the land if wanted	68%
Lease the land if wanted	69%
Give the land to others	72%
Bequeath the land to heirs	71%

reflected in decision making regarding their cocoa; 24 percent of farmers said they had no to some ability to make decisions regarding their cocoa trees. Permission was needed from landlords or family heads (and a limited number from the chief). The right to cut cocoa trees when they are diseased was clear amongst all farmers. For other cutting, according to elders, decision-making is dependent on the arrangement between the landowner and tenant farmer, though any cutting of trees before maturity requires consultation. Under *abunu*, indigene landowners may demand consent, but stranger farmers do not always



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agree to this condition, leading to potential conflict and need for dispute resolution. Within the farmers surveyed 20 percent of plots faced significant or certain risk that someone would take the land if the farmer tried to cut and replant their current cocoa. This 20 percent of vulnerable farmers are important targets for tenure strengthening activities and building their capacity to participate in farm rehabilitation.

3.2. *Documentation*

Of the 306 farms within the survey, 25 percent reported having documentation. The majority of documents consisted of farm plans, written deed of transfers, leases, and *abunu* documents. These documents were held by the landowner at his/her home, or at the chief's palace, with a few held at the courts or lands commission. The longest held land was from 1953, but most of the land was documented after 2000, suggesting an evolution toward documentation. Overwhelmingly the documentation was granted by chiefs. According to elders, documentation helps everyone to understand land agreements made and prevents litigation. Farmers saw additional value to documentation, with 86 percent of farmers with documentation reporting that documentation changes how they manage their land with regards to increased investment, better access to credit, and replanting or rehabilitating trees. This suggests that farmers perceive an advantage to documentation. However, the focus group participants reported that the majority of *abusa* transactions are oral and not documented.

The project captured and documented land and tree rights as practiced; it did not try to convert these customary rights into statutory rights. This was an important element of the project's methodology – others have attempted to convert customary land rights to statutory land rights in other parts of Ghana which has caused conflict within the communities. The project engaged legal consultants to draft three customary land rights templates based on the prevailing customary norms in Table 2. A local organization, Landmapp, was subcontracted to complete mapping of community boundaries and individual cocoa farms and store electronic records. In total, 190 farms were mapped and tenure rights documented, with 37 percent held by women.

During the life of the intervention, the importance of clarifying landowner and tenant relationships through customary contracts emerged as equally important in documenting tenure terms as having a mapped document for the landowner. Clear dispute resolution structures were found to exist within the Asankrangwa stool, though community members were not always well informed about their rights. At the end of the project, 92 percent of those who received documentation thought it was worthwhile. Community members added that the process provided additional security and information on farm size,



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and will help reduce conflict. The primary factors that informed farmers' participation in the project included interests in documentation of land to secure and protect their future investments and to aid in accessing financing options; a desire to know more about site planning; and, interest in farm management more broadly.

4. Tree Tenure

Current tree tenure and governance derives from customary and statutory laws, including the 1992 Constitution of Ghana that recognizes community claims of ownership on lands and forests. Statutory law and policy pertain almost exclusively to commercial exploitation of timber trees and support a multiplicity of rights, interests, entitlements, and beliefs in land and forest resources that vary based on the status or category of the forest. However, ownership of land does not necessarily translate into ownership of the naturally occurring resources the land holds. Ghana's timber policy expropriates all rights over timber exploitation that derive from rights over land and vests them in the government. It then heavily regulates logging and captures revenue from logging concessions, but otherwise does not invest in or bear the cost of tree management. The policy, as exercised, also creates a confusing timber tree categorization to determine who or what entity is entitled to revenue transfers (benefit sharing) from government. Current policy divides commercial timber into two categories: trees planted by a farmer or landowner ("planted trees") and trees determined to grow naturally (not planted) on a landowner's farm or on lands left to fallow – "naturally growing trees." Distinctions are also made between trees on forest reserves ("on-reserve") and trees planted outside forest reserves ("off-reserve").

Operationalizing this categorization in practice has been challenging. First, implementing the policy and assessing what is planted and not involves huge monitoring and information costs, and bears an extremely heavy administrative burden. Illegal logging and collusion between timber companies and landowners is rampant. Second, the policy distorts incentives and drives landowners and farmers to destroy trees or makes them reluctant to incorporate tree planting as part of their customary land management practices.

