USAID
FROM THE AMERICAN PEOPLE

Land and Natural Resource Governance and Tenure for Enabling Sustainable Cocoa Cultivation in Ghana

TENURE AND GLOBAL CLIMATE CHANGE (TGCC) PROGRAM

ROBERT O'SULLIVAN, WINROCK INTERNATIONAL

USAID Contract No: AID-OAA-TO-13-00016

Cover Photo: Shade grown cocoa farm near Obuasi, Ghana. Credit: Robert O'Sullivan, Winrock International.

Report Authors: Michael Roth (independent consultant), Yaw Adarkwah Antwi (independent consultant), and Robert O'Sullivan (Winrock International)

Suggested Citation: Roth, M., Antwi, Y., & O'Sullivan, R. (2017). *Land and Natural Resource Governance and Tenure for Enabling Sustainable Cocoa Cultivation in Ghana*. Washington, DC: USAID Tenure and Global Climate Change Program.

Prepared by: Tetra Tech
159 Bank Street, Suite 300
Burlington, VT 05401

Principal Contacts: Matt Sommerville, Chief of Party
Matt.Sommerville@tetratech.com

Cristina Alvarez, Project Manager
Cristina.Alvarez@tetratech.com

Megan Huth, Deputy Project Manager
Megan.Huth@tetratech.com

Land and Natural Resource Governance and Tenure for Enabling Sustainable Cocoa Cultivation in Ghana

TENURE AND GLOBAL CLIMATE CHANGE (TGCC) PROGRAM

February 2017

DISCLAIMER

This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of its authors and do not necessarily reflect the views of USAID or the United States government.

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

AGL	AgroEcom Ghana Ltd
CDM	Clean Development Mechanism
CLS	Customary Land Secretariat
CMC	Cocoa Marketing Company
CO_2	Carbon Dioxide
Cocobod	Ghana's Cocoa Board
CREMA	Community Resource Management Area
CRIG	Cocoa Research Institute of Ghana
ECOM	Ecom Agroindustrial Corporation
ER-PD	Emission Reductions Program Document
ERP	Emissions Reduction Program
GCFRP	Ghana Cocoa Forest REDD+ Program
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GOG	Government of Ghana
ha	hectares
HFZ	High Forest Zone
HIA	Hotspot Intervention Areas
IDIQ	Indefinite Delivery/Indefinite Quantity contract
IUCN	International Union for Conservation of Nature
JCC	Joint Coordinating Committee
kg	kilograms
LC	Lands Commission
LBC	Licensed Buying Company
MOU	Memorandum of Understanding
MRV	Measurement, Reporting, and Verification

NGO	Non-Governmental Organization
OASL	Office of Administrator of Stool Lands
PBC	Produce Buying Company
PC	Purchasing Clerk
PMU	Programme Management Unit
REDD+	Reducing Emissions from Deforestation and Forest Degradation extended by sustainable forest management, forest conservation, and carbon sink ehancement
STARR	Strengthening Tenure and Resource Rights
tC	Tons of Carbon
TFA	Tropical Forest Alliance
TGCC	Tenure and Global Climate Change program
USAID	U.S. Agency for International Development
WCF	World Cocoa Foundation

EXECUTIVE SUMMARY

Forests are being lost at an alarming rate driven by the expansion of internationally traded commodities. A number of companies have responded by pledging to remove deforestation from their supply chains. This catalyzed the creation of the Tropical Forest Alliance 2020—a global public-private partnership aimed at reducing deforestation associated with commodities. Governments have also made commitments to reduce commodity-driven deforestation. In Ghana, cocoa produced by smallholders has been the leading agricultural product driving deforestation. In response, Ghana's Intended Nationally Determined Contribution to the Paris Agreement on Climate Change specifically includes a 45 percent reduction of greenhouse gas emissions from the cocoa landscape.

Implementation of these supply chain commitments is lagging, as many companies and governments find that reducing deforestation is harder than expected. Production of deforestation-free commodities is hampered by lack of land use planning, tenure insecurity, weak policy implementation, lax law enforcement, and insufficient monitoring and accountability systems. Meanwhile, governments face an enormous challenge in balancing demands for higher cocoa production with plans to minimize deforestation, environmental degradation, and biodiversity loss. For example, the Government of Ghana wants to more than double cocoa output to 1.6 million tons by 2026 to increase farmer incomes and export earnings while simultaneously reducing deforestation and greenhouse gas emissions.

This report examines the interrelationships between land and tree tenure, cocoa productivity, and deforestation to identify interventions that can help Ghana meet its productivity and REDD+ goals. There are a number of important challenges. A large expanse of cocoa land is experiencing productivity decline. Small growers who once migrated to old growth forests to carve out new cocoa stands now suffer due to diminished remaining forests. Replacing old and unproductive cocoa trees offers potential to increase cocoa productivity while reducing deforestation, but tenure insecurity discourages landlords from allowing tenants to replant trees, while high costs of cocoa rehabilitation are prohibitive to resource-poor small farmers. Promoting shaded cocoa cultivations with timber and non-timber species helps promote sustainable cocoa cultivation and biomass, and on the margin could enable REDD+ payments through fair benefit sharing, but insecure tree rights discourage tree planting. While the Forestry Commission now allows farmers rights to shade trees, this is not widely known or clearly operationalized. Land and tree administration systems are disjointed, and co-sharing of benefits between tenant and landlord untested.

While the Lands Commission is interested in promoting commercial leases for industrial agriculture, the prevalence of a customary land regime promotes smallholder cocoa production. This has prevented large-scale capital investments that could overcome the high replanting costs. Customary tenure arrangements have also historically created incentives to carve out newly planted cocoa farms from secondary and old growth forests, thereby encouraging producers to expand their area rather than intensify production. Due to technical and financial constraints of customary institutions, landscape-scale governance and land use planning within rural cocoa areas rarely happens.

The assessment report concludes with concrete activities to strengthen land and tree tenure, and assist farmers with cocoa rehabilitation to increase productivity, rebuild forests with shaded cocoa, and reduce land use pressures at the forest fringe. Lessons learned would help inform sustainable cocoa production and Ghana's Cocoa Forest REDD+ Program implementation as well as programs emphasizing other cocoa agroforestry systems (CocoaAction).

Presently, smallholder farms are stuck in an inefficient deadlock of 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 land contracts to both improve productivity over the long term as well as reduce deforestation. Tenure reform is urgently needed that improves coordination between customary and statutory structures, reduces conflict between landlord and tenant, 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.

Based on the land and natural resource governance and tenure assessment, an interlinked set of interventions are identified that encourage replanting old cocoa farms while reducing land use pressures on the forest fringe:

A. **Strengthen Land Governance.** Establish mechanisms to resolve tenure disputes; enforce land, tree, and farm rehabilitation agreements; and establish tenure-responsive land use planning to help address both problems of accountability and transparency and promote farm rehabilitation.

B. **Clarify Rights to Land and Trees**. Educate farmers and landlords on benefits of clarifying rights. Document land and tree tenure to help address problems of tenure security in land and trees that undermine incentives to invest in present cocoa lands and maintain shade trees on cocoa farms.

C. **Invest in Cocoa Farm Rehabilitation**. Engage cocoa buyers, Ghana's Cocoa Board, and the chocolate industry to create financing plans for tree removal, inputs, and extension services to help overcome the high costs of cocoa farm rehabilitation facing resource-poor farmers. Some small farmers do not want to replant, and others will continue to move to frontier areas because that is what they have always done. But, for many other farmers in the cocoa sector, combining the commitment and wherewithal of cocoa companies, government support agencies, and even the timber industry in a public-private partnership with donor funding would help promote entrepreneurship (particularly among youth), increase cocoa productivity, establish valuable tree species, and improve environmental sustainability.

Some of these components could be implemented as a pilot via a public-private partnership between bilateral donors and the private sector in collaboration with the communities involved. This report puts forward a series of pilot interventions that mirror many aspects of the Government of Ghana's Cocoa Forest REDD+ Program as well as the World Cocoa Foundation's CocoaAction program.

The report was commissioned by the United States Agency for International Development through the Tenure and Global Climate Change task order under the Strengthening Tenure and Resource Rights Indefinite Delivery/Indefinite Quantity contract. It was prepared with input and support from Hershey's and AgroEcom Ghana Ltd.—a subsidiary of Ecom Agroindustrial Corp—who supplies Hershey's with cocoa from Ghana.

1.0 INTRODUCTION

1.1 Forests

While there is uncertainty regarding the total number, it is estimated that approximately 1.3 billion people throughout the world depend primarily on forest resources for their livelihoods (Chao, 2012). 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 (CO_2) emissions from 1750 to 2011, and 12 percent of emissions from 2000 to 2009 (Smith et al., 2014). Over the last decade, it has become clear that loss of forests in the tropics has been driven by the expansion of internationally traded commodities (Climate Focus, 2016). Globally, this trend is 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).

In Ghana, cocoa produced by smallholders is the leading agricultural product driving deforestation. The forest emission reference level for Ghana's Cocoa Forest REDD+ Program (GCFRP) shows that over a reference period of 2000-2015, an average of 138,000 hectares (ha) of forest was lost each year from the high forest zone. Conversion of forests to agricultural land was identified as the primary driver of deforestation during the reference period. An average of 10,000 ha of forests per year (1.65 million ha in total) was converted to agriculture. Over a quarter (27 percent) of agriculture conversion resulted from cocoa expansion, making it the single most important commodity driver of deforestation in the REDD+ program area (Government of Ghana, 2016).

1.2 Response to Deforestation

In response, the Consumer Goods Forum—a network of over 400 companies with annual sales above EUR 2.5 trillion—along with a number of other companies, has made commitments to create deforestation-free supply chains.[1] This triggered the creation of the Tropical Forest Alliance (TFA) 2020, a global public-private partnership aimed at reducing deforestation associated with commodities. TFA 2020's initial focus is on key commodities associated with land use linked to deforestation globally: soy, beef, palm oil, and paper and pulp. Governments have also made commitments to reduce commodity-driven deforestation. Ghana's Intended Nationally Determined Contribution to the Paris Agreement on Climate Change specifically includes a 45 percent reduction of emissions from the cocoa landscape (Government of Ghana, 2015).[2]

However, implementation of these supply chain commitments is lagging (Carbon Disclosure Project, 2016), as many companies find that reducing deforestation is harder than expected (Rautner, Lawrence, Bregman, & Leggett, 2015). Production of deforestation-free commodities is hampered by lack of land use planning, weak law enforcement, and insufficient monitoring and accountability systems (Streck & Lee, 2016). Land and resource tenure security has also been identified as an influential factor to forest

[1] For example, in November 2010 the Consumer Goods Forum made a resolution to have zero net deforestation from commodities by 2020 (Consumer Goods Forum, 2015). More recently, the September 2014 New York Declaration on Forests, endorsed by a number of companies, government, indigenous groups, and civil society, included "the private-sector goal of eliminating deforestation from the production of agricultural commodities such as palm oil, soy, paper, and beef products by no later than 2020, recognizing that many companies have even more ambitious targets" (Goal 2). For an assessment of how this goal is being met, see Climate Focus (2016).

[2] This is a provisional target from reduced deforestation, the scope of which will be updated before 2020.

conservation success, with weak tenure linked to reduced productivity, thereby encouraging agricultural expansion into forests rather than intensification (Owubah, Le Master, Bowker, & Lee, 2001; United States Agency for International Development, 2015) and increased community-level tenure security linked to improved forest protection (Wolosin, 2013).

The Hershey Company (hereafter Hershey's) is a member of the Consumer Goods Forum and has pledged to sustainable sourcing of commodities, including removing deforestation from supply chains with a focus on sustainable palm oil (Hershey Company, n.d.). Hershey's sources the majority of its cocoa from Ghana and Côte d'Ivoire, and is committed to improving the lives of cocoa farmers. In Ghana, Hershey's sources its cocoa from Ecom Agroindustrial Corp (ECOM) and its local Ghana subsidiary AgroEcom Ghana Ltd (AGL). In response to observations that land tenure is a constraint on increased productivity, Hershey's is interested in helping its farmers improve their land tenure security. By working with ECOM to help farmers clarify, document, and defend their land and resource rights, Hershey's believes they will improve productivity of existing farms rather than expand into new farming areas at the expense of natural forests (personal communications, Hershey's Chocolate).

This report was developed by a Tenure and Global Climate Change Program (TGCC) task order funded by the United States Agency for International Development (USAID) under the Strengthening Tenure and Resource Rights (STARR) Indefinite Delivery/Indefinite Quantity contract (IDIQ). TGCC's mission is to support research on tenure, property rights, and climate change mitigation and adaptation; clarify legal and regulatory rights to benefits from environmental services; strengthen rights of women and vulnerable groups to benefits; and invest in pilots that strengthen land and resource rights for promoting climate smart land use practices. This assessment aims to facilitate a private-public partnership between Hershey's, ECOM, AGL, and USAID for improving sustainable cocoa cultivation in Ghana, but has much broader implications for programs such as CocoaAction, which was initiated and led by the World Cocoa Foundation.[3]

1.3 Cocoa Supply Chain

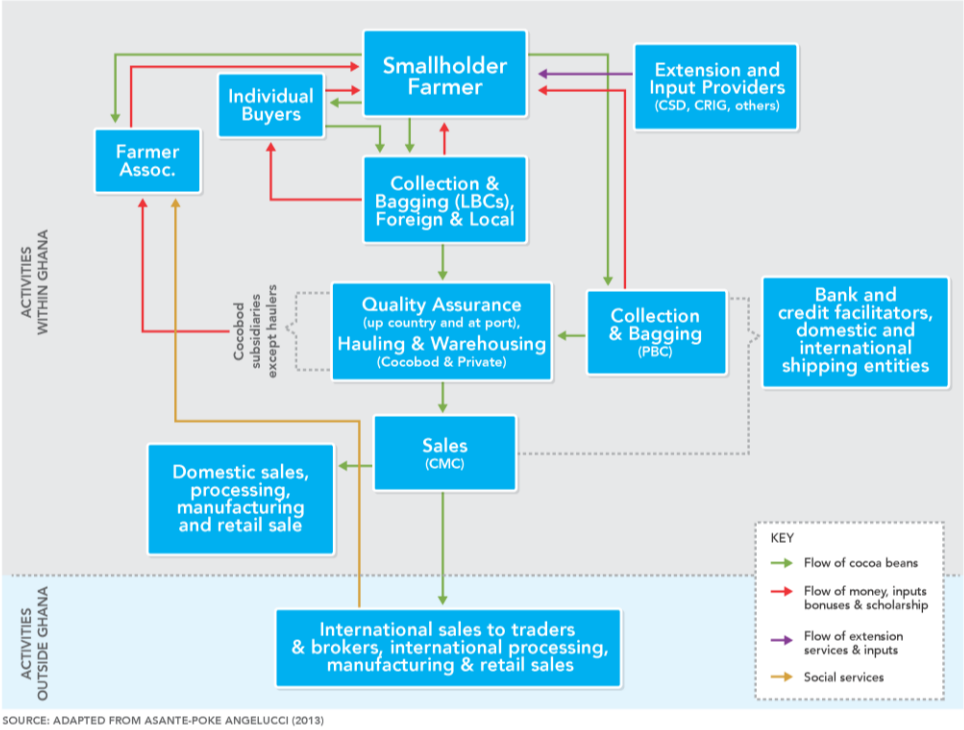
Identifying and tailoring interventions to reduce deforestation in the cocoa production landscape in Ghana requires understanding how smallholder cocoa farmers, cocoa-buying companies, the Government of Ghana (GOG), and chocolate companies, such as Hershey's operate. Figure 1.1 provides a schematic view of the institutions and stakeholders involved in Ghana's cocoa supply chain. The chain begins with many smallholder farmers producing cocoa at small, suboptimal levels, who are typically poor and marginalized. A unique feature of Ghana's cocoa supply chain is the absence of large commercial farms, concession agriculture, or state-run farms. These small cocoa farmers are supported with inputs and extension services, and in some instances are organized into farmer associations that assist with procurement and marketing.

At the heart of the supply chain is the Cocoa Board (Cocobod), a governmental institution that markets cocoa internationally. It has a dominant role in the cocoa sector through its various arms and agents. Toward the top are licensed buying companies (LBCs) authorized by Cocobod to purchase and bag cocoa from farmers on its behalf. In the 2013/2014 season, 41 LBCs were licensed to purchase cocoa, but only 32 did so. AGL—a subsidiary of ECOM, which helped facilitate this study—is a LBC; during the 2013/2014 crop season, it procured approximately 10 percent (98,029 tons) of total cocoa purchases in Ghana, making it the nation's third largest cocoa purchaser (Ghana Cocoa Board, 2014). This share expanded during 2015/2016 when AGL purchased approximately 13 percent (104,074 tons) of total

[3] Cocoa Action was launched in 2014 and is a voluntary industry-wide strategy that aligns the Governments of Côte d'Ivoire and Ghana, the world's leading cocoa and chocolate companies, and key stakeholders on priority issues in cocoa sustainability. They coordinate a joint response to enabling scale through common interventions, agreeing on a framework for measuring results, employing a holistic focus on the farmer and community, sharing best practices and failures through learning, and working closely with government and key stakeholders (World Cocoa Foundation, 2015).

cocoa in Ghana, making it the nation's second largest purchaser of cocoa behind PBC – the state owned subsidiary of Cocobod.

Figure 1.1: Cocoa Supply Chain in Ghana



SOURCE: ADAPTED FROM ASANTE-POKE ANGELUCCI (2013)

At the farm gate, LBCs employ purchasing clerks (PCs) or individual buyers who are pre-financed and provided logistical support to purchase cocoa from about 3,000 cocoa-buying companies or centers (villages, hamlets, cottages) (Asante-Poku & Angelucci, 2013). PCs are usually located within the farming communities and most often are cocoa farmers themselves. They bag the cocoa at an acceptable weight and prepare it for grading and sealing. Higher-quality beans are typically exported while lower-grade cocoa beans are sold to local processors and confectionary manufacturers. LBCs compete among themselves across communities through the services they provide. The behavior of PCs is critical and affects the volume of cocoa purchased. Their knowledge and credibility in the farming community largely determines the loyalty and preference of farmers to one LBC relative to competitor companies. Hershey's, as a foreign trader, buys exclusively from ECOM, which in turn buys from Cocobod through the Cocoa Marketing Company (CMC).[4] Within this context, Hershey's connection to farmers is through various programs it funds via AGL and its extension agents that work directly with farmers.

Cocobod controls the farm gate price that farmers receive for cocoa. LBCs must purchase at the fixed price announced by Cocobod and are paid by Cocobod for their operations in the form of commissions on volumes. LBCs cannot compete on prices offered to farmers, only through the services they can provide to these farmers, limiting their ability to use price incentives to attract farmers.[5] The fixed

[4] AGL (ECOM sub and LBC) buys cocoa from farmers and sells to Cocobod. ECOM then buys from CMC (also Cocobod) which then sells to Hershey's. ECOM, through its various subsidiaries, thus both sells to Cocobod domestically through AGL, and buys from Cocobod for the international market.

