



DE-RISKING LENDING IN GHANA'S COCOA SECTOR TO PROMOTE CLIMATE SMART COCOA ADOPTION - PROPOSED FRAMEWORK.

Climate Smart Cocoa (CSC) Finance Packages for Private And Public Sector Investment

A BLUEPRINT FOR CSA FINANCE IN THE COCOA SECTOR

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About CCAFS

The Climate Change, Agriculture and Food Security (CCAFS) program of the Consortium of International Agricultural Research Centers (CGIAR) seeks to marshal the science and expertise of CGIAR and partners to catalyse positive change towards climate-smart agriculture (CSA), food systems and landscapes, and position CGIAR to play a major role in bringing to scale practices, technologies and institutions that enable agriculture to meet triple goals of food security, adaptation and mitigation. The three main objectives of the program is to Sustainably increase agricultural productivity, to support equitable increases in farm incomes, food security and development, adapting and building resilience of agricultural and food security systems to climate change at multiple levels, and reducing greenhouse gas emissions from agriculture. In Ghana, the CCAFS program is being implemented in the cocoa sector by the International Institute of Tropical Agriculture (IITA) in partnership with the Rainforest Alliance.

About IITA

The International Institute of Tropical Agriculture (IITA) is a non-profit institution that generates agricultural innovations to meet Africa's most pressing challenges of hunger, malnutrition, poverty, and natural resource degradation. Working with various partners across sub-Saharan Africa, we improve livelihoods, enhance food and nutrition security, increase employment, and preserve natural resource integrity. The Climate Change Agriculture and Food Security (CCAFS) program in IITA-Ghana is determined to develop tailor-made stepwise climate smart management and finance packages to enhance the resilience and productivity of Ghanaian Cocoa farmers in the face of the adverse impacts of climate change on Cocoa production.

Citation

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Introduction

Cocoa is important raw material to the global chocolate industry (Financial Times, 2015). Globally, between 40–50 million people depend on the cocoa sector for their livelihood (Beg et al., 2017). In Ghana the crop remains a key source of foreign exchange and contributes about 13% to gross domestic product (GDP) (Aboah et al. 2019; Asubonteng et al., 2018). Export earnings from cocoa is about 30% (Monastyrnaya et al., 2016). In terms of employment close to 30 % of Ghana’s population derive their income from the sector’s Supply Chain (Antonio and Aikins, 2009; Gockowski et al., 2011). To increase output of cocoa, smallholders tend engage in area expansion rather than intensification which leads to clearing of total forest (Jagoret, Deheuvels & Bastide, 2014). This practice has led to significant reduction in the volume of forest cover in Ghana thereby rendering the sector susceptible to climate change effects. Although the cocoa sector faces hydra-headed challenges, climate change tends to increase the vulnerability of the smallholder farmer (Fountain & Huetz-Adams, 2018). Climate change is a phenomenon that has been taking place throughout history but over the last century it has accelerated, and scientists believe it is increasingly due to human activities (J. Cook, et al, April 2016). To ameliorate these challenges the smallholder farmer needs to adopt sustainable production systems that guarantee a decent livelihood for family farmers while avoiding practices that are detrimental to the environment (Amiel Lauran, & Muller, 2019).

To reduce the impact of climate change on the Ghanaian Cocoa Sector, the Consultative Group for International Agricultural Research (CGIAR) through the International Institute of Tropical Agriculture (IITA) in Ghana together with its partner, Rainforest Alliance has recently documented and aligned Climate Smart Cocoa practices across the three impact zones (Cope, Adjust and Transform) to help farmers mitigate the effects of climate change.

However, to achieve this, the adoption of improved agricultural and climate smart practices must be promoted in the sector. Access to Financing CSC activities by the smallholder farmer is a critical challenge to promoting and sustaining the adoption of CSC practices among cocoa farmers in Ghana. The lack of finance will increase the use of traditional methods of adaptation to climate change (Abraham & Fonta, 2018).

While the agricultural sector in Africa is constrained by numerous challenges, finance remains a critical cross-cutting factor. It remains a critical policy challenge in most sub-Saharan African countries since creating access will serve as a stimulus to the adoption of improved technology by the smallholder farmer in most developing economies. Agricultural finance is fundamental to the adoption of improved inputs and technologies among smallholders. By creating access to finance, we promote the use of productivity-enhancing inputs like fertilizer, improved seeds, pesticides and investment in long-term new technologies (Balana & Oyeyemi, 2020; Twumasi et al., 2019). The lack of finance or credit will therefore limit the use of high-yielding technologies and varieties (Njagi et al., 2017).

Specifically access to finance improves smallholder investments in productivity-enhancing farm inputs or agro-processing equipment which results in increased productivity, higher value products, diversity of agricultural production that drives economic growth.