4.1. Implications of Current Tenure Regimes for Cocoa Farmers in Ghana



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While the current policy of allocating concessions to timber companies in exchange for royalties generates revenues, creates jobs, and culls trees from the forest landscape, the policy also creates conflict between landowners, farmers, and timber companies. As noted by Acheampong et al. (2014), farmers appear misinformed about the benefits of tall story shade species and, even more importantly, kill young and older timber trees to prevent timber contractors from coming onto their land and felling trees that destroy the cocoa (see Box 2). Tree tenure and land rights are also intimately interwoven. West Africa in general, and Ghana in particular, share a common cultural heritage where planting commercial trees establishes a long-term claim of ownership to the land underneath for the life of the tree. This feature of the customary system both strengthens rights of tree ownership if allowed by the landowner, and creates conflict between the tree planter and landowner if the act of tree planting is seen as a covert measure to assert rights to land ownership.

Box 2: Why Farmers Destroy Trees on Cocoa Farms

- “When timber contractors cut timber trees they destroy the cocoa, so I cut them first”
- “I am unaware of the importance of trees to cocoa”
- “I cut down and sell timber for income and roofing of buildings”
- “I destroy my trees to prevent chainsaw operators from harvesting the trees and destroying my farm”
- “I am told that trees aren’t good for cocoa”
- “If I cut the trees, it prevents concessionaires from coming to harvest the timber”

Source: Acheampong et al. (2014)

The interplay between government policy, timber extraction, and planting trees to claim land ownership creates perverse outcomes that include: planted trees pulled up by customary landholders; land disputes between tree planters and customary landholders; and disincentives to plant commercial trees. For trees categorized as naturally occurring, landowners and farmers are not given any revenues directly when trees are harvested, creating two major disincentives:

1. ***Farmers have little or no control over management of timber species in the cocoa landscape.***

The policy undercuts farmer interest to plant or leave trees for optimal shade. It removes management control over when to harvest trees, prevents benefit sharing in their harvest, and introduces risk that tree felling by logging companies will ruin their cocoa without compensation. Farmers often express reluctance to plant trees on their farms, and sometimes destroy trees to prevent damage caused by concessionaires or illegal loggers.

2. ***Current policy destroys incentives to plant and/or nurture timber trees on fallow lands.***

Customary freehold or usufruct land owners almost always leave portions of family lands idle to grow back to bush in order to regain lost fertility. It is the cumulative sum of these lands that



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constitute the secondary forest cover of Ghana. Planting of timber trees to promote forest regrowth would be positive for sustainable cocoa cultivation. However, the categorization of timber trees as planted or naturally growing is arbitrary and suits the government's interest to harvest tree revenue for itself. Policies aimed at influencing tree tenure in secondary forests ought to target the extended family owners of customary freehold or usufruct landholder. A policy that grants ownership of trees to landowners, whether planted or naturally growing, would encourage tree planting as part of their bush fallow land management strategies. However, current policy expropriates rights over (naturally growing) trees in secondary forests and fails to negotiate equitable benefit sharing. Rather it treats those trees as communally owned and channels revenues to, the Allodial instead, thus perverting incentives to plant and maintain trees or police them from illegal loggers.

The current policy of managing timber species is driving forest canopy cover toward suboptimal levels of low shade. As a result, secondary forest is not being protected and no one, other than the government, has an incentive to plant and conserve timber species to maintain the shade.

4.2. Current Proposals for Tree Tenure Reform

The Forestry Commission is aware of challenges with the current law and policy. New policy approaches are being considered and tested. Two important policy documents — the 2012 Tree Tenure and Benefit Sharing Policy, and the 2016 Tree Tenure and Benefit Sharing Framework in Ghana — are intended to incentivize farmers and forest-dependent communities to engage in sustainable forest management, and to plant and preserve economic trees on their farms. The most relevant proposed changes for cocoa farmers deals with trees planted off-reserve, which covers most cocoa farms. The current proposal states that:

- a) A farmer has the right to negotiate benefit-sharing arrangements from trees that he/she plants/nurtures with the landowner;
- b) A farmer has the right to dispose and gain economic benefit of trees that s/he plants and nurtures; and,
- c) A decentralized land title registration will allow farmers to demarcate and register their lands and trees in the community/district to prove title.