[5] Because LBCs compete by the extension services they offer to farmers, a public-private partnership would help lower LBC costs and expand services to more farmers by partnering with a public sector entity or donor able to provide these public goods and services. While such partnership might provide a competitive advantage to the LBC, it could also encourage other LBCs to join the race by seeking out

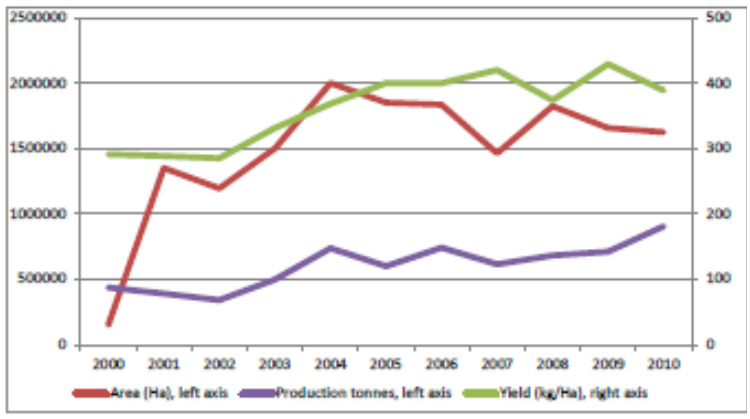
market price and challenges with contract enforcement also limit options to provide financial or input support to farmers to replant unproductive farms because of farmer freedom to cross-sell to other LBCs. Cocobod's control of the supply chain is immense. It uses its price-fixing power to extract rents from farmers; currently farmers get paid 75 percent of the world market price for their product.[6] The rents extracted from farmers help fund Cocobod's technical support including pest and disease management, provision of training and extension services, and agricultural research. Its Quality Control Department inspects, checks, grades, and seals each consignment of cocoa to ensure quality standards.

1.4 Cocoa Sustainability Challenge

Cocoa is a critically important commodity to the GOG at national, regional and local government levels because it provides significant economic benefits that include jobs, improved livelihoods and social welfare, expanded tax base, higher family and corporate income, and foreign exchange earnings growth. Identifying how to develop a new pathway for continued cocoa production that does not rely on continued deforestation requires a careful understanding of its role in the national political economy of development as well as poverty alleviation.

In 2010, cocoa accounted for 8 percent of Ghana's gross domestic product (GDP), 30 percent of total export earnings, and around 25 percent of the country's foreign exchange. Ghana is the world's third largest cocoa producer and second largest exporter. Due to the strong customary tenure regime, cocoa farming is dominated by smallholders, without large-scale concessions. Of the 900,000 tons produced in 2010 (Figure 1.2), 90 percent was grown by smallholders (Tawaih, 2015), making it a strategic sector for addressing rural poverty and low incomes. Cocoa has seen several boom and bust cycles (see Section 2) and by 2005, crop yields and production had already begun to stagnate (Figure 1.2). Between 2000 and 2005, while yield increased modestly, the area under cultivation increased dramatically, evidence that these moderate gains in yield came at the expense of expanding areas under cultivation rather than through intensification of already cultivated areas. Since 2010, cocoa's performance has worsened, in part due to the downside of short-term gains of sun-grown cocoa catching up with cocoa farmers.[7] Cocoa production for the 2014/2015 and 2015/2016 cocoa seasons reached only 730,000 and 690,000 tons respectively.

Figure 1.2: Ghana Cocoa Production, Area and Yield Time Series



In 2016, Cocobod announced plans to more than double cocoa output to 1.6 million tons by 2026 through the dissemination of new hybrid seedlings more resistant to pests and diseases and through improved infrastructure (*The Finder*, 2016). Achieving this goal will be a challenge, for it will take several years of concerted effort before any yield increase materializes, given the time it will take to disseminate seedlings to smallholder farmers, replant old

partnerships with other donors. In the longer run, the public sector interventions provided by donors along with enabling policy reform would have to be subsumed by state or private sector entities if the interventions are to be sustainable.

[6] Prior to economic reforms, farmers were paid substantially less (below 20 percent) (Kolavalli & Vigneri, 2011).

[7] Removing shade trees on cocoa farms that result in sun-grown cocoa produces short-term yield gains at the expense of productivity over the long term. See Section 2 for further discussion.

fields, and implement the proposed infrastructure projects, as well as the lag between tree planting and initial yields (five years).

Ghana is presently wrestling with two competing objectives. The first is to increase cocoa production to increase output and export earnings, which historically have been at the cost of deforestation. The second objective is to maintain Ghana's last vestiges of forest, avoiding biodiversity loss and environmental degradation, reducing greenhouse gas (GHG) emissions and participating in international efforts to reduce deforestation and degradation. Underlying this is a complex and largely undocumented customary tenure regime that has historically incentivized clearing native forest for cocoa production, and currently acts as a barrier to reinvesting in unproductive farms. Meeting both objectives will require a new cocoa production paradigm that addresses tenure and other constraints to better manage the agricultural resource base and promote new investment in trees and agroforestry systems for sustainability.

1.5 Objectives

The purpose of this report is to examine the interrelationships between land and natural resource governance and tenure, cocoa productivity, and deforestation to propose a pilot project for reducing deforestation through tenure-related interventions. This report sets out:

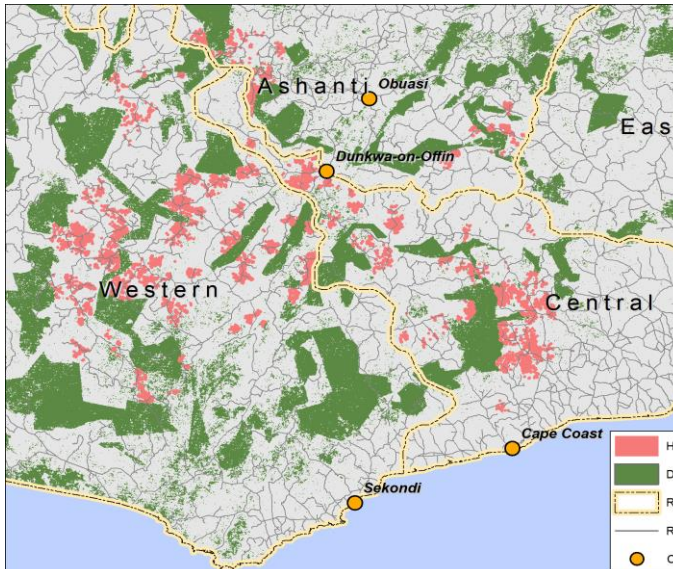
1. How lack of tenure security in land and trees has resulted in the expansion of unsustainable cocoa farming through the conversion of natural forests and removal of shade trees;
2. The linkages between tenure security, cocoa productivity, and deforestation to help establish cause-and-effect relationships;
3. A proposed strategy to increase sustainable cocoa production by addressing tenure and investment constraints, which in turn will help reduce deforestation, environmental degradation, and biodiversity loss; and
4. How to facilitate a public-private partnership to pilot and test interventions that achieve reductions in deforestation by improving productivity on existing smallholder cocoa farms.

1.6 Approach

The report was prepared through a combination of desk research, interviews, and a short field visit to a cocoa-growing region near Dunkwa-On-Offin (Western Ghana) that was close to gazetted forests and under pressure from gold mining (Figure 1.3). Meetings were held in Accra and Kumasi during a two-week period from October 23 to November 4, 2016 and included interviews with the government, civil society, and private sector, as well as a community meeting with cocoa farmers. See Annex 1 for a list of interviewees.

The team also used a database of information collected by AGL to evaluate the relationship between cocoa productivity and deforestation. This data provided a valuable

Figure 1.3: Geographic Coverage of Hershey's Operations



understanding of the age of trees on farms selling cocoa to Hershey's (a key determinant of cocoa productivity), as well as visualizing the land use dynamics between cocoa cultivation on old farms and at the forest frontier.

The amount of data and information based on cocoa productivity-deforestation in Ghana is very large. As of 2014, Tropenbos International (2014) compiled a list of 36 cocoa projects and initiatives that link with sustainable production, landscapes, and biodiversity alone. Many of the agencies visited in Annex 1 have produced field-level research on various aspects of the tenure-productivity-deforestation nexus. The Reference section in this report is a fair representation of a much larger set of documentation, but it is not exhaustive. Rather, the goal of this study is to tighten the linkage between tenure, productivity, and deforestation that often resides in different philosophical and academic camps, and to apply this body of thinking to Climate Smart Cocoa development pathways led by REDD+ programming (Annex 2) and promoted by the World Cocoa Foundation.

1.7 Report Structure

Section 2 of this report examines the challenges that confront Ghana's cocoa sector, in particular, the vast areas planted with old cocoa trees, a number of which have had shade trees removed and are past their prime. High costs of tree removal combined with incentives to carve out newly planted cocoa farms from secondary and old growth forests encourage producers to expand their area rather than intensify production, but at the cost of biodiversity loss and deforestation. Some of the challenges facing the cocoa sector are connected to the complex tenure regime in Ghana. Section 3 examines how tenure insecurity in land and trees drives removal of shade trees, constrains cocoa land rehabilitation, and creates perverse incentives to deforest. The challenges outlined in Sections 2 and 3 are not insurmountable and can be addressed through a mix of policy, governance, institutional, and incentive structures.

The concluding Section 4 outlines a road map of possible interventions that can quickly pilot many aspects of the GOG's Cocoa Forest REDD+ (Reducing Emissions from Deforestation and Forest Degradation) Program at a small scale. However, aside from certain interventions related to tree rights and forest protection, the land tenure reforms proposed are equally relevant to rehabilitating sun cocoa plantations where tenure relations between landlords and tenants discourage removal of old and unproductive cocoa trees. These interventions aim to secure property rights in land and trees and to develop modes of financing that enable and encourage small farmers to clear old trees and replant with higher-yielding varieties. Over time, tenure security and higher cocoa productivity in both sun- and shade-cocoa systems can reduce pressure on secondary and old growth forests, thereby decreasing deforestation.

2.0 CHALLENGES FACING THE COCOA SECTOR

Section 2 examines the challenges that confront Ghana's cocoa sector through mainly a productivity-deforestation lens. It identifies how land and natural resource governance and tenure arrangements can form part of a framework enabling productivity increases while minimizing deforestation, environmental degradation, and biodiversity loss. It starts with an examination of the historic boom-bust cycle of cocoa farming, followed by the connection to productivity, shade versus sun-grown cocoa, loss of biodiversity, and the release of GHG emissions. It concludes by setting out Ghana's approach to addressing deforestation and cocoa sustainability within its national REDD+ program.

2.1 Cocoa Boom – Bust Cycle

Cocoa was first introduced in Ghana in 1888 and has since experienced a series of expansions and contractions (Kolavalli & Vigneri, 2011). In the 1970s, Ghana was the world's largest exporter of cocoa, but its dominance in the world cocoa 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 primary characteristics of cocoa production in Ghana are set out in Box 2.1.

Box 2.1: Characteristics of Cocoa Cultivation in Ghana

- Small-scale production predominates; average productive cocoa area is 2-3 ha per farm.
- Approximately 800,000 families grow cocoa on 1.6 million ha. The Western Region accounts for over 50 percent of total production followed by Ashanti region in the south (16 percent).
- Cocoa yields are low, only about 300-400 kilograms (kg)/ha, about 56 percent lower than the average yields (800 kg/ha) in Côte d'Ivoire and 79 percent lower than the average yields (1,700 kg/ha) in Malaysia. These low yields are attributed to low soil fertility, overaged trees, high pest and disease incidence, poor farming practices and maintenance, aging farmers, limited credit availability, and inadequate infrastructure.[8]
- Overaged cocoa trees cover 25 percent of total area. (Personal communication with Cocobod found a higher current estimate of 40 percent of cocoa farms needing replanting.)
- High incidence of pests and diseases are experienced on 25 percent of total cocoa area.
- Hybrid cocoa varieties developed by the Cocoa Research Institute of Ghana (CRIG) and introduced in 1984 have been adopted by one-third of Ghanaian farmers. The new hybrids produce more pods per tree and bear fruit in three years versus five in older varieties. However, they perform only under optimal weather conditions. When not accompanied by fertilizer, these systems also rapidly deplete soil nutrients and tend to have shorter production cycles because of the physiological stress of higher yields.

[8] Ghana's low yield levels arise from lack of financial liquidity, old age of trees, absence of widespread row planting, constraints on input use and pests (black pod and mistletoes), lower labor productivity of an aging cocoa population, and declining soil productivity (Mohammed, Asamoah, & Asiedu-Appiah, 2012; ECOWAS-SWAC/OECD, 2007)). However, despite average higher yields, most of these same problems occur in neighboring Côte d'Ivoire. Cocoa productivity per ha there has been in continuous decline for the last decade (Mitz, 2012). After half a century of almost uninterrupted expansion, cocoa yields and quality are down, cocoa trees are old and diseased, poor governance and black pod disease are serious problems, and the system is resistant to change (Bias, 2010). Why then are yields higher in Côte d'Ivoire? Cocoa cultivation started several decades earlier in Ghana (1888) and expanded much faster than in Côte d'Ivoire exhausting natural resources quicker, and swollen shoot disease (only control is uprooting and burning infested trees) entered eastern Côte d'Ivoire only after wreaking havoc in Ghana (ECOWAS-SWAC/OECD, 2007). Cocoa production in Indonesia and Malaysia emerged much later in the 1980s. High yields elsewhere can thus partially be attributed to countries riding the wave of exploiting natural forests and fertility, while Ghana has run out of fertile land sooner (personal communications, WCF).

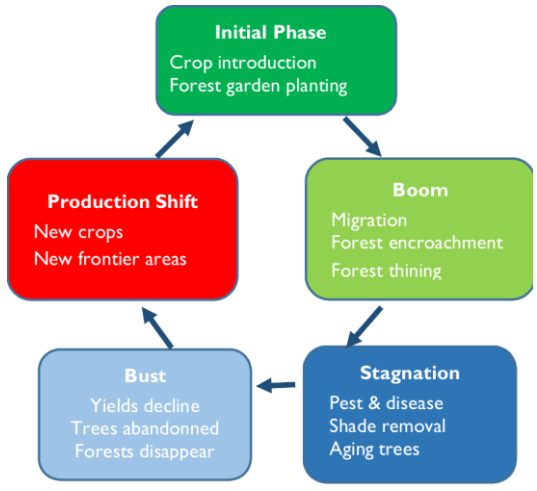
- The evolution of full-sun-grown cocoa has resulted in widespread removal of shade trees from cocoa farms. Ghana has experienced significant forest loss through timber cutting and promotion of zero shade cocoa.
- Although sun-grown cocoa provides higher yields at the early stages driven by fertile forest soils, yields decline after 10-15 years (versus 25 in traditional shaded systems) when forest soils become depleted of nutrients.
- Cocoa agroforestry is emerging as a land use system for reducing or offsetting deforestation. In empirical studies, the greatest proportion of carbon is sequestered in the shade trees. Total carbon stock (above and below ground) is comparable to secondary forests with only a small proportion of total carbon stock in cocoa trees. As a result, cutting shade trees in cocoa systems significantly reduces carbon stocks.
- A prime factor in species composition of the landscape is logging. Farmers widely complain about the indiscriminate logging and lack of property compensation for cocoa trees destroyed.
- Despite CRIG recommendations for 30-40 percent crown cover, no farms in the study area approach this level.[9]

Source: Acheampong, Dawoe, Bosu, & Asante (2014).

Cocoa trees can grow in thinned forests or under planted shade because young cocoa plants need shade to avoid severe physiological stress arising from direct exposure to the sun along with protection from competing weeds. Integrating its production within a forested environment initially enables improvement in rural incomes, but at the expense of natural and secondary forest. Higher incomes experienced by early adopters attract yet more investment by neighboring and migrant farmers, accelerating forest cutting. After initial forest conversion to cocoa agroforest, yields tend to dwindle as trees age, resulting in mounting pest and disease pressures. In recent years, there has been a shift toward sun-grown cocoa in forests completely cleared of trees (Asare, Afari-Sefa, Osei-Owusu, & Pabi, 2014). As yields decline and high costs of cocoa rehabilitation discourage replanting of existing cocoa lands, old cocoa plantations are abandoned and cultivation shifts to frontier regions, which contributes to yet more deforestation and biodiversity loss (Figure 2.1).

This transition has an important bearing on generational issues; yields dwindle, and returns to cocoa plummet just as the next generation of farmers is ready to open plantations of their own (Acheampong, Dawoe, Bosu, & Asante, 2014; Clough, Faust, & Tscharntke, 2009).[10] Consequently, younger families and youth must either migrate to new frontier cocoa-growing areas, pursue outside employment in towns and cities, or face the risk of under- or unemployment if they stay, all contributing to abandonment of cocoa farming and rural decline. The strong customary tenure regime has resulted in smallholder cocoa production without aggregation of landholdings into large-scale commercial operations.

Figure 2.1: Boom to Bust Cocoa Cycle



Source: Adapted from Clough, Faust & Tscharntke (2009)

[9] Productivity can be high with up to 50-60 percent shade (personal communications, WCF).

[10] This tends to occur when youth obtain access to cocoa farms when their parents are old or dying, not when they reach productive age. There is need for intergenerational family farming strategies so youth enter the sector when they are 20-30 versus 40-50 years of age when investing in a new cycle makes the most sense, especially when valuable tree species are part of the mix (personal communications, WCF).

The plummet in productivity stems from poor cocoa farm management and replanting cycles. Under shaded conditions, cocoa trees reach peak productivity after approximately 11 years, with productivity declining after 25 years. In full sun, yields increase earlier, but are not sustained and trees become exhausted after 15 years or less due to physiological stress and susceptibility to pests and disease.[11]

Agricultural intensification reduces ecological resistance. Shade trees in agroforestry enhance biodiversity, carbon sequestration, soil fertility, drought resistance, and weed and biological pest control. However, while shade is needed for young cocoa, it is less important for older cocoa trees. Replacing old, unshaded cocoa with young cocoa helps counteract forest conversion. But as trees grow older, and thinning occurs, productivity declines due to unmanageable pest and pathogen levels. Higher pest densities result from physiological stress in unshaded cocoa and from monoculture cultivation. Risk-adverse farmers tend to keep shade as insurance against pest outbreaks, whereas yield maximizing farmers reduce shade in pursuit of short-term monetary benefits (Tscharntke et al., 2011).

For over a century, the consequence in West Africa has been abandonment of old cocoa stands as cultivation shifts to new forested production areas (Acheampong et al., 2014; Clough Faust, & Tscharntke, 2009). Expansion into new forest areas cannot continue forever. Ghana's Emission Reduction Program Document (ER-PD) notes that by the mid-1990s, it was increasingly clear that forest reserves were moderately to severely degraded (Hawthorne & Abu-Juam, 1995), low/no shade cocoa was expanding at the expense of forests and trees (Rice & Greenberg, 2000), and biodiversity in the high forest zone (HFZ) landscape had declined precipitously (Hansen & Treue, 2008). Some older areas of cocoa production and areas closer to cities and towns have transitioned from cocoa to food crops, oil palm, and rubber.[12]

2.2 Productivity, Biodiversity, and Carbon Loss with Land Use Change

Cocoa cultivation occurs as a mosaic across the landscape. Figure 2.2 is a compilation of photos from the field visit and illustrates the transition from old growth forests on the right-hand side to shaded cocoa, sun-grown cocoa, and eventually to field crops and/or abandoned cocoa lands on the left. This transition results in both biodiversity loss (Clough et al., 2009) and carbon loss. Carbon biomass declines from right to left from 80-225 tons of carbon (tC) for forest and degraded forest, to 41-100 tC for shaded, abandoned, and overgrown cocoa, to 14-40 tC for low shade cocoa, to 1-15 tC for food crops and bush fallow (Asare, Kyei, & Mason, 2013).

