



TENURE AND GLOBAL CLIMATE CHANGE PROGRAM

A FINANCIAL MODEL FOR COCOA FARM REHABILITATION AND INCOME DIVERSIFICATION

IMPROVING TENURE SECURITY TO SUPPORT SUSTAINABLE COCOA PILOT

There are several challenges in Ghana’s cocoa sector related to the link between productivity, deforestation, and land tenure. Historic government-held rights to shade trees combined with a desire to boost cocoa yields incentivized the removal of shade and promotion of sun-grown cocoa. This resulted in only short-term productivity increases, large losses in biodiversity and carbon stocks, and an increase in forest degradation and deforestation. After short-term productivity boosts, yields in sun cocoa decline. Elsewhere, shaded cocoa farms have not been replanted and old cocoa trees have declining yields. As a result, up to 40 percent of cocoa farms in Ghana have low productivity and need to be replanted. However, farmers and communities lack the financial and labor resources to replant old trees with new hybrid varieties and many farmers have insecure tenure that prevent or discourage replanting old farms. Farmers have low incomes, food security and nutrition challenges, and limited access to credit to borrow money to invest in their farms. They need information and training on best practices to rehabilitate old cocoa farms, and may need help to improve tenure security. The first two to three years of a cocoa farm are critical to develop a strong and productive cocoa tree. Implementing the best agronomic practices during this period reduces longer term risk to the farmer by helping ensure that the trees will become productive assets that generate cash flow and increase farmer livelihoods and food security. Farmers also require knowledge and tools that assist with key land use decisions, such as whether to invest in cocoa and/or other competing crops (food crops, rubber, palm oil).

FARM REHABILITATION MODEL

To address these needs TGCC implemented the *Improving Tenure Security to Support Sustainable Cocoa* pilot in collaboration with Hershey’s and Ecom Agroindustrial Corp (ECOM). The overall goal of the pilot is to collaborate with ECOM and Hershey’s to better understand and test a model for public-private collaboration to help smallholder cocoa farmers in Ghana increase tenure security, replant old cocoa farms, and reduce deforestation and degradation. As part of the pilot TGCC partner Winrock International worked with ECOM to develop an innovative approach to rural development where ECOM and farmers sit side-by-side to discuss and carry out farm rehabilitation and management. In the model, ECOM rehabilitates and manages all farm activities over three years while the farmer learns farm rehabilitation and management techniques and diversifies their income with cash crops. This approach differs from using model farms, which have had mixed success, where farmers see a model plot during traditional training exercises. In the proposed approach, ECOM carries out the

Project Results:

1. 190 farms mapped (28% women)
2. 71 farms rehabilitated
3. Three model tenure templates developed for mapped farms
4. Community level dispute resolution training
5. Agroforestry and tenure training for ECOM extension agents



Aerial view of cocoa farm being rehabilitated in rows
PHOTO: ECOM

farm rehabilitation and each farmer has their own model plot that they have a vested interest in seeing thrive.

In the model a farmer provides three acres of old cocoa trees to be cleared and has additional cocoa farms elsewhere, which will continue producing cocoa (see text box for complete selection criteria). Existing shade trees will be retained but may need to be cleared if not suitable for the farm. Two of the three acres are replanted with cocoa, shade trees (if needed), maize, and plantains, and the third acre is planted with maize and plantains only. The 2:1 ratio is important due to

different cost and income on each of the parcels. The land cleared and replanted with cash crops only does not have the additional up front cost of replanting cocoa or shade trees.

Plantain and maize is planted on all cleared land with two crops of maize and one of plantain harvested per year (see Figure 1). Plantain is considered an annual crop and harvested with the stems completely cut off, which requires replanting in subsequent years. These two crops were selected based on the recommendations of local agronomist experts and because many farmers are already familiar with both crops. Maize can be intercropped for three years and plantain for four years, after which time the cocoa trees are too fully grown to allow intercropping. Other crops could be considered to help further diversify income and improve food security. Under the model ECOM manages all activities including harvesting and selling the maize and plantains. ECOM invests in the farm

Farm Selection Criteria:

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

	CURRENT STATE		FUTURE STATE	
Rehab Area 2 ACRES	OLD COCOA PLANTAIN	OLD COCOA PLANTAIN	NEW COCOA PLANTAIN MAIZE	NEW COCOA PLANTAIN MAIZE
Extra Area 1 ACRE	OLD COCOA		CUT OLD COCOA MAIZE PLANTAIN	

Figure 1: Rehabilitation model ratios

activities throughout the year (planting, transportation, labor, inputs, supporting logistics) with its own staff, though the farmer may also be hired to save costs.

FINANCIAL RETURN

ECOM’s rehabilitation and management costs are repaid over three years, and a profit share or royalty payment paid to the farmer provides enough cash for the farmers to continue activities once ECOM no longer provides support. The cost and revenue assumptions used in the model show a positive net present value (NPV) of USD\$659¹, internal rate of return (IRR) for ECOM of 71%, and a payback period of 2.1 years. To be conservative, historic low prices for maize and plantain are used and after year one the farmer’s income from the land being rehabilitated should increase (see Figure 2). ECOM selected farmers to participate in the initial pilot with a total of 118 acres cleared for “rehabilitation” and 59 acres of “extra area” cleared for cash crops but not immediately replanted with cocoa.

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

Figure 2: Current vs. future farmer income under a baseline scenario (baseline assumes no labor or input costs)

RISKS

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

Tenure security is another challenge to reaching the maximum number of farmers. A number of farmers are engaged in a type of undocumented customary tenure arrangement (called “abunu”) that may result in losing their cocoa farm if they cut and replant old cocoa trees.



Replanted cocoa farm planted in rows with shade plantains

PHOTO: ECOM

¹ GHC 2,880

Without clarifying and documenting rehabilitation rights any farm rehabilitation will be limited to farmers with more secure land tenure. The costs of documenting tenure rights was not included in the model and will affect repayment.

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

CONCLUSION

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

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