While the current proposed reforms outlined above are a step in the right direction, they do not go far enough, and suffer from two main drawbacks:

First, the maintenance of expropriating powers over naturally occurring trees off-reserves blunts the policy's effectiveness. Ownership of all trees off-reserve should reside with the relevant customary



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landowner(s) or farmers who would police trees themselves. Such policy direction would eliminate the need to send Forestry Commission staff into the bush to police illegal logging (and the corruption it entails), and would also eliminate the current confusing policy of categorizing trees into planted or naturally occurring trees, which then seems to warrant establishment of registers to enforce compliance.⁴

Second, the proposed creation of a tree tenure registry creates an unnecessarily costly, bureaucratic, and likely unworkable regulatory burden on farmers and the FC. There is a significant burden to first create the registry and then maintain it over time. To be effective, the database will need to register millions of trees on hundreds of thousands of plots, and maintain this database over time. As trees may be grown and cut many times without a transfer of land tenure, keeping a registry of tree and land rights up to date will be particularly onerous. This is concerning given that the customary land secretariats (charged with recording customary land titles) are non-functional in most of Ghana.

Third, customary landowners' rights over "naturally" growing trees on fallow lands need to be recognized. Secondary forests of Ghana exist precisely because customary landowning families make a conscious land management decision to leave parts of their lands in fallow to regenerate with shrubs and trees. Timber policy should be tweaked to recognize customary landowning families' rights over all timber trees located on their fallow lands and make them entitled directly to revenues accruing from their exploitation. This may trigger a practice whereby instead of leaving nature to replenish fallow lands, landowners plant commercial trees as part of their land management practice.

4.3. Tree Tenure in Nyame Nnae

Despite the above framework, field work in Nyame Nnae found that the community views tenure over trees and forest products through the lens of customary land rights, even if this differs from statutory law. Customary rules entitle community members to enter into another person's land to extract or exploit forest products. The community distinguishes customary rights over trees from timber trees on which

⁴ Returning tree tenure to landowners does not need to be accompanied by a transfer of rights to carbon credits. It has been long held that rights to carbon credits created under public international law are sovereign rights *ab initio*, and do not become an individual right without a legal mechanism or instrument to effect this transfer. See for example *Legal aspects of implementing the Kyoto Protocol mechanisms, Making Kyoto work*, Freestone D., and Streck C., (Eds.) Oxford University Press (2005); *Climate change and forests: Emerging policy and market opportunities*, Streck C., O'Sullivan R., Janson-Smith T., and Tarazofsky R., (Eds.) Chatham House, London and Brookings, Washington D.C. (2008).



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formal law vests control in the Forestry Commission. In this case their view is that timber trees are owned by government.

With regard to shade trees on cocoa farms, the practice of killing shade trees was not clearly present in Nyame Nnae. Survey results found a total of 85 percent of cocoa farms had shade trees, with a mean age of 12 years and median age of nine years. Shade density and tree species was not assessed, so it is unclear whether there were sufficient shade trees or if commercial timber or other trees were used. Farmers reported various organizations (Cocobod and LBCs) as planting shade trees in their farms. Seventy-five percent of respondents said they had full control over these trees (including rights to plant, harvest, or replace) and eight percent stated they had little or no control. Of those who stated full control, 26 percent still referred to either needing to consult with either their family, landlord, or chief – with less than 0.5 percent (i.e. one) respondent stating a need to consult with the government regarding shade trees.

Farmers were aware of the tree registration proposals being piloted. However, they generally appeared confused as to the extent to which registration clarified their rights over planted trees. When queried further, most farmers could not confirm whether their trees had been registered or not. The pilot team decided not to test the draft tree tenure registration documentation in Nyame Nnae. This was due to flux in proposed changes in tree tenure along with hesitation to test tree registration given reservations outlined above regarding the proposed policy changes, their long-term efficacy, and the potential to create further confusion and perverse incentives against keeping shade trees.

5. Cocoa Farm Rehabilitation

Investing in shaded cocoa rehabilitation increases cocoa productivity, but also increases biodiversity and reduces deforestation. In addition, increased cocoa intensification reduces land use pressure on natural forests to the extent that aggregate cocoa production goals meet demand and reduce pressure to expand into new forest. However, across Ghana farmers and communities often lack the financial and labor resources to replant old trees with new hybrid varieties and many farmers have insecure tenure that prevent or discourage replanting old farms. Farmers tend to have low incomes, food security and nutrition challenges, and limited access to credit to borrow money to invest in their farms. They often need information and training on best practices to rehabilitate old cocoa farms, and help to improve tenure security. The first two to three years of a cocoa farm are critical to develop a strong and productive cocoa tree. Implementing the best agronomic practices during this period reduces longer term risk to the farmer by helping ensure that the trees will become productive assets that generate cash flow and increase farmer



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livelihoods and food security. Farmers also require knowledge and tools that assist with key land use decisions, such as whether to invest in cocoa and/or other competing crops (food crops, rubber, palm oil).