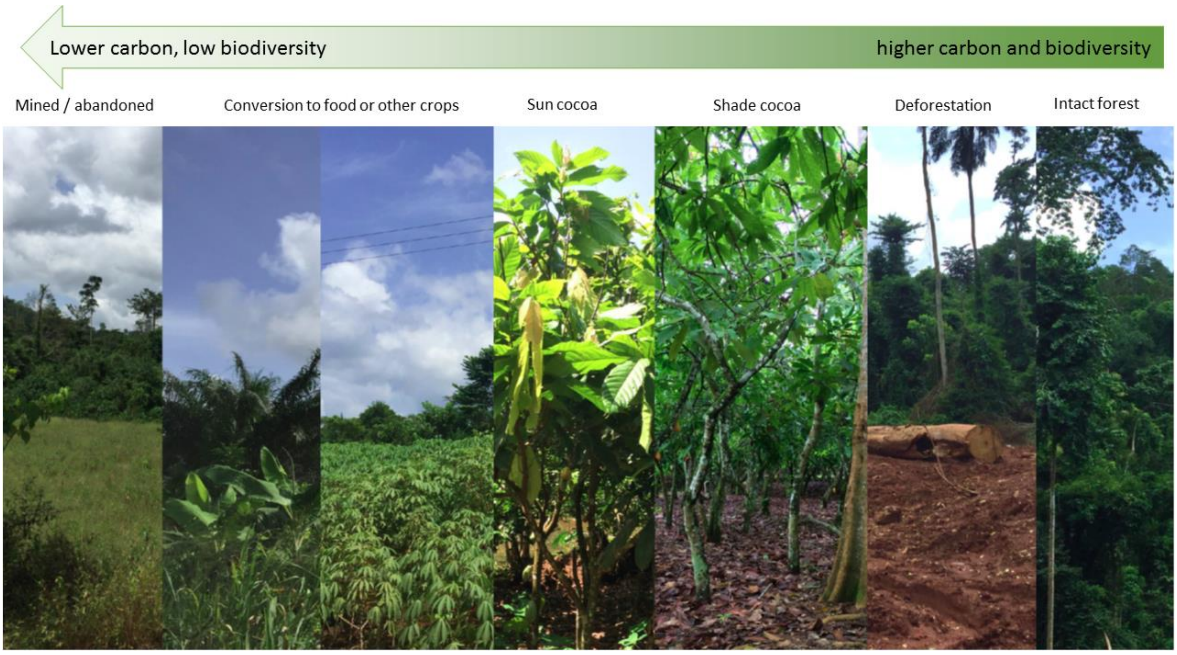
There is a variable age structure of trees within cocoa-growing regions, from newly planted to old and no longer productive trees. AGL's database on characteristics of farms from which they buy cocoa beans includes data on location of farms, age of trees, farm size, and cocoa purchased. This data enables the visualization of cocoa farms, age of trees, and proximity to higher density (and often gazetted) forest. Figure 2.3 shows the age distribution of approximately 8,500 cocoa farms that supply cocoa beans to Hershey's. Dark green areas represent natural and secondary forests; straight lines generally depict the boundaries of gazetted forests or protected areas. Areas of lighter green depict cocoa and agricultural mosaics. Between 0-5 years, a farm will produce very few cocoa pods. Cocoa increases in productivity until 15 years of age, with yields varying depending on whether the cocoa is cultivated with or without shade. From 16 to 25 years, the farm will either be in peak production (for shade cocoa) or in decline

[11] Until recently, Cocobod encouraged full sun-grown cocoa to boost yield.

[12] Almost all cocoa farmers grow alternative crops for subsistence and sale, mostly roots and tubers but also a variety of cereals and vegetables. However, many farmers have shifted to crops other than cocoa (mixed plantain and cocoyam, mixed maize and cassava, and oil palm inter- cropped with maize and cassava) for reasons beyond subsistence: greater income continuity throughout the year, higher returns relative to cocoa, and significant problems with rehabilitating existing cocoa tree stock (Kolavalli. & Vigneri, 2011).

(and in need of replanting) for sun-grown cocoa. After 25 years, shaded cocoa farms need to be replanted.

Figure 2.2: Biodiversity and Carbon Loss with Cocoa Land Use Change



Each of the red dots in Figure 2.3 represents overlapping farms with similar age structure (0-5 years in panel 1 to > 25 years in panel 4). The four panels combined help to illustrate the land use changes implicit in the cocoa boom-bust cycle and the chronic need to replant cocoa plantations that are past their prime:

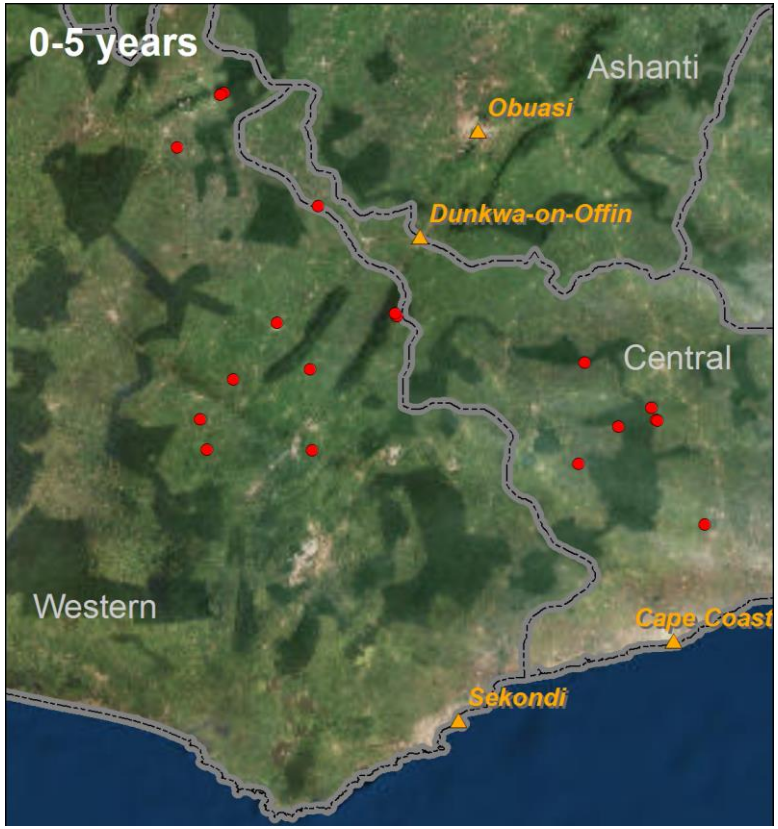
I. (0-5 years) Few farms have been newly planted (0.3 percent).
II. (6-15 years) Farms with trees 6-15 years old are reaching their productive peak and still few in number (0.4 percent).
III. (16-25 years) A small number of farms are at their peak if still planted in shaded cocoa systems or past their peak if cultivated in full sun (sun cacao) (3.4 percent).
IV. (> 25 years) The majority of farms fall within this category, harvesting cocoa from trees that are past their prime (95.9 percent).

At the outset, the research team had hoped to undertake a geospatial analysis of tenure and productivity linkages. However, this was not possible for two reasons. First, while cocoa-buying companies are able to report data on cocoa purchases (e.g., bags purchased) from their respective farms, these data do not represent total production because farmers sell to multiple buyers (i.e., cross-selling or side-selling). Household- and field-level surveys could be undertaken to try to collect farm-level production, but this approach was not feasible due to time and expense.

Second, the cocoa boom-bust cycle complicates the analysis of productivity because the cocoa landscape is comprised of trees of various age and yield potential. Even if production per unit of area were available, visualizing output per farm based on global positioning system coordinates would only reveal a mosaic of yield or output differences caused by various factors: newly planted cocoa from natural forests, conversion to high-yielding sun cocoa, old cocoa plantations in the throes of becoming obsolete, or tenure variations. These yield and output differences could only begin to be explained if overlaid with information on age of plantation and degree of shading.

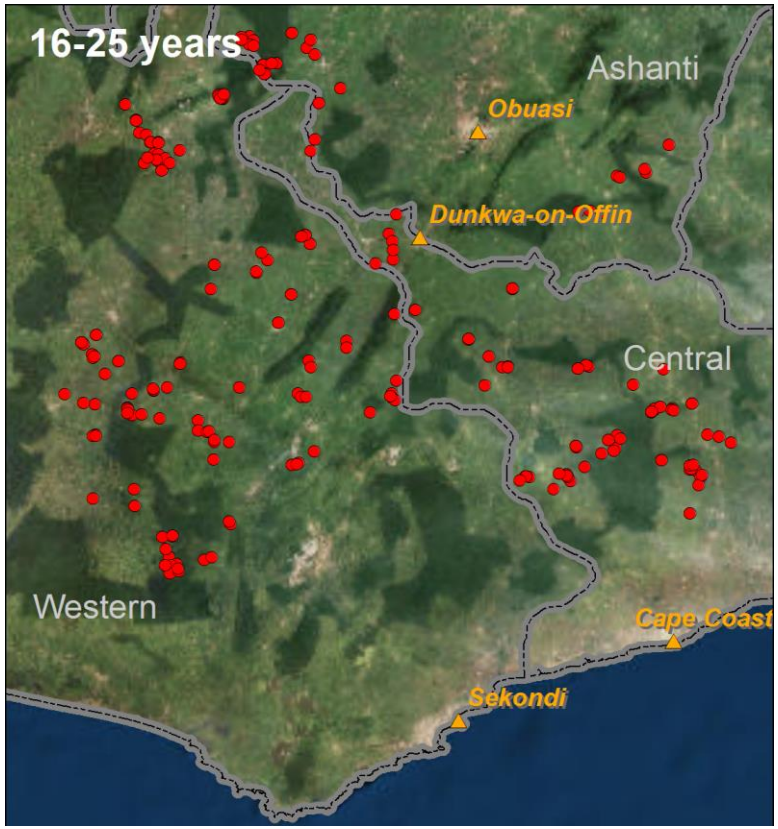
Figure 2.3: Cocoa Landscape within Hershey's Buying Areas

I



II

III

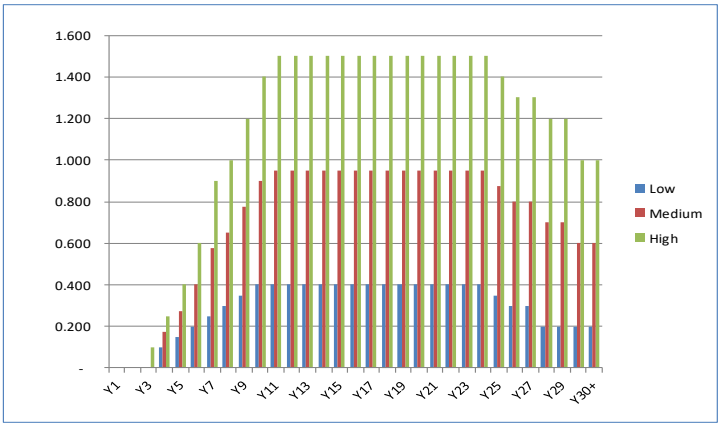

16-25 years
Ashanti
Obuasi
Dunkwa-on-Offin
Central
Western
Cape Coast
Sekondi

IV


>25 years
Ashanti
Obuasi
Dunkwa-on-Offin
Central
Western
Cape Coast
Sekondi

Matching age of trees with a theoretical yield curve allows for a good proxy of cocoa productivity. Figure 2.3 shows the age-class distribution of farms, while Figure 2.4 illustrates the theoretical yield profile of cocoa trees based on age-profile under different systems of management—low, medium, and high. Panel IV shows that the overwhelming majority of farms are greater than 25+ years in age with a declining yield profile.[13]

Figure 2.4: Theoretical Yield (kg) Profile of Cocoa in Ghana



Three yield scenarios based on quality of management. Age profile: Years 1-3, immature; Years 4-7, mature young; Years 8-24, mature; and Years 25-30+, old. Source: Ecom Ghana Ltd.

Cocobod projected a target yield of 1.0 million tons at the beginning of the 2014/2015 cocoa season, but produced only 700,000 tons for reasons cited in Box 2.2. Cocoa cultivation is largely undertaken by resource-poor farmers who suffer from the following constraints in rehabilitating cocoa land:

- **Tenure insecurity.** Some tenant farmers' rights to farm the land depend on oral agreements with landlords that are vulnerable to breach. If the trees are cut, there is risk of the landlord declaring the tenancy arrangement to have expired and repossessing the land. See Section 3 for further details.
- **Lack of labor**. As some households press into frontier areas to establish new farms, families with more elderly members remain behind in established cocoa areas that are declining in productivity. Young adults seek jobs in cities because of low income and few employment opportunities.
- **High costs of tree removal**. Trees must be cut or uprooted, biomass disposed of, and soils treated for termites and pests before the task of replanting can begin.
- **Poor soil fertility.** In the early transition from forest to shade cocoa, farmers are able to take advantage of nature's fertility. With older plantations, however, the starting point is soils that are leached, infertile, degraded, and lacking in sufficient shade to establish highly productive shaded cocoa cultivation.
- **Planting and rehabilitation.** Both Cocobod and LBCs provide new hybrid varieties to farmers, but seedlings are often in short supply, arrive late, or undergo stress from delays in transporting from nursery to field. Stand establishment and growth also require intercropping with agroforestry and leguminous crops that control against soil depletion in early years (versus bananas, maize, and cassava that deplete soil nutrients). Cocoa rehabilitation requires reinvestment in seedlings, shade, fertility, water, and pest control that were naturally occurring in the forest.
- **Incentives.** Cocoa rehabilitation also competes with other land uses: rubber, oil palm, and food crops that require fewer inputs or have higher profitability. These other crops compete with

[13] Trees need replacement after 25+ years when they die or become unproductive. Some trees can grow to 60+ years although with low productivity. The date when trees begin bearing is the most appropriate for calculating age, but farmers tend to report age beginning with date of establishment (personal communication, WCF)

cocoa once the forest and trees are cleared. Having witnessed steady and significant decline in cocoa yields over years or decades, farmers can be skeptical about the sector's long-term income and wealth-generating prospects.[14]

Box 2.2: Further Constraints to Higher Cocoa Productivity in Ghana

Cocobod projected a target yield of 1.0 million tons at the beginning of the 2014/2015 cocoa season, but produced only 700,000 tons (Section 1.3). The reasons for the shortfall include:

a. Bad weather: heavy rainfall between August and October and the strong Harmattan wind;
b. Lack of fertilizers and pesticides, or inputs arrived late;
c. Late application of fertilizers;
d. Aging farming population: the majority of smallholder farmers are old and need young farmers to take over;
e. Disease: cocoa husks shriveled by fungal black pod and fat red capsid bugs;
f. Weak currency and smuggling: due to a sharp fall in the cedi, farmers and extension agents found it more lucrative to smuggle their cocoa into neigboring countries rather than sell to Cocobod;
g. Weak farmer land rights, especially for women farmers who are becoming increasingly significant in the cocoa sector, but do not have the same rights as their male counterparts; and
h. Illegal gold mining which competes for land, water, resources and labor.

None of the constraints above is insurmountable, but they cumulatively attest to the significant challenges faced by small, resource-poor farmers. They are asked to reinvest labor and financial capital into shaded cocoa cultivation where the impact is not immediate and the payoff in higher productivity is years into the future. While strengthening land tenure security is a necessary condition for cocoa rehabilitation, it is not likely to be sufficient for low-income, resource-poor farmers to bear the full costs of the investment unaided. Section 3 of this report discusses in detail how tenure affects cocoa productivity in two important ways: clearing old cocoa plantations that are waning in productivity, and establishing new cocoa plantings.

2.3 Sun to Shaded Cocoa for Carbon Sequestration

While boom-bust cycles prevail in global cocoa production, ecologically diverse cocoa forests offer smallholders improved livelihoods and ecological benefits while supporting carbon sequestration. Cocoa trees are usually grown under thinned forests or planted shade. As the cocoa matures, the trees form a closed canopy that is less dependent on shade trees. Because of the influx of sunlight, yields tend to increase in the short term with shade removal, which has led certain agencies (e.g., CRIG) to promote zero shade cultivation based on experiment station trials.[15] However, physiological stress, susceptibility to pests and disease, and the need for higher chemical inputs (fertilizer and insecticides) require improved farm management and increase production costs (Clough et al., 2009) that are often beyond the means of small cocoa farmers.

Agroforests also hold promise for carbon sequestration. In critical conservation areas of the Ecuadorean Chocó, for example, increasing shade density in experimental trials increased cocoa yield and farmer income until a tipping point was reached where yields began to decline (Waldron, Justicia, Smith, & Sanchez, 2012). This tipping point of maximum yield lies at about 144 shade trees per ha, roughly equivalent to 40 percent canopy cover. However, according to Acheampong, Dawoe, Bosu, & Asante

[14] Lack of labor, weak incentives, and slow intergenerational transfers of land and resources underscore the need for professional labor services by youth and for farmer segmentation, and focus on only those farmers who are serious about cocoa production (personal communications, WCF).

[15] Removal of shade doubled yields while shade removal combined with application of fertilizer tripled on-station yields (Acheampong, Dawoe, Bosu & Asante, 2014).

(2014), most new cocoa planting has been in Ghana's Western Region where 80 percent has been established without shade or with less than 10 percent canopy cover.

The definition of forest also has important implications for the role of cocoa in contribution to REDD+ that could potentially augment revenues to shaded cocoa systems and increase incentives to create timber and non-timber forest products. 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 also 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 will only constitute a forest if they offer enough canopy cover and are taller than five m. However, inadequate crown cover in 8 of 10 districts studied by Acheampong et al. (2014) meant the areas did not qualify as forests, as measurements fell below the 15 percent minimum threshold.

While planting shade trees or reforesting non-forested land with a cocoa agroforestry system increases carbon storage, it unclear whether or how small farmers would benefit from REDD+ payments. As noted in Section 3, royalties and fees distributed by the Office of Administrator of Stool Lands[16] (OASL) are channeled to statutory bodies and traditional authorities; communities benefit only through indirect investment (e.g., by District Assemblies in road and utility infrastructure). Because wealthier households—particularly those with allodial title[17]—control the forest outside reserves, REDD+ payments must be carefully managed or they could increase community differentiation and income inequality. For example, the provision of funds for infrastructure, social services, and child/women's welfare provides collective benefit and does not create antagonism between households. However, in many countries, state governance of tropical landscapes is weak, funds for payments of environmental service schemes are limited, and the mechanisms to transfer money from external payments to beneficiaries are hard to establish (Sandker et al., 2010).