Some of these generalizations within the cocoa sector were observed within Nyame Nnae, while others were not. After tree disease access to finance, inputs, and labor were the next key factors that farmers identified as important to be successful cocoa farmers (see table 3). Only 32 percent of farms within Nyame Nnae had been replanted – but many farms were still young and productive so does not yet need to be replanted. Of the individuals surveyed, 58 percent reported that they had adequate access to finance to make investments on their farms in general, but those who wanted to replant but had not yet done so said it was mostly due to financial challenges. In focus group discussions, stranger farmers reported that farmers can cut and replant trees on

Table 1: Key factors for successful cocoa farming, Nyame Nnae household survey

Factors for successful cocoa farming	Percent of respondents
Age of trees	89%
Soil fertility	91%
Labor	95%
Fertilizer and inputs	95%
Clear land rights	86%
Documentation	77%
Access to finance	95%
Poor weather	89%
Aging farmers	70%
Tree disease	97%

“their” farm if they have alternative income sources to survive on until their farm is productive, suggesting that in some cases *abunu* farmers may have rights that approach full ownership. Farmers with full rights to replace cocoa trees cited a lack of inputs and labor to cultivate the cleared land as the main constraint to rehabilitating farms, as well as the fear of loss of income and livelihood until the trees reach productive age (five years).

Of those that were replanted, most of the cocoa rehabilitation was financed by bank loans, though a significant portion was also self- financed. Loans from licensed buying cocoa companies are the most frequent source of finance in the area, followed by banks, borrowing from friends/family, savings from farm sales, and moneylenders. According to elders, finance can be obtained through banks but most people cannot meet the conditions because they lack adequate collateral. Women generally have limited access to formal finance, and only access it through individuals who are “well-to-do” in their community. No financial institution will give women loans, and those individuals who do give loans charge high interest rates that risk creating loan default. Stranger farmers should have access to free government cocoa seedlings, fertilizer, and pesticides, but those inputs are not sufficient.

5.1. Farm Rehabilitation Model



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To better understand how to finance rehabilitation, a financial model for cocoa farm rehabilitation was developed in collaboration with ECOM (Ramirez & O'Sullivan 2017). Under the model ECOM rehabilitates and manages all farm activities over three years while the farmer learns farm rehabilitation and management techniques and diversifies their income with cash crops. This approach differs from using model farms, which have had mixed success. In the model a farmer provides three acres of old cocoa trees to be cleared and has additional cocoa farms elsewhere, which will continue producing cocoa (see box 3 for complete selection criteria). Existing shade trees will be retained but may need to be cleared if not suitable for the farm. Two of the three acres are replanted with cocoa, shade trees (if needed), maize, and plantains, and the third acre is planted with maize and plantains only. The 2:1 ratio is important due to different cost and income on each of the parcels. The land cleared and replanted with cash crops only does not have the additional up-front cost of replanting cocoa or shade trees.

Plantain and maize is planted on all cleared land with two crops of maize and one of plantain harvested per year. Plantain is considered an annual crop and harvested with the stems completely cut off, which requires replanting in subsequent years. These two crops were selected based on the recommendations of local agronomist experts and because many farmers are already familiar with both crops. Maize can be intercropped for three years and plantain for four years, after which time the cocoa trees are too fully grown to allow intercropping. Other crops could be considered to help further diversify income and improve food security. Under the model ECOM manages all activities including harvesting and selling the maize and plantains. ECOM invests in the farm activities throughout the year (planting, transportation, labor, inputs, supporting logistics) with its own staff, though the farmer may also be hired to save costs.

5.2. *Financial Return*

Box 3: Farm Selection Criteria:

1. Farmers selected should have gone through at least one year of ECOM training.
2. Site slope should not be above 3%.
3. Farmers should be prepared to cut cocoa trees for complete rehabilitation and must be willing to pay off investment with proceeds from the farm.
4. Site cannot be mangrove, swampy, or water-logged.
5. Farmers with multiple farms shall be considered as an added advantage.
6. Farms should be over 25 years old with a focus on highly unproductive farms (i.e. farms producing below 200 kg/ha).
7. The plot/site should not be in the middle of a forest or at least it should be 30m away from a natural reserve.
8. Farmer has the right to cut and replant cocoa farm.



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ECOM’s rehabilitation and management costs are repaid over three years, and a profit share or royalty payment paid to the farmer provides enough cash for the farmers to continue activities once ECOM no longer provides support. The cost and revenue assumptions used in the model show a positive net present value (NPV) of USD\$659 (GHC 2,880), internal rate of return (IRR) for ECOM of 71%, and a payback period of 2.1 years. To be conservative, historic low prices for maize and plantain are used and after year one the farmer’s revenue from the land being rehabilitated should increase (see Figure 1).

Figure 1: Current vs. future farmer income under a baseline scenario (baseline assumes no labor or input

Baseline Scenario	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Average Farmer revenue per 3 acre area without the project. Plots produce 1.7 cocoa bags/acre	GHC 2,423	GHC 2,423	GHC 2,423	GHC 2,423	GHC 2,423
Average Farmer Profit per 3 acre area with the project	GHC 1,296	GHC 3,743	GHC 5,256	GHC 11,222	GHC 12,418
Difference (+ Project is better)	(GHC 1,127)	GHC 1,321	GHC 2,834	GHC 8,800	GHC 9,996

5.3. Risks

The new model is not, however, without risks and challenges to implement and scale up. Implementing the type of system proposed requires careful coordination of activities by ECOM. Procuring the cocoa seedlings is critical because they comprise 25% of the planting costs and the right genetic stock drives future cocoa yield. ECOM can control repayment to a degree by selling the maize and plantains itself, but there is still a risk of crops being lost from theft, disease, or weather. A 10% yield reduction significantly impacts repayment, and the model is also very sensitive to increases in input prices and decreases in maize and plantain prices. Extreme weather or other *force majeure* events create additional implementation risks that become more relevant for scaling up. The geographic area and timeline for rolling out large-scale rehabilitation will increase exposure to these risks.

Tenure security is another challenge to reaching the maximum number of *abunu* farmers, and the costs of documenting tenure rights was not included in the model and will affect repayment. At the start of the project approximately 20 percent of farmers in Nyame Nnae said they risked losing their farm if they cut the cocoa. Without clarifying and documenting rehabilitation rights any farm rehabilitation will be limited to farmers with more secure land tenure. Due to time constraints in the pilot, the tenure documentation activities occurred after initial site selection for farm rehabilitation. After the pilot ended the community was split in their interest to participate in farm rehabilitation. However, given the cocoa trees were on average 13 years old, the split interest in the farm rehabilitation was not surprising.



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Implementation risks will grow as rehabilitation is scaled up, though some risk mitigation options such as loan guarantees exist. Others such as crop insurance need to be further explored. Farmer selection criteria will also need revision to reach a larger number of farmers, coupled with technical assistance to address tenure barriers to ensure broad farmer participation. In addition to addressing rights to rehabilitate an old farm, by improving tenure security, documenting traditional rights and mapping cocoa farms will help solve disputes and incentivize investment into existing farms. This will also need to be coupled with community level land use planning to ensure increased yields do not result in increased deforestation. Further options for food crop diversification can also be explored but may create logistical issues if ECOM needs to monetize multiple food crops.

The work on the financial model for cocoa rehabilitation demonstrates that in certain conditions farm level finance to replant cocoa is viable. However, such a program is not without risk as a pilot, with additional risks to scaling up. ECOM is currently testing the model, moving from paper to practice to better understand these risks and how to mitigate them. The pilot built the foundations for a scalable model that if successful should be sustainable and provide better livelihoods, food security and a diversified income to Ghana's smallholder cocoa farmers.

6. Conclusions

Based on the experience of the cocoa, tenure and deforestation risk assessment and pilot interventions to document landholdings, clarify customary tenure arrangements, apply a farm rehabilitation model, and address conflict resolution and benefit sharing, key conclusions emerged.