Many farmers barely exploit timber species that provide shade, and many remote farmers do not sell the fruit from their shade trees either. More fully exploiting these forest benefits for shade trees could help shift the system away from zero shade and maximum yields toward denser shade and multiple benefits. At least medium-density shade is needed for meaningful biodiversity conservation (e.g., 30-40 percent canopy), and cultivation practices that effectively combine fruit and other tree crops with larger timber species in agroforestry settings could enable considerable carbon capture in agricultural systems (Acheampong et al., 2014).[18]

2.4 Cocoa, Deforestation, and REDD+

Ghana's ER-PD, submitted to the Forest Carbon Partnership Facility's Carbon Fund, describes the Ghana Cocoa Forest REDD+ Program (GCFRP), which is Ghana's approach to reducing deforestation and increasing yield in the cocoa-growing region. The ER-PD outlines the expansion of agricultural lands as the primary driver of deforestation and degradation in Ghana's HFZ for the past century. Other important drivers listed include timber extraction and mining. Of the forest converted to agricultural lands, a large proportion has been cocoa farms. More specifically, the cocoa production landscape had an average annual deforestation rate of 1.7 percent between 2000 and 2010. Within the Emissions

[16] The stool, skin, and family are recognized in the Ghanaian constitution as holders of land rights. Stools and skins are physical and spiritual embodiments of the people that they represent.

[17] Allodial title is the highest form of customary interest in land. See Section 3 for more detail.

[18] This section strongly suggests the need for an activity, project, or pilot on landscape governance in a high impact area with Cocobod and the Forestry Commission along with one or more LBCs and support from chocolate buying companies. It also raises the potential of working with the timber industry to facilitate planting and conserve timber species on cocoa land in exchange for future investment returns through improved timber management and cutting.

Reduction Program (ERP) area, which covers 5.92 million ha and includes the country's main cocoa production landscape as well as the core of the HFZ, approximately 110,000 ha per annum of forests were converted to agricultural land during the period (2000-2015), making up 75 percent of the region's total deforestation. About a third of these 110,000 hectares converted were due to cocoa expansion (Government of Ghana, 2016).

The GCFRP is being developed to address these drivers and reduce deforestation and forest degradation in the program area 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 (MRV); ii) Landscape Planning within Hotspot Interventional Areas; iii) Increasing Yields via Climate Smart Cocoa; iv) Risk Management and Finance; and v) Legislative and Policy Reforms. See Annex 2 for additional detail on these five pillars. The GCFRP will leverage private sector investment in cocoa and Government funding, and combine this with payments from emission reductions to help deliver results. It will be jointly coordinated by the National REDD+ Secretariat at the Forestry Commission and the Ghana Cocoa Board, in partnership with a broad set of private sector, public sector, civil society, traditional authority, and community people (Government of Ghana, 2016).[19]

2.5 Summary

Ghana's boom-to-bust cocoa cycle has left in its wake large areas of cocoa farms with low and declining productivity. Shaded-cocoa cultivation, while offering lower yields relative to full sun-grown cocoa, nonetheless offers longer production cycles. In addition, tree species of sufficient height and girth used for shade offer the potential for cocoa agroforestry systems to be classified as open forest and sequester large amounts of carbon. REDD+ payments, if properly managed, offer the potential to augment the income of cocoa farmers, as does the harvesting of fruit trees and valuable timber species if tenure is secure. If successful, replanting old cocoa farms and reestablishing full-shade cocoa cultivation offer the prospect of reducing deforestation at the forest fringe, while building forests back into the cocoa landscape. Programs such as CocoaAction and Climate Smart Cocoa are in the process of developing and committing to a new paradigm that replaces short-term production gain with long-term cocoa sustainability.

However, these benefits hinge on several pivotal conditions: first, that farmers have incentives and the means to replace unproductive cocoa plantations; and second, that farmers have incentives to maintain shade trees such as reaping benefits from activities like timber harvesting. These can be supported by a third factor: that farmers receive REDD+ payments directly or share in that benefit stream, though this on its own is likely insufficient to incentivize the first two conditions at current REDD+ prices.[20]

Increasing land value and productivity will be essential to motivate landlords and tenants to undertake the necessary reforms. The cocoa sector in Ghana is in the throes of a transformation that ultimately requires:

[19] While comprehensive and forward looking in scope of benefits expected, the Government of Ghana also anticipates certain risks in implementation: 1) complexities involved in coordinating the large number of national and local actions to facilitate landscape management; 2) delays in needed policy reform and legislative action including the Forest and Wildlife Bill (giving legal backing to new tree tenure), Cocoa Sector Strategy II, and reforms in traditional customary tenure arrangements; 3) reversals stemming from increased scale of illegal mining, price volatility (cocoa, palm, rubber), and forest fires; 4) capacity to manage cross-sector coordination and operational complexity; 5) benefits from emissions reductions payments not reaching stakeholders; and 6) financial management risk (Forestry Commission & Cocobod, 2016)

[20] Sandker et al. (2010) concluded that at 2010 cocoa prices, REDD+ credits would need to be priced at over $55 per ton to stop deforestation of old-growth forest. Current prices vary, but in 2015, the average voluntary market price was $7.20 per ton and the few examples of regulated markets were also under $10 per ton (Goldstein & Ruef, 2016).

- Achieving higher cocoa yields while decreasing deforestation and using less land (doubling the yield on fewer hectares);
- Increasing trees in secondary forests through shaded cocoa cultivation and channelling REDD+ payments to the land beneficiaries affected as part of a wider landscape governance approach; and,
- Increasing employment and livelihoods of cocoa-farming households, with particular attention given to youth, motivating producers to reside in existing cocoa areas rather than moving onward to frontier zones.

Tenure security in land and trees is central to these questions and is the focus of Section 3.

3.0 TENURE, PRODUCTIVITY AND DEFORESTATION NEXUS

Section 2 focused on the productivity and environmental challenges facing the cocoa sector: low yields from old trees combined with loss of shade trees, loss of biodiversity, and increased GHG emissions from deforestation and forest degradation. Intertwined within these challenges is a complex land and tree tenure regime that can act as both a driver of deforestation and forest degradation as well as a barrier to cocoa farm rehabilitation. This section examines how tenure insecurity in trees and land constrains cocoa land rehabilitation and creates perverse incentives to remove shade trees and deforest.

3.1 Balancing Objectives of Cocoa Output versus Deforestation

How to balance Ghana's multiple objectives for cocoa production, livelihoods improvement, environmental conservation, and forest protection (raised in Section 2) is far from clear. Cocobod and other cocoa production and marketing entities in Ghana clearly want to accelerate cocoa production and export sales.[21] However, achieving the goal of 1.6 million tons by 2016 (from 730,000 tons in 2013/2014 and 690,000 tons in 2014/2015) seems unachievable based on the current supply of new hybrid varieties, chemical inputs, more intensive farm management, and improved extension services alone. Vast areas of old and underproductive cocoa plantations need to be replanted to improve productivity. The policy hope seems to be that Ghana's class of low-income and resource-poor farmers will replace the cocoa trees to achieve the established lofty production goals.[22]

Mechanisms to reduce deforestation are also not clear. Accessing REDD+ payments and goals for environmental protection hinge on whether emission reductions and sequestration targets are reached. Current policies and strategies to plant and protect timber species on land, reduce pressure on forests by increasing cocoa productivity, and work toward accessing REDD+ payments and channel rents to rural areas are sensible long-term strategies. However, to be successful, they require grounding in a smallholder community that receives support to make the necessary investment in trees and elects to protect the forest frontiers rather than mine them for basic subsistence and income generation needs. Without this, there is risk that strategies remain stuck in the stratosphere of policy without finding traction by the smallholders, and local

Box 3.1: Key Role of Tenure Reform in Reducing Deforestation

Rehabilitating the cocoa sector will require a transformation that marries tenure reform with the replanting of old cocoa farms in a way that improves cocoa production, increases biodiversity and carbon sequestration, and decreases demands on the nation's forests. Tenure reform alone will not achieve this outcome but rather must be joined by interventions that enable investment in land and trees.

[21] Increasing cocoa bean quality resulting in higher cocoa prices can also improve income. Increasing supply alone relative to demand would tend to put downward pressure on the prices farmers receive. Downward pricing pressure can be dampened by balancing output growth with demand and giving greater emphasis to quality, thus improving incomes and competiveness (personal communication, WCF).

[22] This raises the prospect of an entrepreneurial class of cocoa farmer able and willing to invest in cocoa rehabilitation. For other farmers, a transition away from cocoa to other crops may make the most sense, particularly given the risks of yield swings associated with climate change (personal communications, WCF).

governance structures, who must eventually be at the forefront of implementing the change.

An important component of reducing deforestation involves addressing prevailing tenure arrangements so that increased land and tree tenure security provides a secure platform through which investments in improving cocoa productivity become less risky (Box 3.1). The current customary, undocumented land tenure regime along with the separate and evolving approach to tree tenure have incentivized removal of shade trees and encroachment of cocoa farms into natural forest. Clarifying and securing rights in land and trees along with good governance is an important starting point for this discourse. However, low cocoa productivity will prevail regardless of tenure intervention unless accompanied by a transformation that increases farmer income and provides the enabling conditions and incentives for land and tree investment. Two questions require answers in this regard. First, what tenure arrangements will enable farmers to implement management practices that allow for sustained and profitable use of plantations rather than short-term exploitation and abandonment? Second, what system of cultivation and production support will increase farmer income and encourage smallholders to make the necessary investments in replanting?

The section below synthesizes key findings on the linkages between land tenure, cocoa productivity, and deforestation. It concludes that practical policy and program interventions on tenure arrangements with potentially positive outcomes are feasible.

3.2 Types of Land Title and Tenure Arrangements

Land ownership and tenure is separate from tree tenure in Ghana, and has its own unique set of issues connected to cocoa. Land ownership in Ghana can be divided into three categories: customary ownership, state ownership, and co-management between state and customary owners. Customary lands under the ownership and control of customary authorities (stools/skins, families, clans, and heads of communities) account for 80 percent of land in Ghana; the remaining 20 percent is vested in the state (Blocher, 2006; Kakraba-Ampeh, n.d.). Types of customary tenure (Blocher, 2006; United States Agency for International Development, 2015) include:

- ***Allodial title.*** The highest form of customary interest in land is vested in stools, skins, clans, or families who hold land in trust for members of their community, while the legal title is held by the chief or other traditional leader (Blocher, 2006). Only indigene landowning groups can hold allodial title to land. The allodial title may enter into customary tenancy agreements with non-indigene strangers, but only if the land is not yet allocated to a usufruct title.
- ***Usufruct (Customary freehold).*** Cardinal principles for customary freehold and its evolution are well established and long captured in the literature (e.g., Danquah, 1928; Ollennu, 1962; Sarbah, 1904). The usufruct is created through customary rules that entitle every indigene or sub-group of an allodial community the right to work any common forests hitherto worked by other indigenes. Perpetual "private" usufruct rights (that exclude other members of the landowning group) are held by a person or sub-group for the portion of the common forest worked. Lands once worked remain private within the usufruct family or clan and may be left fallow for years without loss of usufruct rights. Much of the usufruct rights across rural Ghana have been gained in this manner.

  The holder of allodial land has strong incentives to limit the rights of usufruct by, for example, allocating lands for cocoa production only to non-indigenes who cannot gain usufruct rights. In rare circumstances, an allodial holder may allocate land to a subgroup or individual indigene to hold as usufruct or customary freehold.[23] Usufruct rights are conditionally perpetual; holders may sell, lease,

[23] An interesting question is whether this process has resulted in high amounts of absenteeism among landlords given the relative inelastic supply of indigene owners to stranger farmers. If absenteeism is widespread, how does it affect farm management and cocoa productivity (personal communications, WCF)?

or mortgage their rights. Of particular relevance to cocoa cultivation, usufructs may enter into customary tenancies with non-indigenes (strangers) without involvement or interference of the allodial titleholder. However, holders must recognize the superior ownership of the stool and, in some cases, may provide services to the stool when necessary. Only indigenes can hold usufruct (customary freehold) title.

- ***Leasehold.*** For urban land use mainly, but also for large-scale land acquisition, which is an emerging phenomenon, allodial titleholders may enter into a formal leasehold agreement for up to 99 years with other Ghanaians, and up to 50 years with foreigners. Settlers generally enter into leaseholds. Leaseholds are not customary but statutory, originating from the Ghanaian constitution. Because the constitution prohibits the sale of customary land, any sale or purchase of land must be in the form of a long-term lease (50 or 99 years). After this period, the law states that the land must return to the original owner. However, in practice, this point is far from clear and creates uncertainty in the minds of both lessor and lessee over ownership rights (Lambrecht & Asare, 2015). The plural system of statutory and customary land administration in Section 3.6 does not help in this regard and leads to ambiguous interpretation, enforcement, and rent seeking among parties.

- ***Customary tenancies and/or land agreements.*** Customary agreements are erroneously generalized in contemporary literature as sharecropping agreements, misinterpreting the Akan words *abunu* (half share) and a*busa* (a third share) which are used to describe them. *Abunu* and a*busa* are generally used in the rural land economy to describe a whole 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.[24]

  Abunu contracts are widespread in the cocoa sector and consist of two generic types. Under a commonly observed *abunu* contract in cocoa production, a usufruct holder or allodial titleholder enters into an agreement with a stranger farmer to work the forest and bring the entire farm to maturity. Once the farm matures, it is divided in half between the stranger farmer and the landlord. Through this arrangement, the stranger farmer gains exclusive and nearly perpetual rights over his/her portion of the cocoa farm, subject to the condition that the land must remain in cocoa. However, once land is cleared, the landlord retains the right to reclaim the land, although landlords and tenants can and do widely disagree on the validity of this claim. A variant of *abunu* (half share) is akin to a sharecropping agreement. The landlord, besides contributing the land, also contributes resources (labor or other inputs) to the tenant to create a cocoa farm. Upon maturity, the harvest is shared annually in halves and the farm is not divided. In this case, the stranger farmer is simply a sharecropper and is expected to vacate the land once the cocoa farming operations cease.

  Under *abusa (a third share)*, a landowner establishes a farm, and the sharecropper is responsible for farming and maintaining the entire farm. The sharecropper keeps one-third of the crop proceeds, the landowner keeps one-third, and the last one-third is used to finance inputs.

  Land acquisition through the above tenures is not mutually exclusive. An indigene short of land may enter into *abunu* or *abusa* arrangements to farm additional parcels of land beyond the usufruct rights allocated them by the stool, a practice that is more prevalent as land shortages increase.

- ***Caretakers.*** Caretakers are hired once a farm is established and paid for their labor with a portion of the crop. The caretaker has no ownership rights over the land or farm and can be terminated at will.

[24] Stranger farmer is a term used in Ghana to describe non-local farmers.

For the above tenures, farmers' rights over standing crops are generally secure (Udry, 2011) although men and women do not share equal rights.[25] Due to sociocultural norms, women are most often the group deemed unworthy of participating in land-related discussions (Torvikey, 2016).[26]

Once land is left uncultivated, negotiations may ensue over who cultivates the land next. Current holders must usually obtain permission from the family or lineage elders before planting trees or transferring land. Being able to decide on land use independently from family or authorities is considered an advantage of private versus family land. Increased individualization is occurring, the result of population pressure and market integration. As individuals acquire continuous claims to land, they acquire stronger rights that entitle them to make more exclusive decisions (Lambrecht & Asare, 2015).

These dynamics have played out over decades. When land was still abundant, indigene families or sub-groups worked common lands to establish usufruct rights while paramount chiefs could allocate land to families. However, in present times, much of the land has already been divided and allocated to extended families (family land), which is further subdivided among nuclear families and individuals. In some communities, skin/stool/family land is sold, and once sold, is considered private land. Generally, the chief cannot take away family or private land without consent of the family or landholder. Stool land still exists in the north but is disappearing or has disappeared in the south (Lambrecht & Asare, 2015).

3.3 Customary Land Rights Affecting Cocoa Investment

Decades ago, customary rules presented strong incentives for indigene families, sub-groups, or individuals to clear forests to gain usufruct rights; the extent of land allocated for usufruct was limited only by labor constraints. However, the allodial titleholder's incentive was rather to allocate forest land to strangers (who cannot own usufruct rights) to retain long-term interests in land, creating a source of conflict between the paramountcy and families and sub-groups that are manifest today. Through this process, the allodial titleholder became the landlord to stranger farmers seeking land for cocoa cultivation. Migrants or stranger farmers supplied the labor. In the Western Region, the new frontier for cocoa cultivation, many migrants came from older cocoa-growing areas in Asante and the Eastern Region, where yields from aging trees were declining, and cocoa suffered from swollen shoot disease (Arhin, 1985; Berry, 2001; Hill, 1963).[27] There they were joined by migrants from the savannah regions of northern Ghana and neighboring countries, who worked as laborers on the farms of older residents, and in a few cases, went on to establish farms of their own (Arhin, 1985).

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 is now contested and terms are being reinterpreted. Table 3.1 provides a snapshot of prevailing land disputes originating from *abunu* and *abusa* contracts. Of particular importance for cocoa rehabilitation is the *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, 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.

---

[25] Under customary law and practice, women can own land or trees. However, in most places their right to inherit land is relatively weak and insecure. For example, in patrilineal societies, if a man dies and his land is divided among his children, the daughters receive a much smaller portion than the sons do. However, once land is acquired, its use is not restricted (Acheampong, Dawoe, Bosu, & Asante, 2014).

[26] There are emerging avenues for addressing greater women's participation including the establishment of land committees and consultative forums with civil society organizations as leads. These approaches promote gender-inclusive, equitable community land stewardship and downward accountability in agricultural investments. They also provide ways to sensitize communities on women's land rights while lobbying for their inclusion in land governance institutions (Torvikey, 2016).

[27] Allodials possess only limited (ceremonial) rights over lands once they become subjected to usufruct.

Table 3.1: Nature of Conflicts over *Abunu* and *Abusa* Contracts

Abunu Conflicts	*Abusa* Conflicts
a. Tenants not declaring the correct cocoa yields and income b. *Abunu* landlords harvesting food from the yet-to-be-shared farm without the tenant's permission c. Poor management by the tenant prior to sharing d. Landlords asking tenants to perform extra work e. Failure of tenants to cultivate all land allocated them within the specified period resulting in the landlord taking back uncultivated land f. Disagreements related to cost of maintenance, inputs, and harvesting when the farm is not yet shared g. Tenants asking landlords to bear the cost of sub-dividing the farm h. Tenants selling cocoa and not giving landlords their share of the proceeds prior to the farm being shared i. Tenants giving more emphasis to food crops than cocoa j. Landlords reducing agreed upon acreage and giving it to another farmer k. Tenants managing multiple plots and devoting more time to one at the expense of another l. Tenants subletting to other tenants and assuming the role of landlord	a. Landlords making new rules not previously agreed upon b. Poor management by the tenant who neglects maintenance and only comes to harvest c. Dishonest tenants who harvest more than they declare d. Landlords reducing the initial area agreed upon with the tenant e. Landlords asking tenants to do more work than is stated in the contract, popularly referred to as *nnahoo* (extra work), this is a major source of conflict f. Landlords are difficult to please and complain about everything g. Tenants believe that the landlord is stealing their cocoa

Source: Acheampong et al. (2014).

Both landlords and tenants acknowledge disagreement over the duration of the *abunu* tenancy. Under present circumstances, tenants avoid replanting cocoa trees for as long as possible to prevent land from being taken back by landlords.[28] Boni (2005) reports evidence of chiefs increasing their demands for rent and threatening to curtail the land rights of strangers.[29] In this situation, who has the incentive to reinvest in cocoa tree removal and replanting? Because rights to cocoa tree benefits are secure, the stranger farmer has an incentive to keep cocoa trees on the land, even if those trees are old and unproductive. The landowner, due to cultural norms, cannot terminate the land contract until the cocoa trees are cleared and has an incentive to prevent any new plantings by the tenant even though s/he may lack the labor to put the land to productive use. Who holds rights to the land after the lease period has expired? According to law, it is the landowner although, in practice, this is widely disputed.

As the population grows, native forest available for conversion to farming becomes scarce. As landlords seek to pass farm land to their children, customary contracts are being renegotiated and reinterpreted, creating tension between stranger farmers (tenants) and indigene usufruct right holders. As a result, there is a rising tide of conflict when both landlord and tenant die and the children of the tenant lay claim, which relatives of the landlord then challenge. As land values rise, chiefs and family heads are also tempted to profit from land sales that were previously meant to support the extended family (Lambrecht & Asare, 2015).

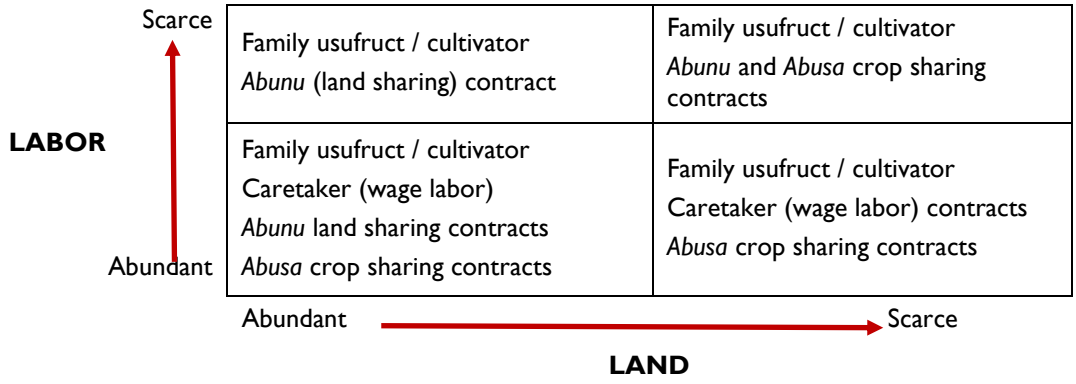
When population density was low and virgin forests were abundant, migrants were allowed (and encouraged) to clear forests for cultivation. Such arrangements allowed land-holding groups with land and natural resources—but with too little labor—to enter into contracts with migrants who had the

[28] Almost all experts interviewed during the scoping visit for this report alluded to knowledge of this risk of stranger farmers losing rights over their farm lands if they were to cut old cocoa trees, making renegotiation and documentation of *abunu* contracts a necessary condition for cocoa rehabilitation.

[29] Traditional authorities command exceptional power in Ghana; as allodial titleholders, they reside at the pinnacle of a structure that controls 80 percent of the land in Ghana. However, day-to-day land management is left to individuals, families, and sub-chiefs who hold customary freehold, leases, and lesser interests (Blocher, 2006).

labor to clear the land. Because forest clearance required considerable effort, tenants were rewarded with strong individual land use rights. However, there is no longer any unclaimed land remaining. Few communities presently allocate customary land permanently to recent migrants (Lambrecht & Asare, 2015). As the supply of land becomes increasingly scarce, Figure 3.1 predicts the disappearance of the *abunu* land sharing contract, a process that is already occurring in parts of the cocoa belt, but this still leaves vast cocoa areas that remain contested.

Figure 3.1: Theoretical Shifts in Prevailing Land Contracts with Changes in Land/Labor Scarcity



A common error in land and tree tenure reform is the belief that tenure categorization under customary systems is static and can be easily locked in via formalization. The longstanding practice of planting cocoa trees to establish rights in land means that land use can alter land tenure security and the nature of landlord and tenant arrangements. Land tenure interventions (land registration, land contracts) intended to clarify and secure rights thus risk unintended consequences and foot dragging by landlords who see such programs benefiting tenants at their expense. Carelessly invoking land registration to lock in ownership claims can foment conflict between landowner and *abunu* tenant and bring latent claims to the surface. As landlords seek to renegotiate or reinterpret *abunu* contracts, the promise of titling risks tenants being scuttled to the sidelines as landlords seek to reassert their ownership claims to protect the rights of future indigene generations. An alternate approach is to document but not formally register the relationship through a mediated process where the landlord is able to (re)claim ongoing benefit from the land, and the tenant's rights to remain on the land and their obligations toward the landlord for the duration of the agreement are clearly specified.

3.4 Tree Tenure—Disincentives to Invest in Forest Canopy

Providing optimal shade throughout the productive life of cocoa plants (i.e., 30-40 percent canopy shade) is important to achieve sustainable yields and sequester carbon. If landowners reaped the full benefit of timber tree extraction, one would anticipate more incentives to avoid overcutting and overthinning, while providing greater incentive to plant new timber and non-timber species that are conducive to optimal, long-term cocoa cultivation and forest harvesting. From all appearances, no private individual or group currently has incentive to protect or invest in timber and non-timber species that provide for forest canopy.

The current law states that all naturally occurring timber trees, whether on private or communal land, belong to the government:

> *The use of such trees is controlled by legislation and it is an offence for an individual or community to cut or sell timber or merchantable tree species without permission of the appropriate government institution. The right to control and manage tree resources, including allocation of logging rights is vested in the state. Farmers have no legal rights either to harvest timber trees they maintain on their farm or to*

any of the revenue accruing from timber extraction, though they continue to exercise judgement over which trees to maintain on their farms during clearing for cultivation (Acheampong et al., 2014, p. 12).

Hence, the rights for managing timber or merchantable species on cocoa lands neither reside with the allodial group, the landowner, nor the tenant, but with the state. This need not be a concern if shaded concessions are effectively co-managed between community and government, but co-management approaches to governing common property are still relatively rare. It might also be possible that farmers illegally cut tree species that are valuable for biodiversity and carbon sequestration to increase cocoa production in the conversion to hybrid, full sun-grown cocoa cultivation. However, this does not appear to be the case (Box 3.2). Rather, farmers appear misinformed about the benefits of tall story shade species and even more importantly, engage in destructive practices to prevent timber contractors from coming onto their land. Furthermore, while full sun-grown cocoa cultivation may be a choice to increase cocoa productivity in the short run, the current policy of managing timber species on private lands also appears to be driving canopy cover toward suboptimal levels of low shade. As a result, aside from an underlying interest by the state, no one has an incentive to plant and conserve timber species to maintain the shade.

Box 3.2: Reasons why farmers destroy trees on cocoa farms

- Because timber contractors harvest them and destroy the cocoa, I destroy the timber trees.
- I have little knowledge about the importance of trees to the cocoa.
- I cut down and sell timber for income and for roofing of buildings.
- I destroy my trees to prevent chainsaw operators from harvesting the trees and destroying my farm.
- I was told that trees are not good for cocoa.
- To prevent concessionaires coming to harvest the timber.

Acheampong, Dawoe, Bosu & Asante (2014, p. 51)

Payments for environmental services (albeit meager at present) offer the potential for improving rural incomes and livelihoods, but a shift in property rights and institutional change is needed to provide a supportive foundation. This could occur through the following:

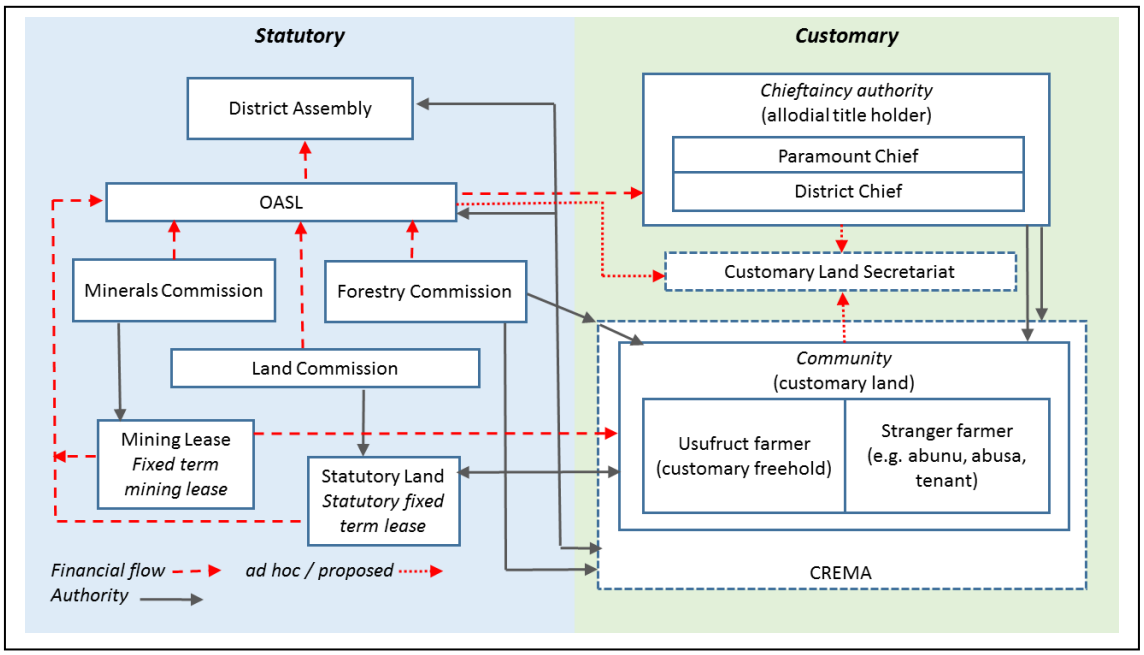
1. Shift the ownership and management of trees to communities and landowners (allodial titleholders and customary freeholders) subject to environmental regulations set and enforced by the Forestry Commission of Ghana. A system to georeference and certify trees on farmers' lands has already been designed and is being piloted by the Forestry Commission.
2. Work with the Ministry of Forestry (timber concessions) and the Forestry Commission's GCFRP to channel rents, dues, royalties, revenues, and other payments through the OASL, and increase the accountability over these funds.
3. Require open and full consultation and consent of communities to logging concessions set by the Ministry of Forestry and made subject to written contract.
4. Ensure that landowning groups receive a fair proportion of these rents, revenues, and royalties to improve community livelihoods. As noted above, there is a question as to whether the distribution scheme now managed by the OASL would achieve this outcome.
5. Allow stool chiefs and landholding groups to contract directly with loggers or to enter into leaseholds with foreign companies to manage timber species.

3.5 Land and Tree Rights Governance

Land administration in Ghana operates under a plural legal system where land rights and governance originating from statutes run in parallel with customary land rights that derive legitimacy from customary

norms within communities. Chapter 21 of Ghana's 1992 Constitution vests all stool lands (i.e., traditional community lands) in the chief or traditional authority in trust for subjects of the stool in accordance with customary law and use, but also establishes broad state oversight of that ownership (Blocher, 2006).[30] Despite 80 percent of land held under customary tenure systems, state control is extensive and includes nationalization of rights to minerals and naturally occurring trees, prohibitions on fee simple sale of stool lands, and control of setting and distributing land rents from customary leases. Figure 3.2 below provides a schematic overview of lines of authority and financial channels connecting statutory and customary institutions.

Figure 3.2: The Maze of Land and Tree Governance/Administration



For statutory land rights, The Lands Commission (LC) comprises the land management division, survey division, valuation division, and land titling division; however, it can only provide land title registration for properties in the Greater Accra Region. In the other nine regions, land transactions (leases, assignments, mortgages) can be documented by the LC in the form of deed registration (Ghebru, Khan, & Lambrecht, 2016; Lambrecht & Asare, 2015). Large-scale investors mostly register farmland; it is less common among smallholders who resort to informal written documents for permanent transactions.

The OASL serves as a financial conduit between statutory and customary authorities. It collects rents from customary land leases, royalties channeled by the Minerals Commission, and timber revenues from the Forestry Commission (Blocher, 2006). These are distributed according to a formula set by law: 10 percent is granted to OASL for administration. The remaining 90 percent of the funds is then divided as follows: 20 percent is given to the traditional authority (chief); 60 percent to the District Assembly of the area; and 20 percent to the stool through the traditional authority (Office of the Administrator of Stool Lands Act, 1994).

[30] Two main bodies hold major responsibility for overseeing management of customary lands: the Lands Commission and the OASL (Blocher, 2006).

Rural customary land transactions tend to be undocumented, although there is some disagreement on this point.[31] Even when captured in writing, documents tend to be held privately by transacting parties, a problem which the government has sought to address. Since 1973, establishing a low cost system of recording oral customary land grants in magisterial courts at the district level has been unsuccessfully attempted (see Government of Ghana, 1973). More recently under a donor-funded Land Administration Project,[32] customary land secretariats (CLSs) have been piloted to utilize the hierarchy of customary land institutions to record customary transactions and manage tasks of systematic land administration.[33,34] However, the state's unwillingness to fund these secretariats from public coffers has proven to be an obstacle to their sustainability, and many CLSs are struggling to survive. For example, the study team visited a CLS that was located in a storeroom, did not have steady funding, and whose staff was volunteer and ad hoc (Figure 3.3).

Figure 3.3: Photos of a struggling CLS and its files located in a storeroom

It may not be possible or advisable to shift land use decisions entirely to individuals or communities. Rather, a system of shared governance may be required that is agreed to by the individual, stool, community, and state. Ownership information and location of boundaries are often derived from oral tradition rather than based on survey maps, creating fertile ground for litigation and land tenure insecurity. Due to technical and financial constraints of customary institutions, landscape-scale governance and land use planning within rural cocoa areas rarely happen (Yelibora & Adjewodah, n.d.).

Since the implementation of the 1994 Forest and Wildlife Policy, the government has attempted to introduce a number of innovations to encourage community participation in the management and sharing of benefits from the forest. These include community-based natural resource management, participatory forest management, community-based forest management, a modified Taungya system (a type of agroforestry that includes pre-agreed benefit sharing), dedicated forest, and a community resource management area (CREMA). CREMA is a system originally developed for community-based wildlife management and habitat protection that can be adapted for managing forests for REDD+. Of

---

[31] Lambrecht & Asare (2015, p. 9) note that "written documents are common for permanent transactions in all communities visited." while USAID (2015) observes that they are not.

[32] The World Bank-funded Land Administration Project started in 2013 and is currently in its second iteration.

[33] See Kakraba-Ampeh (n.d.) for an overview of CLSs and their role in providing information about landowning communities, land rights, and ownership; maintaining accurate and up-to-date land records; keeping records on all fees and charges associated with land; liaising with Town Development Committees; linking landowning communities with public sector land agencies (District Assemblies and Land Management Committee in particular); and promoting alternative dispute resolution and maintaining records on all land disputes settled.

[34] According to Yelibora & Adjewoday (n.d.), 47 new CLSs were established under the Land Administration Project.

these, only the modified Taungya system[35] and the CREMA approach were implemented beyond the pilot stage. CREMA in particular has resulted in improved natural resource governance, conservation awareness, increased collective community action in their respective jurisdictions, and reduced incidence in anthropogenic activities that underlie deforestation and forest degradation activities. There are over 30 CREMAs in various stages of development (Asare et al., 2013; Yelibora & Adjewodah, n.d.).

CREMAs offer several unique characteristics for strengthening land and resource governance: a constitution, establishment of a management board or executive committee, community-level committees, and agreed-upon rules and regulations backed by district by-laws and endorsed by local government and traditional authorities. A certificate of devolution of management, responsibility, and authority, issued by the Minister of Lands and Forestry, is achievable through the CREMA process. In principle then, CREMAs facilitate community-based assessment and planning, democratic decision making by local leadership, and benefit sharing among all stakeholders. In areas where CREMAs do not exist, there are three alternatives: traditional authority, District Assembly, or association of farmers (Asare et al., 2013; Yelibora & Adjewodah, n.d.). Working on improved land governance opens up a number of complementary approaches that merit piloting (Table 3.2).

Table 3.2: Options for Improving Land and Tree Governance

Scale	Institution	Option	Interventions
National Regional	Forestry Commission	Mechanisms to encourage plantings in timber and non-timber tree species along with redefining "forests" to include shaded cocoa	Shifting rights of timber species from the state to traditional authorities
	Ghana REDD+ Project (GCFRP)	Mechanisms to generate and capture payments for ecosystem services including carbon payments	Developing benefit sharing schemes and channeling a higher percentage of rents directly to landholding communities
	Office of Administrator of Stool Lands	Improvement in the efficiency and transparency of channeling rents, dues, royalties, revenue, and other payments into stool accounts	Improving rural land governance via investments in accountability, transparency, and timely payments
Stools and Elders	In areas to be piloted	Mechanisms to improve governance between landholders and stranger farmers within the stool governance area	• Land use mapping and planning • Boundary mapping of stool and community lands • Public awareness raising and land rights and obligations • Constitutions or land governance guidelines • Benefit sharing modalities between clan, community, and landowner • Contract negotiations and formalization of contracts with large-scale investors
Landowners	In areas to be piloted	Mechanisms to clarify rights and increase tenure security of landowners and stranger farmers.	• Model contracts

[35] Agyeman et al. (2003) report on a revised Taungya system designed through an 18-month consultation process (July 2001 to December 2002) initiated by the GOG with support from Food and Agriculture Organization and the World Bank. In the proposed system, farmers would essentially be owners of forest plantation products, with the Forestry Commission, landowners, and forest-adjacent communities as shareholders. All participants including farmers would be eligible for a share of the benefits accruing from the plantation based on contributions. Farmers would provide most of the labor (pruning and maintenance); the landowner (traditional authority) would contribute land; the forest-adjacent community would protect against fire and encroachment; and the Forestry Commission would contribute technical expertise, training, equipment and tools, and help with stock inventory and marketing.

Scale	Institution	Option	Interventions
			• Contract negotiation between stranger farmers and landowners and with large-scale investors • Awareness raising of land rights and obligations to improve land rights governance • Conflict mediation • Careful formalization & documentation of written land contracts

3.6 Cocoa Production Models

Cocoa bean yield in an unshaded hybrid system begins to drop within 10 to 15 years, while production of the traditional shaded system starts decreasing after 25 years. Cocoa trees after several decades may be replaced with higher-yielding hybrids, but only with steep investment costs. Since trees mature only after three to five years, smallholder farmers face food and income insecurity while injecting labor and financial capital in tree stand development. The costs involved may prohibit continuance of the smallholder cocoa system in Ghana as it currently operates. Sustainable cocoa development may require a transition to new cocoa production models (implying transformation of the agrarian structure) that incorporates elements of the following:

- A shift to an owner-operator model premised on commercial tree crop farming;
- Landlords leasing land to companies with deep pockets, know-how, and financial capital to develop and manage cocoa plantations (Smallholders in these models convert to workers and growers under various possible models built on the foundations of good corporate responsibility—equity share schemes, corporate out-grower schemes, and concession agriculture.);
- High levels of tenure security (formal freehold title, or long-term leaseholds with automatic renewal) and increased emphasis on grower contracts due to high investment costs associated with this development model; and
- State support focused on varietal improvement, land use regulations, environmental controls, contract oversight, and other interventions aimed at promoting and supporting commercial agroforestry.

As the old model of clearing forests to grow cocoa fades away, there will be a need for a new system that embodies higher levels of fixed-place investment (trees), inputs, and management costs. At least two different development trajectories might ensue—one driven by a new generation of more entrepreneurial smallholders engaged in shaded cocoa cultivation but with private sector and state support; and a second driven by monoculture cocoa managed by a new commercially oriented cocoa sector. Neither need be exclusionary to the other, and there are complementarities between them (e.g., sustainability, risk reduction, market expansion, and diversification). However, tenure interventions under each type of cocoa production model are unique.