1. ***Build understanding of relevance of land tenure with private sector interests and identify feasible interventions.*** Private sector partners from the cocoa industry expressed gratitude for the activities, noting that they had understood that land rights were an issue for the cocoa industry, but that they were seen as the purview of the national government. The partners were not previously aware of actions they could take to clarify rights, or how they could integrate a tenure lens into their existing extension services. In this case, the pilot started with partners on a level and at a scale where the partners could engage.
2. ***Document rights in advance of land disputes, where possible.*** Part of the project's success stemmed from a lack of disputes which are normally a thorny problem in land adjudication and registration. There were no significant disputes between parties of land transactions. A few landowners needed persuasion before they would sign off on land documents, but after clarifications to address



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misunderstandings, all but one farmer appended their signatures to documents. Furthermore, no latent disputes were encountered between landholders and the allodial title holder. Meanwhile, a similar pilot (Sefwi) in a neighboring traditional area reported protracted disputes between stranger farmers and allodial title holders. One might too easily attribute the difference to the substantial time spent on community engagement. While this is certainly true, other factors were at play as well: few disputes were evident prior to the pilot, and Nyame Nnae's existing dispute resolution system was well understood and respected.

3. ***For effective land rights documentation, focus on process, engagement, and documenting the status on the ground.*** Two features of the approach contributed to positive outcomes. First, the project carefully adhered to the principle of capturing land rights and documenting them as they are practiced in the community. Second, the team spent extensive amounts of time on community engagement and education at varying levels – community, chiefs and elders, indigene landowners, stranger farmers, and women – to explain constitutional provisions that recognize and legalize customary land rights, institutions, and practices in Ghana. It was made clear at the outset, at all levels of engagement, that the aim of the pilot was to document the community's customary land relations and practices that underpin cocoa farming, whether or not those practices are considered registrable by the Lands Commission. This provided the understanding, trust and confidence needed on the part of community members to reach agreement. All too often in Ghana, land rights documentation approaches start with the administrative practices of the Lands Commission and attempt to comply with its leasehold framework that change the landlord tenant dynamics – often in favor of the landlord. Disputes are then triggered if these preconceived notions deviate from the community's reality. Understanding the community's land rights relations, documenting them as they are practiced, validating them by expert legal opinion, and then documenting are key takeaways which helped make the pilot a success.
4. ***As much as documenting land rights was a success, tree rights documentation still needs to be considered.*** Because the tree registration system by the Forestry Commission was still in flux, the team had reservations about the proposed policy changes and their long-term efficacy. The administrative costs of registering trees is steep. Unlike land which is fixed in place for perpetuity, trees incur frequent planting and cutting which require ongoing updating of records which complicates tree registration. In addition, there is risk of two overlapping and competing rights administration systems – one for land and one for trees – that are governed by different agencies. The system of tree registration as now proposed is confounded by problems of infeasibility and



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unsustainability. An alternative approach would be to divest rights to both naturally occurring and planted trees to land owners, and connect tree rights to the land documentation. This would allow the creation of one unified, low cost rights administration system tied to one parcel map, thereby avoiding confusion and easing rights delivery.

5. ***Consent of traditional authorities was the necessary ingredient for success.*** The presence of a lease document does not assure or guarantee rights of one landholder versus another (e.g., between a migrant and indigene farmer). Rather, key decisions with regard to land must be based on consent between landowner, leaseholder, and traditional chiefs. Land documentation is still important for clarifying rights and terms and conditions of all farmers within the community, subject to consent of traditional authorities. The political will of traditional authorities across Ghana will be necessary to further normalize land documentation and strengthen landowner/tenant agreements to promote landscape rehabilitation.
6. ***Not all smallholder farmers are equal: existing rehabilitation pilots being tested are geared toward the privileged.*** Landowning groups have sufficient tenure security to replant cocoa. Finance could be extended to these well-off farmers without land documentation. The model identified a large subgroup of vulnerable farmers, who were not able to participate in existing rehabilitation pilots. Without consideration of who is able to participate in such schemes, well-meaning cocoa companies may inadvertently increase inequality and sow social tensions into communities through financing mechanisms. The current models that are being piloted elsewhere are hybrids dependent on donor funding, and are not particularly sustainable. There is a need for a financially viable and sustainable model that can be scaled up, replicated and effectively target vulnerable populations. The ECOM financial model is more sustainable, but is not suitable or appropriate to all small-scale cocoa farmers. Scaling up and further pilots will require other financial options if other smallholders (those without large or multiple cocoa farms) are not to be left behind.
7. ***Food security and nutrition is an issue for cocoa farmers.*** The pilot did not focus on food security or attempt to quantify risks. However, during the course of field activities, seasonal food security risks and nutrition deficiencies of poorer cocoa farmers were identified. Seasonal fluctuations were linked to fluctuations in cocoa income and ability to buy food, and insufficient diversification of other food crops to provide alternative sources of income and food. As demonstrated from ECOM's approach, this can be mitigated through cocoa farm rehabilitation efforts that focus on diversifying crops alongside rehabilitation and yield increases of cocoa farms. More effort is needed to understand the scope and acuteness of the food security risks and nutrition dynamics of cocoa farmers.