Tenure reforms under a smallholder-led cocoa system would focus on a number of factors. These include improving coordination between customary and statutory structures, reducing conflict between landlord and tenant, clarifying and documenting rights in different contractual arrangements to strengthen tenure security, transferring rights over timber trees to landowning groups, channeling payments from revenue sharing schemes directly to cocoa farmers, and assisting smallholders and families with cocoa rehabilitation to increase land use value.

Tenure reforms under a commercial model could support long-term land leasing of community land to outside investors with technical know-how, financial capital, and commitment to corporate responsibility and good governance. Reforms could also replace shareholder contracts with out-grower and other benefit sharing schemes, and increase labor employment via wage labor and skills development.

3.7 Summing Up

Cocoa production in Ghana has historically relied on the movement of individuals and families into frontier areas to open up new cocoa farms causing continuous degradation of natural forests. Coupled with this overall trend is the fact that cocoa productivity has declined over time due to worsening soil fertility, compounding the pressure to open up new lands. Conflicts between landlords and tenants combined with unwritten contracts create perverse incentives to keep old and unproductive trees on old farms. By making it unattractive to plant shade trees to prolong the productive life of cocoa farms, government law on tree tenure has contributed further to perverse incentives that encourage removal of shade trees. In the contemporary context of climate change and dwindling forest cover in Ghana, increasing cocoa output by bringing new forests under cultivation is no longer an option.

Redirecting resources into the rehabilitation of existing farms to increase productivity is the only alternative to reduce deforestation. Doing so will require a transformation that calls for change in the farming models of cocoa production, reforms of governmental institutions that regulate the cocoa production sector, and measures to enhance farm productivity through greater market orientation. However, existing smallholder farms are stuck in an inefficient deadlock of contestations around ambiguous contract terms that encourage farmers to keep unproductive cocoa farms in use. There is a role for both the public and private sectors to help unblock this deadlock to help create a conducive atmosphere for farmers, landowners, and customary and statutory authorities to mediate and negotiate standard terms for existing land contracts. Achieving this would open up all the various options available for cocoa farm rehabilitation. Recognizing the complementary roles of the public and private sectors is important: the public sector is best positioned to address tenure insecurity and tenure reform, while the private sector is well equipped to work with farmers on farm rehabilitation through technical assistance and financial support. The concluding section of this report provides detailed steps for public and private collaboration on such a proposed intervention.

4.0 COCOA REHABILITATION PILOT

4.1 Introduction

Section 2 of this report examined the challenges confronting Ghana's cocoa sector, in particular the vast areas planted in old cocoa trees that are past their prime resulting in low and declining yields. High costs of tree removal and the higher productivity of newly planted cocoa carved from secondary and old growth forests encourage producers to extensify rather than intensify production which results in biodiversity loss, deforestation, and environmental degradation. Section 3 examined how tenure insecurity in land and trees is constraining cocoa land rehabilitation and creating perverse incentives to deforest rather than encouraging investment in cocoa intensification.

This section proposes an interlinked set of interventions that encourage replanting old cocoa farms while reducing land use pressures on the forest fringe via the following three interrelated approaches:

A. Strengthen Land Governance. Establish mechanisms to resolve tenure disputes, enforce land, tree, and farm rehabilitation agreements, and establish tenure-responsive land use planning to help address both problems of accountability and transparency and promote farm rehabilitation.

B. Clarify Rights to Land and Trees. Educate farmers and landlords on benefits of clarifying rights and document land and tree tenure to help address problems of tenure security in land and trees that undermine incentives to invest in present cocoa lands and maintain shade trees on cocoa farms.

C. Invest in Cocoa Farm Rehabilitation. Engage cocoa buyers, Cocobod, and the chocolate industry to create financing plans for tree removal, inputs, and extension services to help overcome the high costs of cocoa farm rehabilitation facing resource-poor farmers.

The components below could be implemented as a project or pilot, and a public-private partnership is envisioned between bilateral donors and the private sector along with collaborative engagement from the communities involved. The pilot interventions proposed mirror many aspects of the GCFRP but are equally relevant to the strategies proposed to increase cocoa productivity through CocoaAction (World Cocoa Foundation, 2016).

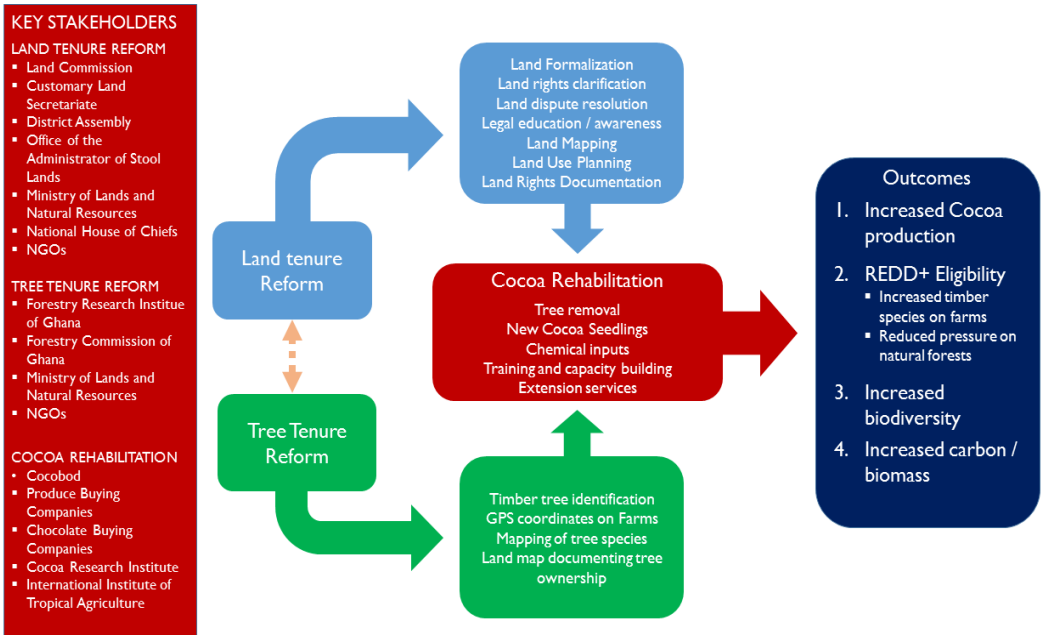
4.2 Results Framework

The results framework in Figure 4.1 schematically sets out how land and tree tenure reform are linked with cocoa rehabilitation. Key stakeholders to be engaged are illustrated on the left. Land tenure reform to clarify and document tenant and landlord rights and responsibilities is a necessary condition to increase tenure security of landlords and tenants, and to encourage old cocoa tree removal and investment in planting and managing new seedlings. However, land tenure reform on its own is not likely to be a sufficient condition for cocoa rehabilitation due to the high investment costs involved.

Tree tenure reform to clarify and document landlord and tenant rights to shade trees affects cocoa rehabilitation in two ways. First, tree planting and certification increases security of tree ownership especially when accompanied by a shift in ownership of tree rights from government to private

landowners. This encourages planting of trees necessary for shaded cocoa, increases wealth (if planted in timber species), and improves food security as well as income generation (if planted in fruit trees). Second, the very process of planting trees increases security of land ownership, thus complementing land tenure reforms in increasing incentives to invest (visualized by the dotted line in Figure 4.1).

Figure 4.1: Results Framework Linking Tenure and Institutional Reform with Cocoa Rehabilitation and High-Level Outcomes



Land and tree tenure reform of the type described above is a necessary but insufficient condition for improving cocoa productivity. Public and private sector interventions that aid farms in cocoa rehabilitation increase the value of land ownership and farmer income while providing incentives for landlords to participate in the interventions proposed. Investing in shaded cocoa rehabilitation increases cocoa productivity, but also increases biodiversity and reduces deforestation (i.e., planting of shade and timber species increases forest and fauna habitat and biomass on farms). 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. Ghana's access to REDD+ payments tied to reducing deforestation and increasing carbon biomass provides macro-incentives for setting reasonable cocoa targets.[36] Interventions (buffer zones, land use planning, and improved land use governance and awareness campaigns) help communities with environmental literacy, conservation, and respect for forest boundaries.

The process is not without pitfalls, one being the risk of goals to reduce deforestation and REDD+ payment schemes pushing cocoa squatters off state lands. For example, Lyngaas (2016) reports on the ousting of squatter cocoa farmers to save the forest in Côte D'Ivoire without government taking sufficient precautions to care for the needs of the displaced. Protecting the forests and the populations

[36] Damnyag, Anglaaere, Tease, & Bawuah (2016), based on consultations with communities in Ankasa Conservation Area, report that farmers generally prefer any REDD benefits be transferred to the household compared to the community, because farmers would be more willing to plant trees and ensure sustainability of the carbon reduction program. This contradicts the revenue channeling by the OASL in Figure 3.2, which would distribute the majority of the revenue to the chieftaincy and statutory bodies. They further conclude that although land tenure reforms take longer to complete, implementing land title registration would help move Ghana toward the REDD+ implementation stage. The benefit-sharing plan of the GCFRP is under development, but is not anticipated to target household-level payments but rather focus on community-level benefit sharing.

that are deforesting them for cocoa cultivation creates the imperative to increase cocoa cultivation/ productivity on existing cocoa lands.

4.3 Pilot or Project Intervention

The complexities of Figure 4.1 warrant a pilot or project intervention that enables learning and knowledge sharing of challenging and good practices. The suggested criteria for selecting sites in Box 4.1 are prerequisites for successful implementation but do not exclude other criteria—e.g., regions (Ashanti, Eastern, or Western), location to market centers or buying points, or presence of infrastructure. Specific tenure arrangements will vary depending on customary norms, history of cocoa farming, demand for farmland, and how practices evolved. Based on evidence gleaned from this study in Western Region, two pilots or project interventions are important for learning:

Box 4.1: Site Selection Criteria:

- Land is suitable for long-term, sustainable cocoa cultivation and this land use is supported by farmers
- Demand for written documentation of land and tree rights and marketing contracts by landholders, tenants, and communities
- Presence of a CLS or CREMA to lodge records and adjusticate disputes if possible
- Willingness of communities and traditional authorities to abide by dispute mediation mechanisms agreed upon
- Presence of good governance and institutional structures to house records, protect rights, and enforce agreements
- Ability to control cross-selling/side-selling of cocoa by contract between community and PBC to ensure that investment costs provided are recouped
- Commitment by community and authorities to work together on developing land use plans that manage natural resources, curb forest degradation, and control illegal logging
- Access to CHED extension agents and improved planting materials

I: Managing Cocoa Expansion in New Frontier Areas.[37] This site is characteristic of newer cocoa areas located at the fringe of secondary and old growth forests. Because of land scarcity and population growth, *abunu* tenancies may have already begun to disappear. *Abunu* tenancies may or may not be a concern, but lack of formal documentation in land and tree rights still increases farmer vulnerability to rent seeking by traditional authorities and the impact of illegal logging and cocoa tree destruction. Due to the cocoa tree mosaic discussed in Section 2.2, some cocoa trees will be past their prime and in need of replanting, but also more dispersed than in Pilot II below. The cost of timber felling (for cocoa cultivation) in this context is less constraining as households tend to be younger in age, but there is still risk of biodiversity loss and environmental degradation at the forest fringe. The emphasis in this context would be on controlling further expansion into forests through community education, land use planning, forest gazetting, or buffer zones that collectively act to curb deforestation while maintaining high levels of cocoa productivity.

II: Rehabilitating Old Growth Cocoa Areas. This site is characteristic of an established cocoa growing area where the majority of cocoa trees are past their prime, productivity is low and declining, and the farming population is older as younger households have left in pursuit of better opportunities elsewhere. Deforestation to clear land for cocoa cultivation will have taken place decades ago, and new cocoa cultivation has long since shifted to new forests further away. Depending on context, either sun-cocoa or shade-cocoa systems may be appropriate.[38] Cocoa production is rapidly declining or has reached low levels of productivity due to two main constraints: a) prevalence of *abunu* tenancy

[37] Unsustainable cocoa production has pushed cocoa cultivation into forested areas, but there is now little land left for further expansion (United Nations Development Programme, n.d.). Because farmers have limited incentive and capital to undertake rehabilitation and manage farms more sustainably, interventions would need to curb further expansion while improving livelihoods on existing land.

[38] The reality is that there is a continuum with farmers falling somewhere in between depending on the age of the farm, their level of training/education, and region.

discouraging replanting trees because of tenants fearing loss of land with tree removal; and b) farmers and community(s) lacking the financial and labor resources to replant old trees with new hybrid varieties and improved farm management practices. Labor constraints and livelihood generation will be paramount to attract or retain youth and younger households along with improved social service delivery. Farmers will require knowledge and tools that assist with key land use decisions, for example, to invest in cocoa or other competing crops (food crops, rubber, and palm oil).

Criteria for selection of specific farms or communities should require substantive consultations at the outset with communities, traditional leaders, and statutory authorities, aimed at reaching agreement on process, documentation modalities, benefit/cost sharing, dispute resolution, and contract enforcement.

4.4 Proposed Interventions

The range of proposed interventions below are generalized for a wide variety of applications and contexts, but not all may be necessary depending on public investments already made (e.g., a companion project demarcating boundaries, assisting with land use planning, or developing a CREMA structure). The interventions involve some sequencing, although some components of Parts A and B may occur concurrently.

A. Strengthen Land Governance, Dispute Settlement, and Enforcement

Task 1. Develop Memorandum of Understanding among authorities responsible for rights clarification and enforcement.[39] Land and tree tenure in Ghana is characterized by legal plurality, institutional or organizational gaps, overlapping jurisdictions, rent seeking, support or interference by traditional authorities, and weak to absent service delivery by statutory institutions. Agreement on addressing these issues of legal and jurisdictional plurality and weak governance should be reached based on the following at the outset:

- The authority or set of authorities responsible;
- Goals and milestones with regard to scheduling and communities/families affected;
- Roles and responsibilities of communities, traditional authorities, private sector, and statutory authorities involved;
- Process to agree on the templates to document land and tree rights, and the process to validate documented claims; and
- Process or authority identified/established to mediate disputes among landholders, traditional authorities, and statutory bodies, and to enforce decisions reached.

The following authorities will likely need to be engaged: community sub-chief, House of Chiefs, District Assembly, OASL, Forestry Commission, and LC. All intervene in land affairs (rights clarification, documentation, revenue collection, and dispute resolution) to varying degrees.

Task 2. Develop mechanisms for land conflict resolution. The process of adjudicating land and property claims runs the risk of elevating long-standing latent disputes between landlords and tenants, family landowners and traditional chiefs, communities and the paramountcy, and customary and

[39] A memorandum of understanding (MOU) takes time and requires building confidence and trust between customary and statutory authorities. Waiting for a formal MOU to be developed could easily stall the process. Nevertheless, formalizing an agreement between statutory and customary authorities in some form is important (e.g., on legal recourse for handling disputes or where to lodge records). However, for model contracts, it may be best to aim for an understanding only with farmers, usufruct owners, and customary authorities, as these are the responsible parties for *abunu* and *abusa* contracts, and it would avoid bogging down the process with unnecessary state bureaucracy.

statutory authorities. The process of mediating these disputes needs to be anticipated under Task 1 and mechanisms established for their orderly and timely resolution:

- Build upon existing customary dispute resolution mechanisms (e.g., traditional headmen, religious leaders) to gain acceptance and legitimacy and to resolve as many disputes at possible at local community levels. Supplement these processes with due recourse to the paramountcy or to statutory institutions as determined under Task 1.
- Determine alternative dispute resolution mechanisms and reach agreement on their credibility among all stakeholders. Develop an alternative dispute resolution team comprised of community, customary, and statutory authorities to resolve disputes and disagreements during implementation and provide training in dispute resolution techniques agreed upon.
- Provide for difficult cases to be handled by the paramountcy or statutory authorities as appropriate to ensure checks and balance and to expedite resolution.

Undertaking a pilot, activity or project in the vicinity of a fully functioning CREMA or CLS would provide an insitutional backdrop to improve governance, adjudicate rights, resolve grievances and lodge dispute records and land documentation.

Task 3. Conduct rapid community and landscape assessment. A rapid assessment of the geographic scope of the intervention, interest and capacity of communities to participate, and project baseline should be conducted. This will happen at the outset, and would assess prevailing land tenure, cocoa productivity, household income level, and deforestation conditions in the area and would build on existing datasets maintained by LBCs:

- Total estimated land area, number of communities, usufruct families, and tenant families;
- Assessment of prevailing tenets of customary land ownership and tenancy arrangements (*abunu* and *abusa*) governing land and tree rights within a given community;
- Estimated cocoa production and/or sales by community, average age of cocoa trees, and key production constraints and opportunities; and
- Relevance of project intervention components to community needs.

B. Clarify Rights to Land and Trees

Task 4. Undertake community outreach, sensitization, and legal awareness. Communities will need to be consulted about the proposed intervention and sensitized to the actors involved, types of interventions to be undertaken and why, role of traditional and statutory authorities in the process, intended outcomes, and timeline. They will also need legal education about the land tenure reforms to be undertaken with a special focus on rights of women and vulnerable groups:

- Develop clear messages to help communities understand the purpose, scope, and benefits of the interventions proposed: documentation of customary land tenure rights and obligations; tree tenure policy and ownership negotiations; options/strategies for cutting and replanting old cocoa trees; stakeholder roles; and timeline.
- Develop community participation and training methodologies.
- Design a media strategy (graphic designs on clothing, text messaging, community meetings, and school programs) and use a training of trainer approach to train field staff in the dissemination of messages while achieving scale.

- Develop a monitoring framework to establish baselines and assess levels of comprehension, acceptance, and support of intervention.
- Engage statutory institutions and customary authorities on intervention activities, estimated timelines, due process, and logistical commitments.

This work could occur concurrently with parts of Part A. Task 3 will need to be initiated before Task 4.

Task 5. Develop formal templates for documenting land and tree rights.[40]

In cases of sharecropping, both the rights of indigene farmers and tenants should be documented and lodged with the appropriate authority. Even though land rights and tree rights are tied to the same parcel of land, two separate systems of administration have emerged: a) leasehold agreements under the LC and CLSs, and b) tree permitting under the Forestry Commission (ironically both fall within the Ministry of Lands and Natural Resources). Operating and maintaining both land and tree record systems separately is inefficient. Two registers compete for scarce resources and increase the cost of transacting land and property. Moreover, financial sustainability runs the risk of paper documents that record rights filling the back offices of government agencies, impeding access by interested parties. For the sake of efficiency, transparency, access, and oversight, it makes sense that any written documentation of land and tree rights be linked to one parcel map and stored in one registry. However, there is, as of yet, no formal agreement as to what document depositary that should be. Task 1 will need to determine the appropriate institution until such time that regulations are developed.

Terms and conditions underpinning customary sharecropping arrangements can vary from community to community and region to region, and do not take into account recent policy developments regarding tree tenure. Templates to document land and tree rights for smallholders should be developed with clearly stated terms and conditions that apply under customary law:

- Collect and analyze the range of current leasehold contracts (for *abunu* and *abusa* contracts) and tree permits developed by nongovernmental organizations (NGOs) and statutory institutions.
- Assess customary norms governing land and tree rights, and land ownership and tenancies, and reach consensus on needed terms and obligations.
- Develop draft model templates for customary tenancies and tree permitting that are consistent with prevailing customary norms and the new Forest Commission policy on tree tenure, based on the findings from the assessment in Task 3.
- Work with a LBC to ensure that templates fulfill any requirements of the cocoa replanting financing package developed in Part C.[41]
- Verify draft templates in community meetings. Utilize the alternative dispute resolution team under Task 2 to mediate disagreements.