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8. ***The public-private partnership linking tenure documentation, dispute resolution, community engagement, and financial modelling with cocoa rehabilitation was feasible.*** Upon completion, farmers were happy that the process protected rights of both indigene landholders and migrant farmers, including men, women, and youth. Traditional authorities from Asankrangwa district appealed for expanded participation of farmers to create peace in the community and for partners to replicate and scale up cocoa rehabilitation efforts. They further offered their leadership to advocate and support future projects with traditional authorities in other areas. ECOM was able to advance its approach to cocoa rehabilitation, while Hershey's supply is strengthened by buying cocoa beans from farmers with higher productivity. Both ECOM and Hershey's can now use cocoa rehabilitation as a service to attract new farmers while farmers benefit from improved incomes and livelihoods.
9. ***Scalability remains a challenge.*** Pilot outcomes on deforestation, cocoa productivity, environmental quality, and farmer livelihoods will not be known for years until trees and cocoa systems mature. The costs involved in providing 190 farmers with documentation were high, making future replication difficult. Landmapp's systems for mapping and documenting rights achieved their purpose but are still dependent on ability to pay a cost that is beyond the means of most smallholder cocoa farmers. In particular, costs related to signing fees to the traditional authorities as well as costs of reaching farmers who may not be present at the time of distribution and signing of documents pose substantial barriers to scalability. Wrapping the cost of documentation into cocoa farm rehabilitation should be explored in any future work.
10. ***The government's acceptance of formalization pilots is still a question.*** The Forestry Commission was an active participant throughout the life of the pilot. However, the complex set of government institutions comprising Ghana's cocoa value chain was not, partially a function of the pilot's small size and temporary nature in Ghana. A wholesale mind shift that recognizes the need to build shade back into cocoa systems and improves productivity of cocoa on less land is starting to occur, but how this will be achieved in practice needs to be better articulated. Sustainability requires bringing government on board in a way that can internalize pilot findings and build upon their success through policy. There is potential to do so through: (i) policy engagement and advocacy of the land bill; (ii) improved overall documentation and registration of existing land tenure practices; and, (iii) development of new services and products for the cocoa industry. This newly enabled environment raises important questions about how to incubate new services – education, real estate service providers, public notaries, non-governmental organizations in engaged dispute resolution, input services, and agro dealers, among others – that support the cocoa value chain.



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- 11. Spend time on gender dynamics.** Even though the pilot phase was able to account for the participation of some female farmers, there was limited time to unravel details about gender dynamics at the household level. This is important if future projects are to account for spouses, female-headed households, and female migrants. Nevertheless, advocacy and community sensitization on gender and social inclusion (GESI) enabled both community members and the project team to look beyond the obvious to better understand how women and different status groups engage within the community which greatly facilitated the GESI that did take place.
- 12. Who will bear the costs of public goods?** A sustainable cocoa system requires delivery of private goods and services (that the private sector can supply), and public goods and services which are the domain of government (research, extension, infrastructure). Currently both private and public goods and services are being poorly supplied, which leads private companies to focus on public goods and services that local and national government should supply. Land rights documentation requires a strong central authority to clarify and protect those rights. The private sector does not have the expertise and resources to cover the costs of documentation that enable cocoa rehabilitation. For indigene farmers already secure in their tenure, this may not be a concern as their tenure is secured by personal connections to the allodial. But, smaller tenant and migrant farmers risk being left behind without public interventions to enable their participation and secure their inclusion. There is thus need for a private-public sector model that addresses both private and public sector constraints in tandem if cocoa rehabilitation is to be sustainable.

Within this context, the setting has been set for ongoing efforts by the private and public sectors to develop strategy for lowering cost and designing innovations that improve the livelihoods of Ghana's cocoa farmers, promote sustainable cocoa cultivation, improve the profitability of the chocolate industry and provide consumers worldwide with high quality chocolate sourced from Ghana.



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