---

[40] The template should balance the interests of farmers and landlords and may apply to multiple communities or a single community depending on variances in cultural norms and traditions. Documenting the arrangement under customary law will be the first step in formalization and the process of documenting land rights. However, the process could also be upgradable to a statutory lease in the future if needed to accommodate demands for higher levels of tenure security a from an influx of investors or high capital investment, potential conflicts with logging companies or traditional authorities asserting or reasserting ownership rights, or communities pooling land assets for rental to outside commercial interests.

[41] The leasehold agreement should recognize international principles of "secure enough," gain acceptance in both customary and statutory domains, and be upgradable with due process. As with land rights, there is a need to reach consensus on terms of tree tenure and include these in template contracts as well.

- Determine where documentation of tenure rights should be safely stored (e.g., community, CLS, CREMA, LC, or District Assembly).
- Reengage statutory and customary authorities, landowners and tenant farmers in community events to validate templates and inform landowners of modalities for storing documents.

Task 6. Demarcate and carry out land use planning at the community level. The first step is to demarcate community boundaries and carry out high-level land use planning.[42] Communities should be informed beforehand of the sequence in which lands will be surveyed and documented to manage expectations. Anticipated process and activities:

- Decide upon geographical tools to document land uses in preparation for cocoa rehabilitation.
- Create community field teams to accompany the technical survey team and provide labor and local farm knowledge. Agreements should be reached at the outset on terms of payment—ideally pro bono as the community's equity contribution.
- Complete a land survey using a general boundary approach to identify the outer perimeter of community land if feasible, followed by demarcation of individual farms within Task 7.
- Prepare a land use plan for the community using Google Earth or other free satellite imagery to document village boundaries, permanent forests, prevailing and intended land uses, current location of sun versus shade cocoa, location of young versus old and unproductive trees, and location and extent of farms that need to have cocoa trees replanted.
- Develop fully costed work plans and budgets for farm-level demarcation based on surveys using low cost, fit-for-purpose approaches.
- Hold community forums to review land use plans and agreed-upon cocoa rehabilitation and forest protection strategy.
- Use prepared land use maps to inform the strategy of cocoa land rehabilitation after individual demarcations in Task 7 are completed.

Task 7. Undertake individual usufruct and tenancy demarcations.[43] Following the community-level demarcation, farm-level demarcation will occur. The field survey team established in Task 6 above should carry out the following:

- Develop a work plan that schedules the systematic demarcation and adjudication of land and tree tenure. Survey individual farmland for demarcation, moving systematically through community lands as agreed.
- Develop individual parcel maps that include information on number of timber trees (by species) geopositioned together with documented rights per terms established in Task 5. Mediate any conflicts. No cocoa tree rehabilitation will be undertaken until this task is completed, due to risk of tenants losing land because of premature tree clearing.

---

[42] This sequence of community land demarcation could be problematic. Land parcels of community members determine the extent of community land areas, not the other way round. Reaching agreements on farm boundaries and their demarcation is relatively straightforward resulting in a mosaic of community area. However, negotiating boundaries between communities first could be contentious as it risks conflict between the community and provisional chiefs and paramountcy.

[43] A number of LBCs have already undertaken cocoa land demarcation with GPS mapping; the methodologies employed and accuracy no doubt will vary across operators raising questions about the need for measurement standards to underpin land administration.

- Hold periodic community meetings to update community members on problems faced and progress made and to answer community questions in an open, transparent manner.
- Prepare template documents and tree permits *en masse* that await formal validation. Prepare leases and maps of parcel boundaries and presence of timber species.
- Resolve any disputes between landholders and tenants, or forward to higher authorities for rendering.

Task 8. Validate demarcation and lodging of documents at the community level.[44] Once work on Tasks 6 and 7 are completed, community-wide forums can be used to validate prior work by carrying out the following:

- Assemble community members and all principal stakeholders in a final validation community forum to present the community demarcation, land use plan, contracts, and tree permitting for non-disputed cases and display the list of leaseholds and *abusa* contracts for review and validation.
- Assign a designated time for the community to review or contest, after which the documents are transferred to the authorities identified in Task 1 for lodging.
- Conceivably, a subset of parcels and landholders may remain in dispute. *A priori* under Task 4, all community members are informed that the program will end with the lodging of documents with authorities. Setting an end date will encourage disputants to settle to take advantage of cocoa rehabilitation interventions that follow.

C. Invest in Cocoa Farm Rehabilitation

Section 2 elaborated on the scale of cocoa productivity decline stemming from the spread of old and low-yielding cocoa trees that are past their prime. Tasks 1 to 8 above address two major constraints that contribute to this outcome:

1) Clarifying and securing the rights of landholders and tenants that discourage tree removal under *abunu* contracts; and
2) Securing landholder rights to timber trees on cocoa plantations to encourage higher-yielding shaded cocoa cultivation and improve farmer and community capture of tree logging revenue in future years with selective tree cutting and replacement.

The tasks below address the third primary constraint identified in Section 2.2—the high costs of replacing old cocoa trees with new hybrid varieties and tree species for shade along with input support and extension services. Cocobod used to support cocoa rehabilitation but no longer does; tree removal without tenure reform sometimes created disputes between tenant farmers as tree removal risked loss of land and property.

The cocoa-buying and chocolate manufacturing and consuming industries benefited (within a shorter time frame) from the transition from forests to shaded cocoa to sun-grown cocoa but at a cost of biodiversity loss, deforestation, environmental degradation, and climate shocks. Sustainable cocoa cultivation will require rethinking how the entire value chain, not just producers, can make the transition to sustainable, climate-sensitive cocoa cultivation. The following tasks are steps in this direction.

[44] A number of dispute resolution mechanisms could be considered—self help desks where people can get one-on-one counselling and whistle-blower hotlines so that people who have a complaint or a concern can report these anonymously.

Task 9. Design and settle upon finance mechanisms to cover cocoa rehabilitation costs and mitigate repayment risks. Agreement on mechanisms to cover the costs of cocoa tree rehabilitation needs to be established. Options range from grant support to providing farmers with upfront coverage of investment costs in exchange for payment with cocoa in later years. Grant mechanisms will encourage farmer participation and offset the costs of learning, but are not sustainable in the long term and do not test repayment models. For sustainability, long-term financing options will be required that may come from corporate balance sheets, investors/social impact funds, and/or through banks. For a pilot that seeks to explore the feasibility of cocoa rehabilitation, initial per ha rehabilitation costs may be higher than expected over the long term due to initial learning. Funders should consider taking a reduced return or subsidize the pilots (via taking no return or a loss) in the early years to ensure the cost of learning is not passed onto early moving farmers, and to demonstrate to farmers that the model is viable and attractive from the start.

Irrespective of the funding source, allowing repayment through increased cocoa yields in future years will be more attractive to farmers than cash repayment. Unfortunately, any repayment via cocoa yields carries the risk of farmers cross-selling or side-selling to competitors and not honoring repayment agreements, exacerbated by inadequate enforcement mechanisms and recourse for LBCs and lenders. These risks need to be addressed at the same time as the funding model is being designed.

Several strategies might lessen the risk of cross-selling/side-selling and increase enforcement of loan repayment:

- Develop a cost-benefit analysis of cocoa rehabilitation and design of repayment structures with rates of return calculated. This may help attract long-term investment finance (see Rainforest Alliance & New York University Stern School of Business, 2013 for a scheme tested and piloted in Côte d'Ivoire).
- Choose geographical sites where a LBC is the dominant buyer.
- Where a large number of farmers in a community participate in the replanting scheme, use community-wide cocoa repayment quotas or group guarantees rather than individual farm-level quotas for repayment. Community quotas or guarantees create peer pressure to ensure collective compliance and allow for individuals to cross-sell/side-sell to cover unexpected emergencies if the community makes up the deficit.
- Use group loan guarantees whereby the group takes on the loan but individuals provide the partial guarantee.
- Structure repayments so that communities receive a "bonus"[45] upon final repayment of the loan as an incentive (e.g., solar panels for a community center or other civic project).
- Consider having the LBC hold the farmers' copies of the agreement documenting tenure and tree rights until the loan is repaid, or add a lien that rides with documentation until the repayment quotas are reached.
- Expand the role of the alternative dispute resolution team discussed above to include contract oversight and compliance.
- Build social capital over time between farmers and the LBC, which is already assisting farmers with training, seedlings, and extension advice. As LBCs cannot compete on price due to

[45] One option could be for the bonus to come from the repayments, so it would be self-financed. Alternatively, a social impact investor or government donor/investor could finance the bonus by taking a reduction in their return.

production prices set by Cocobod, assisting farms with cocoa rehabilitation should further deepen loyalty and trust.

- Develop community awareness-raising strategies to inform community members of costs, returns, risk sharing, and repayment structures.

In addition to risk of cross-selling and enforcement, other repayment risks will need to be identified, mitigated, or factored into the financial model:

- Mitigate risk of low yield due to unforeseen events such as weather, fire, pest, disease, or other *force majeure* events. In theory, this could be mitigated by insurance or loan guarantees that assume this risk, although this type of insurance is not currently available in Ghana for cocoa.

- Mitigate cocoa price risk—the risk of international prices dropping, thereby depressing the local price. As the current cocoa price is very low, the risk of further price decreases is not high. Drops in cocoa prices also create a political risk for the government. In the past, the government has depreciated the local Cedi to keep local prices constant to mitigate this. However, if cocoa price risk is passed onto farmers, the repayment period could be structured to adjust based on realized prices rather than bags. If funders assume price risk, repayment could be fixed in number of bags. A blended option may also be possible. In either case, who bears this risk and how would need be communicated to communities.

Task 10. Develop or update extension programs. LBCs already provide farmers with seedlings and extension advice. Such training programs have been adapted from Cocobod training materials and may need to be updated to address all the requirements for proper cocoa farm replanting, such as correct clearing practices, seedling care, intercropping, and fertilizer application. Additional training materials on tenure aspects may also need to be developed. Illustrative activities are the following:

- Deepen LBC training with modules for land and tree tenure, including mechanisms (e.g., demarcation, written contracts, due recourse) for documenting rights and resolving disputes.

- Support a training of trainers' course with participants drawn from LBCs, community representatives, extension agents, and others involved in the pilot program as appropriate.

- Develop training modules on strategies to rehabilitate cocoa sustainability with improved agronomic practices and methods of community engagement, dealing with customary and statutory authorities, and resolving conflicts that may arise.

- Produce or update training manuals with new strategies for sustainable cocoa cultivation and protection of forests as defined in the land use plan agreed upon in Task 8 above. The emphasis of training needs to be broadened beyond concerns of cocoa productivity to issues of environmental protection, tree rights, and preservation of biodiversity loss.

Task 11. Undertake cocoa rehabilitation. The schedule of work on rehabilitating cocoa stands should be identified and agreed upon in the land use plan (Task 8) and would normally be managed by the LBC:

- Develop a work schedule that sequences work across and within communities and explains the plan in community forums. Such a plan will incorporate optimal phasing of cocoa tree replacement, whether all at once or phased percentage of replacement on farms over a period of time (e.g., 25:25:25:25 or 50:50 percentage).

- Finalize options for replacing trees. Possible options include providing farmers with equipment and resources to hire labor; hiring and training work crews (e.g., comprised of youth) and providing them with equipment (e.g., chainsaws); and/or contracting small business to conduct

the work on performance basis. The latter would require training in contracting and business plan development.

- Agree on management and oversight roles and responsibilities of the LBC or other partner to oversee the work, account for expenditures, and track repayment. This may form part of the financial model development in Task 9 above.
- Assist farmers to obtain and plant seedlings, obtain planting materials, and acquire other extension advice at levels sufficient to ensure good agronomic management and practice.[46] This is a key requirement that needs to be planned from the start. Seedlings and temporary shade (plantain) will be the biggest resource required which is not readily available on the market (unlike agro-inputs for example). Over a thousand (1,111) seedlings per ha of cocoa and plantain are needed for replanting, and cocoa seedlings take six months to develop before transplanting can be carried out. Installing temporary shade prior to transplanting of seedlings is also recommended, so careful planning of these inputs is essential.
- Hold monthly or quarterly meetings to update communities (and funders if needed) on progress made against work plans and problems overcome.
- Hold a final forum of all communities at the end to discuss achievements and extend thanks to the communities involved.

Task 12. Undertake comparative study and learning. For a pilot, all stakeholders should commit to learning from beginning to end via the following:

- Compile a comprehensive dossier of the process to capture challenges and lessons learned.
- Produce a working manual based on lessons learned to serve as reference for future interventions.
- Support dialogues with communities throughout, and at the end explain lessons learned and strategies to replicate or scale up work in future interventions. Under Task 2 above, express the importance of this pilot not only to the communities affected, but also to future generations and other communities not yet involved.
- Consider a comparative workshop to compare notes on process, lessons learned, and outcomes with other groups carrying out similar work.

4.5 Concluding Thoughts

It is clear that the growing demand for chocolate and the importance of blending chocolate from multiple sources will sustain demand for high-quality cocoa from Ghana where the yield gap offers high potential for investment. However, there is no guarantee that cocoa will win out over other competing land uses, further emphasizing the need for increasing productivity. Neither is it guaranteed that smallholders will remain the backbone of the cocoa industry in Ghana. While there is a mystique to sustainable smallholder cocoa cultivation, the sustainability of the industry is in question given low yields at present and the high management and input demands required for cocoa rehabilitation. Other development trajectories may yet evolve—communities pooling small parcels into land leasing companies and renting out land to larger concessions or investors, concessionaires acquiring stool land for cocoa investment, or ecotourism or forest companies leasing stool land for ecotourism and forest ventures. Regardless of these long-term changes in land use and ownership, interventions in land and

[46] It would also be important to look at commercial tree nurseries and private sector delivery options for cocoa seedlings and non-cocoa seedlings for indigenous economic trees and cashew, coffee, and shea nut (personal communications, WCF).

tree tenure today will benefit the communities affected tomorrow and into the future. Activities such as this will inform the transitions to come and protect the interests of landholders and communities concerned as well as the private sector.

REFERENCES

Acheampong, E., Dawoe, E., Bosu, P., & Asante, W. (2014). *Moving forward with REDD+ in Ghana: Shade systems, crown cover, carbon stocks and socio-economic dynamics of smallholder cocoa agroforestry systems*. Accra: REDD+ Energy and Agriculture Programme.

Agyeman, V. K., Marfo, K. A., Kasanga, K. R., Danso, E., Asare, A. B., Yeboah, O. M., & Agyeman, F. (2003). Revising the taungya plantation system: new revenue-sharing proposals from Ghana. *Unasylva, 54*(212), 2003.

Arhin, K. (1985). *The expansion of cocoa production: The working conditions of migrant cocoa farmers in the central and western region*. Accra: Institute of Africa Studies, University of Ghana.

Asante-Poku, A., & Angelucci, F. (2013). *Analysis of incentives and disincentives for cocoa in Ghana* (Technical notes series). Rome: MAFAP, FAO.

Asare, R. A., Kyei, A., & Mason, J. J. (2013). The community resource management area mechanism: a strategy to manage African forest resources for REDD+. *Philosophical Transactions of the Royal Society B*, *368*(1625). Retrieved from https://doi.org/10.1098/rstb.2012.0311.

Asare, R., Afari-Sefa, V., Osei-Owusu, Y., & Pabi, O. (2014). Cocoa agroforestry for increasing forest connectivity in a forested landscape in Ghana. *Agroforestry Systems*, *88*, 1143-1156.

Berry, S. (2001). *Chiefs know their noundaries: Essays on property, power, and the past in Asante, 1896-1996 (review)*. Portsmouth, New Hampshire: Heinemann Educational Books.

Bias, J. (2010, May 28). Falling cocoa yields in Ivory Coast. *Financial Times*. Retrieved from https://www.ft.com/content/28e00036-67a0-11df-a932-00144feab49a.

Blocher, J. (2006). Building on custom: Land tenure policy and economic development in Ghana. *Yale Human Rights and Development Journal, 9*(1). Retrieved from http://digitalcommons.law.yale.edu/yhrdlj/vol9/iss1/5.

Boni, S. (2005). Indigenous blood and foreign labor: the ancestralization of land rights in Sefwi (Ghana). In R. Kuba & C. Lentz (Eds.), *Land and the politics of belonging in West Africa*. Leiden: Brill.

Carbon Disclosure Project. (2016). *Revenue at risk: Why addressing deforestation is critical to business success*. London: Carbon Disclosure Project.

Chao, S. (2012). *Forest Peoples: Numbers across the world*. Moreton-in-Marsh, UK: Forest Peoples Programme.

Climate Focus. (2016). *Progress on the New York Declaration on Forests: Eliminating Deforestation from the Production of Agricultural Commodities – Goal 2 Assessment Report*. Prepared by Climate Focus in cooperation with the NYDF Assessment Coalition with support from the Climate and Land Use Alliance and the Tropical Forest Alliance 2020.

Clough, Y., Faust, H., & Tscharntke, T. (2009). Cacao boom and bust: sustainability of agroforests and opportunities for biodiversity conservation. *Conservation Letters, 2*(5), 197–205. https://doi.org/10.1111/j.1755-263X.2009.00072.x

Consumer Goods Forum. (2015). *Deforestation Resolution*. Retrieved December 12, 2016 from http://www.theconsumergoodsforum.com/sustainability-strategic-focus/sustainability-resolutions/deforestation-resolution

Damnyag, L., Anglaaere, L., Tease, F., & Bawuah, E. (2016). Tenure and carbon rights in local REDD+ project: Insights from community-based workshops in Ankasa Conservation Area, Ghana. *Journal of Environmental Science and Engineering,* A4.

Danquah, J. B. (1928). *Gold Coast: Akan laws and customs and the Akim Abuakwa constitution*. London: George Routledge & Sons, Ltd.

ECOWAS-SWAC/OECD. (2007). Cocoa. Atlas on Regional Integration in West Africa, Economy Series, September. Retrieved from https://www.oecd.org/swac/publications/39596493.pdf

Emissions Reductions Programme (ERP). (2014). Ghana's emission reduction programme for the cocoa forest mosaic landscape (cocoa forest REDD+ programme). Accra: Forestry Commission of Ghana.

Essegbey, G. O., & Ofori-Gyamfi, E. (2012). Ghana cocoa industry-An analysis from the innovation system perspective. *Technology and Investment, 3*(4), 276–286.

Forestry Commission and Ghana Cocoa Board. (2016). *The development of Ghana's emission reductions implementation plan: Draft implementation report*. Accra: Ghana Cocoa REDD+ Programm GCFP.

Ghana Cocoa Board (Cocobod). (2014). *45th annual report and financial statements for the year ended*. Accra: Auditors and Registered Office.

Ghebru, H. H., Khan, H., & Lambrecht, I. (2016). *Perceived land tenure security and rural transformation: Empirical evidence from Ghana.* Rochester, NY: Social Science Research Network. Retrieved from https://papers.ssrn.com/abstract=2815183

Goldstein, A., & Ruef, F. (2016). *View from the understory: State of forest carbon finance 2016*. Washington, DC: Ecosystem Marketplace, A Forest Trends Initiative.

Government of Ghana. (1973). *Conveyancing Decree of 1973*, NRCD175 (1973).

Government of Ghana. (2015). *Ghana's intended nationally determined contribution (INDC) and accompanying explanatory note*. Submitted to the UNFCCC. Retrieved from http://www4.unfccc.int/submissions/INDC/Published%20Documents/Ghana/1/GH_INDC_23920 15.pdf

Government of Ghana (2016). *Emission reduction program document: Ghana cocoa forest REDD+ programme (GCFRP)*. Prepared for the Forest Carbon Partnership Facility. Accra: Government of Ghana.

Hansen, C., & Treue, T. (2008). Assessing illegal logging in Ghana. *International Forestry Review, 10*(4), 573–590. https://doi.org/10.1505/ifor.10.4.573

Hawthorne, W. D., & Abu-Juam, M. (1995). *Forest protection in Ghana: With particular reference to vegetation and plant species*. Gland, Switzerland and Cambridge, UK: IUCN.

Hershey Company. (n.d.). *Responsible sourcing*. Retrieved December 12, 2016 from https://www.thehersheycompany.com/en_us/responsibility/good-business/responsible-sourcing.html

Hill, P. (1963). *The migrant cocoa-farmers of southern Ghana: A study in rural capitalism*. London: Cambridge University Press.

Kakraba-Ampeh, M. (n.d.). *Administration of rural lands – Customary land secretariats as local structures for effective rural land administration in Ghana*. Accra: Customary Land Administration Unit, Ghana Land Administration Project, Ministry of Forestry and Mines.

Kolavalli, S., & Vigneri, M. (2011). Cocoa in Ghana: shaping the success of an economy. In *Yes, Africa can: success stories from a dynamic continent*. Washington, DC: World Bank. Retrieved from http://siteresources.worldbank.org/AFRICAEXT/Resources/258643-1271798012256/YAC_chpt_12.pdf

Lambrecht, I., & Asare, S. (2015). *Smallholders and land tenure in Ghana: Aligning context, empirics, and policy*. Rochester, NY: Social Science Research Network. Retrieved from https://papers.ssrn.com/abstract=2741867

Lambrechts, C., Wilkie, M. L., Rucevska, I., & Sen, M. (Eds.). (2009). *Vital forest graphics*. UNEP, FAO, UNFF.

Lyngaas, S. (2016, December 1). Ousting squatter farmers to save forests, Ivory Coast sets off new crisis. T*he New York Times*. Retrieved from http://www.nytimes.com/2016/12/01/world/africa/ivory-coast-forests-cocoa-farmers.html?_r=0.

Milz, J. (2012). *The gloomy outlook for cocoa production in the Ivory Coast and strategies for sustainable solutions for recovery and improvements of productivity*. Bolivia: Ecotop Consult. Retrieved from http://www.ecotop-consult.de/files/the_gloomy_situation_of_cocoa_production_j.milz_april_2012_rev.pdf

Mohammed, D., Asamoah, & Asiedu-Appiah. (2012). *Cocoa value chain—Implication for the smallholder farmer in Ghana*. Southwest Decision Sciences Institute (SWDSI) 2012 Proceedings. Retrieved from http://www.swdsi.org/swdsi2012/proceedings_2012/papers/Papers/PA157.pdf.

Office of the Administrator of Stool Lands Act, 481 (1994).

Ollennu, N. A. (1962). *Principles of customary land law in Ghana*. London: Sweet & Maxwell.

Owubah, C. E., Le Master, D. C., Bowker, J. M., & Lee, J. G. (2001). Forest tenure systems and sustainable forest management: the case of Ghana. *Forest Ecology Management, 149*, 253-264.

Rainforest Alliance, & NYU Stern School of Business. (2013). *Rainforest Alliance and NYU Stern School of Business sustainable cocoa investment challenge*. Retrieved from alliance.org/sites/default/files/uploads/4/sustainable-cocoa-investment-challenge-case-study.pdf

Rautner, M., Lawrence, L., Bregman, T., & Leggett, M. (2015). *The Forest 500. Analysis: Companies. Measuring progress to zero deforestation*. Global Canopy Programme.

Rice, R. A., & Greenberg, R. (2000). Cacao Cultivation and the Conservation of Biological Diversity. *AMBIO: A Journal of the Human Environment, 29*(3), 167–173. https://doi.org/10.1579/0044-7447-29.3.167

Sandker, M., Nyame, S. K., Förster, J., Collier, N., Shepherd, G., Yeboah, D., … Campbell, B. M. (2010). REDD payments as incentive for reducing forest loss. *Conservation Letters, 3*(2), 114–121. https://doi.org/10.1111/j.1755-263X.2010.00095.x

Sarbah, J. M. (1904). *Fanti law report of decided cases on Fanti customary laws.* London: Clowes.

Smith, P., Bustamante, M., Ahammad, H., Clark, H., Dong, H., Elsiddig, E. A., … Tubiello, F. (2014). Agriculture, Forestry and Other Land Use (AFOLU). In O. Edenhofer, R. Picks-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, … J. C. Minx (Eds.), *Climate Change 2014: Mitigation of Climate Change*. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

Streck, C., & Lee, D. (2016). *Partnering for Results: Public-Private Collaboration on Deforestation-Free Supply Chains*. Prepared with support from cooperative agreement # S-LMAQM-13-CA-1128 with U.S. Department of State.

Tawaih, A. (2015). The sad story of Ghana's cocoa industry and the way forward. *Ghana Business News* (June 22, 2015). Accra.

The Finder. (2016, October 24). *Galamsey threatens cocoa production – Report*. Accra. Retrieved from http://www.thefinderonline.com/News/Galamsey-threatens-cocoa-production-%E2%80%93-Report.html

Torvikey, G. D. (2016). Strengthening women's voices in the context of agricultural investments: Lessons from Ghana. London and Accra: IIED and Network for Womens Rights in Ghana.

Tropenbos International. (2014). Projects on "Sustainable cocoa production in Ghana related to forests", April.

Tscharntke, T., Clough, Y., Bhagwat, S. A., Buchori, D., Faust, H., Hertel, D., … Wanger, T. (2011). Multifunctional shade-tree management in tropical agroforestry landscapes – a review. *Journal of Applied Ecology, 48*, 619-629.

Udry, C. (2011). Land Tenure. In *The Oxford Companion to the Economics of Africa*.

United Nations Development Programme. (n.d.). E*nvironmental Baseline Report on Cocoa in Ghana*. Retrieved from https://www.cocoalife.org/~/media/cocoalife/Files/pdf/Library/Environmental%20baseline%20report%20on%20cocoa%20in%20Ghana%20UNDP.pdf

United States Agency for International Development. (2015). *Assessment of Land-Tenure Related Constraints to Cocoa Productivity in Ghana*. Washington, DC.

Waldron, A., Justicia, R., Smith, L., & Sanchez, M. (2012). Conservation through Chocolate: a win-win for biodiversity and farmers in Ecuador's lowland tropics. *Conservation Letters*, 5(3), 213–221. Retrieved from https://doi.org/10.1111/j.1755-263X.2012.00230.x

Wolosin, M. (2013). *Reducing Supply Chain Deforestation: Civil Society Backgrounders and Inventory*. Washington, DC: Prepared for the Tropical Forest Alliance 2020 by Climate Advisors.

World Cocoa Foundation. (2015). Establishing Our Roots, Preparing to Grow. Cocoa Action Annual Report 2015. Washington DC.

World Cocoa Foundation. (2016). CocoaAction Primer, Version 1.0. Washington DC, May.

Yelibora, M. & Adjewodah, P. (n.d.). *Reducing Cocoa Farm Expansion and Encroachment into Forests through Landscape Level Land-Use Planning: A report to Ghana's Climate Smart Cocoa Working Group*. NCRC and UKaid.

ANNEX 1: SCHEDULE OF MEETINGS AND ORGANIZATIONS CONTACTED

Date	Meeting	Contact Info
Wednesday, 12 October 2016	Nature Conservation Research Centre	Dr. Rebecca Asare, Nature Conservation Research Centre, Tel: +233 (0)240687025
Sunday, 23 October 2016	The World Bank	Greg Myers, Lead Land Administration Specialist, Africa Regional Coordinator, Global Land/Rural/Geospatial Unit, Social, Urban, Rural & Resilience G, The World Bank, 1818 H Street, NW Washington, DC 20433, USA Tel: +1-202-473-1839 Email: Gmyers1@worldbank.org
Monday, 24 October 2016	Hershey's Chocolate	Tawiah Agyarko-Kwarteng (Mrs), Hershey Cocoa Sustainability, West Africa The Hershey Company Tel: +233 (544) 431 190 / +233 (20) 909 5616 Email: tagyarkokwarteng@hersheys.com
Tuesday, 25 October 2016	Lands Commission	Dr. Wilfred Anim-Odame, Executive Secretary Tel: +233 208121770 Email: animodame@hotmail.com
	Office of Administrator of Stool Lands (OASL)	Mr. Patrick Amoa, Deputy Head (OASL) Tel. +233208160090
Wednesday, 26 October 2016	Cocobod	Kwadwo Kissiedu Kwapong, Ghana Cocoa Board, Accra, Ghana. Tel: 024459804: 0208173907 Email: Kissiedukwapong@yahoo.com
	USAID Feed the Future Ghana Project	Dr. Julie E. Fischer, Chief of Party, Feed the Future Ghana, Winrock Tel: 0556489159 Email: julie.fischer@winrock.org
	Cocobod	Mr. Ebenezer Tei Quartey, Director, Research, Monitoring and Evaluation Dep. Tel: +233 243653841 Email: Ebenezer.quartey@cocobod.gh; teiquartey@gmail.com
	USAID	Caleb Stevens, USAID

Date	Meeting	Contact Info
Thursday, 27 October 2016	Centre for Geospatial Intelligence Services and Local Governance Observatory	Tony Ntiador, Executive Director, Centre for Geospatial Intelligence Services and Local Governance Observatory; Local Government Training School. Tel: +233 (0)208175883 Email: ntiador@gmail.com
	International Union for the Conservation of Nature (IUCN) Ghana	Saadia Bobtoya Owusu-Amofa, Project Coordinator Tel: +233 (0)264893004 Email: saadia.bobtoya@iucn.org
	Local government	Dr. Calistus Mahama Tel +233(0)243248481; +233 (0)208271408 Email: c.mahama@lgs.gov.gh
Friday, 28 October 2016	SNV	Reuben Ottou, Senior Advisor, Climate change and REDD+ Tel: +233244893528 Email: rottou@snvworld.org
	Travel from Accra to Kumasi Region	Kumasi
Saturday, 29 October 2016	ECOM Ghana Ltd	Olga Gormalova, General Manager, Sustainable Management Services Advisory (Ghana and Nigeria), ECOM Tel: +233 (540) 104 940 Email: olga.gormalova@ecomtrading.com
Sunday, 30 October 2016	Forestry Commission	Yaw Kwakye, Climate Change Unit Tel: +233 244769874
	USAID MOCA Project	Maisha Strozier, Program Manager, Civic Engagement and Social Equity, Winrock International
Monday, 31 October 2016	Land Resources Management Centre	Mark Kakraba-Ampeh, CEO Tel: +233 (0)208111425
	KNUST, Agroforestry Dept.	Dr. Evans Dawoe, Snr Research Fellow, KNUST, Faculty of Renewable Natural Resources, Agroforestry Department
	Travel from Kumasi to Dunkwa-On-Offin	Dunkwa-On-Offin
Tuesday, 1 November 2016	Field visit to Atobiasi Community	Dunkwa-On-Offin, organized by ECOM
	Travel from Dunkwa to Kumasi	Kumasi
Wednesday, 2 November 2016	Forestry Research Institute of Ghana (FORIG)	Dr. Luke Anglaaere Tel: +233 (0)208346537. Between Edwiso and Fumesua. Kumasi-Accra Road

Date	Meeting	Contact Info
	Travel from Kumasi to Accra	Accra
Thursday, 3 November	ECOM Ghana Ltd	Olga Gormalova, General Manager, Sustainable Management Services Advisory (Ghana and Nigeria), ECOM
	USAID Accra	Economic Growth Team
	IITA	Dr. Richard Asare, Tropical Trees and Cocoa Agroforester, IITA Tel: +233243653504 Email: r.asare@cgiar.org.
Friday, 4 November	Hershey's	Tawiah Agyarko-Kwarteng (Mrs.), Hershey Cocoa Sustainability, West Africa, The Hershey Company Tel: +233 (544) 431 190 / +233 (20) 909 5616 Email: tagyarkokwarteng@hersheys.com.
Saturday, 5 November	Mission Concludes	

ANNEX 2: SUMMARY OF THE GCFRP'S FIVE PILLARS

The five Pillars of the GCFPR are:

1) **Institutional Coordination and Measurement, Reporting, and Verification (MRV)**. This pillar includes:
   - operationalization of the Joint Coordinating Committee (JCC), which will be in charge of overseeing and coordinating the GCFRP and will consist of two representatives from the National REDD+ Secretariat, two representatives from the Forest Investment Program, and two representatives from the Ghana Cocoa Board;
   - establishment and support of the program management unit (PMU), which will be in charge of implementing the GCFRP's measures and activities and will consist of representatives from a range of stakeholders including the Ministry of Lands and Natural Resources, Ministry of Finance, Forestry Commission, Mineral Commission, Cocobod, District Assemblies, NGOs, and others;
   - GCFRP activity monitoring/MRV/data management system—these elements will be included under the National Forest Monitoring System managed by the Resource Management Support Centre of the Forestry Commission and will be reported to the National REDD+ Secretariat;
   - law enforcement of GCFRP area, which will include more attention and financial resources going to the Forestry Commission to ensure that emission reductions are being achieved; and
   - creation of Climate Smart Cocoa Hotspot Intervention Areas (HIAs) which will consist of about six areas identified based on deforestation trends and drivers, cocoa production, and population and selected to focus emission reduction interventions.

2) **Landscape Planning within HIAs**. This pillar includes:
   - establishment of Climate Smart Cocoa consortium for each HIA, which will help ensure that key stakeholders in each HIA are working together and will work in collaboration with the HIA Governance Board;
   - completion of landscape management plans for each HIA to ensure stakeholder buy-in and help meet the goals of reducing deforestation and degradation;
   - implementation of HIA management plans, which will involve community outreach, training, patrolling, and implementing land-use enhancing and Climate Smart Cocoa practices; and
   - establishment of Climate Smart Cocoa landscape-level validation and Climate Smart Cocoa Sustainability Standards in HIAs, which include the creation of criteria, parameters, and procedures for accounting of emission reductions from Climate Smart Cocoa good practices.

3) **Increasing Yields via Climate Smart Cocoa.** This pillar includes:
   - Ghana Climate Smart Cocoa Good Practice Guidelines (on-farm and off-farm), which will be developed to ensure uniformity and that practices are actually increasing yields while reducing emissions and enhancing resilience to climate change impacts;
   - Climate Smart Cocoa Farmer Engagement Package in HIAs, which will provide farmers with additional resources, such as access to planting material and access to technical extensions to improve their yields while complying with the Climate Smart Cocoa Good Practice Guidelines; and

- HIA Climate Smart Cocoa Consortium implement package with cocoa farmers, which will initially involve outreach and engagement in the different HIAs, followed by farmer training on the program principles, and finally a contract signed between the farmer, the HIA Governance Board, and the licensed by company consortium; and
- increase transparency in cocoa purchases, which will involve the HIA consortium and the LBCs ensuring that the purchasing clerks are adequately compensated for buying cocoa beans and that all the scales for weighing the beans are accurate. It will also include spot checks of sales.

4) **Risk Management and Finance**. This pillar includes:
   - access to financial credit for Climate Smart Cocoa, which will include the PMU mapping available finance sources and credit lines that farmers could access, followed by collaboration with financial institutions identified in the mapping exercise to foster new credit programs or increase accessibility to current ones. The PMU will also work to establish a new facility focused on developing business plans to produce climate smart products and explore the option of financial guarantees for stakeholders involved in implementing Climate Smart Cocoa programs;
   - access to yield insurance, which will involve gathering data on historical yield and weather data in order to evaluate risk, the identification of insurance companies interested in developing a product for Climate Smart Cocoa, and finally pilot testing the insurance product in one of the HIAs;
   - marketing additional emission reductions, in which the GCFRP will present its potential for reducing emissions beyond 2021 to funding alternatives like the Green Climate Fund;
   - branding and marketing Ghana Climate Smart Cocoa Sustainability Standard beans, in which market studies will be developed of current demand, a national brand will be created to recognize Climate Smart Cocoa practices, and demand will be stimulated based on marketing the product as "premium" cocoa beans; and
   - sustainable finance of HIAs, in which the HIAs will manage their operating costs based on income levels, create trust funds to build of long-term finance reserves, and enhance revenue streams from, non-timber forest product harvesting, and climate finance.

5) **Legislative and Policy Reforms**. This pillar includes:
   - passage of the Wildlife Resources Management Bill by the parliament, which is considered critical to helping communities benefit from natural resources; and
   - policy reform and guidance to policy Implementation, including tree tenure reform, clarification of carbon transaction rights and benefit-sharing agreements for GCFRP, and reform of cocoa farm input system.

   Tree tenure reforms will be implemented through the previously mentioned bill. However, the program will help get approval from the Forestry Commission to pilot new tenure arrangements in the HIAs and support the preparation of official guidelines for the reform implementation. The program will also provide guidance on the implementation of policies clarifying carbon transaction rights and benefit sharing agreements for GCFRP, including supporting the completion of on-going assessments on the ownership of carbon credits transactions.

   Regarding cocoa farm input system reform, the program will support passage and implementation of the Cocoa Sector Strategy II. This includes a number of elements impacting farm inputs, such as distribution of free hybrid seedlings, and modification to customary norms and practices, which includes supporting dialogue and negotiations in the HIAs to help farmers move away from traditional practices that serve as perverse incentives to deforest and degrade forests.

The National REDD+ Secretariat in the Forestry Commission will be in charge of the management and administration of the GCFRP at the national level, with the National REDD+ Work Group and the

GCFRP Steering Committee providing ministerial oversight. The working group is hosted by the Ministry of Land and Natural Resources and includes members from various ministries, departments, and agencies, private sector, civil society, local communities, and landowners/traditional authorities. The GCFRP Steering Committee is comprised of the Chief Executives of the Forestry Commission and Cocobod and Chief Directors of Ministry of Finance and Ministry of Land and Natural Resources. The JCC will be responsible for management and coordination at the program level, while the PMU will be in charge of implementing the GCFRP's measures and activities with guidance and oversight provided by the JCC. As mentioned above, the National Forest Monitoring System, as part of FC's Resource Management Support Centre, will be in charge of developing and updating the Forest Reference Emission Level and the MRV system, which will be presented to the National REDD+ Secretariat. At the HIA level, implementation will be done through HIA Implementation Consortia including a variety of stakeholders from the private sector, government, and civil society in the landscape and managed by the HIA Governance Body, including land users, land owners, and traditional authorities (Government of Ghana, 2016).

U.S. Agency for International Development
1300 Pennsylvania Avenue, NW
Washington, DC 20523
Tel: (202) 712-0000
Fax: (202) 216-3524
www.usaid.gov