This notwithstanding formal sector lending to the sector remains low in most these countries, for example, the share of commercial bank lending to agriculture in Africa ranges from 3 percent to 12 percent. Specifically, in countries like Sierra Leone and Ghana commercial bank lending to Agriculture is estimated at 3 and 4 percent respectively. Other countries like Kenya, Uganda, Mozambique, and Tanzania have 6, 8 and 12 percent respectively. Credit market failures constrain the optimal adoption of new technologies (Makate et al., 2019; Ogada et al., 2014) including Climate Smart Agricultural (CSA) practices. Smallholders tend to rely on their own-income (i.e., on-farm and off-farm) to finance their productive activities (Adjognon et al., 2017). The irregular and inadequacy of own income,



makes it difficult for the smallholder to invest in farm enterprises that thrive on new technologies and practices (Birdle et al., 2020). Again, technologies that require high up-front investments, adoption remains out of reach for households with limited cash (D'Souza & Mishra 2018; Chhetri et al., 2017).

Although some CSA practices can be accommodated within the production systems of smallholders without requiring external funding (Asfaw et al. 2014; Di Falco et al. 2012), the lack of finance will jeopardize the adoption of resource-driven CSA practices among smallholders (Carter et al., 2016; Conradt et al., 2015).

The average production cost farmers practicing CSA cocoa production is higher (GHS 920-USD 242) compared to conventional cocoa production (GHS 621-USD 163) system in Ghana Akrofi-Atitianti et. al., 2018). For such farmers labour constitutes the largest cost component for about 51% of total cost compared to 42% for conventional production (Akrofi-Atitianti et. al., 2018). By developing innovative financial mechanisms will promote the adoption of Climate Smart Agricultural practices in the Ghanaian cocoa sector. Promoting take-up of CSA technology cocoa farmers will produce higher output per hectare with an average value of GHS 2786 (USD 733) compared to GHS 1978 (UD \$521) for conventional cocoa (Akrofi-Atitianti et. al., 2018).

IITA and the Rainforest Alliance developed this blueprint to provide a step-by-step process to complement the climate smart cocoa practices and enable the financing of climate smart cocoa in Ghana and it is the result of the assessment of the current agriculture finance sector with a major focus on cocoa.



Current state of available finance for smallholder cocoa farmers

1. LBC's & Cocoa Traders

The LBC's and Traders, with the exception of OLAM, do not provide any financing to the cocoa farmers. They assist farmers with the provision of farm inputs like fertilizer and pesticides and support in the form of training in farm best practices and financial and entrepreneurial literacy.

Key take-aways for CSC finance ecosystem

- ✓ They organise farmers into groups
- ✓ They build capacity of farmers – training, support

2. Village Savings and Loans Association (VSLA)

A community based self-selected and self-managed farmer-based group designed to help farmers develop a savings culture and facilitate access to affordable finance. Farmers contribute monies into a fund from which loans are made to members and the interest shared among members.

Key take-aways for CSC finance ecosystem

- ✓ The farmers organise themselves into groups
- ✓ The farmers develop a savings habit and learn financial literacy
- ✓ Ready-made vehicle for farmer training in best practices
- ✓ Farmer groups are community- based in same climate zone

3. Direct Local Bank Financing

Organized and registered cocoa farmer cooperative groups like Kuapa Kokoo is able to access loans directly from the Universal Banks on the strength of their balance sheets. These loans are distributed among the members for farm improvement activities. On the other hand, this loan can be given to farmers by providing them input credit through input dealers.



Key take-aways for CSC finance ecosystem

- ✓ The farmers get access to much needed funding
- ✓ The risk of farmer loan default is underwritten by the cooperative
- ✓ The cooperatives can organise their members according to climate zones for CSC financing.

4. Out grower and Value Chain Fund (OVCF)

The OVCF provides long term financing for the smallholder farmer (Out grower) through a tripartite arrangement with the Bank (Financial Operator) and the LBC (Technical operator). This provides a guaranteed market for the cocoa which secures the loan repayment to the Bank.

Key take-aways for CSC finance ecosystem

- ✓ The farmers get access to much needed funding at lower rates
- ✓ The risk of farmer loan default is underwritten by the LBC and GIRSAL
- ✓ The farmer gets increased cocoa yields through improved farm practices
- ✓ The LBC benefits in additional cocoa purchases

5. Ghana Incentive-based Risk-sharing System for Agricultural Lending (GIRSAL)

GIRSAL is a non-bank finance company set up to de-risk agricultural financing by banks through the provision of credit guarantees to the banks to lend to agriculture thereby sharing in the risk. Additionally, they provide technical support to farmer-based organizations to build their capacity for access to finance.

Key take-aways for CSC finance ecosystem

- ✓ Access to increased financing for the farmer
- ✓ Provision of technical support to the farmer



- ✓ Spreading of agricultural risk through risk-sharing
- ✓ Reduction in finance charges to the farmer

Proposed Framework for Climate Smart Cocoa finance in Ghana

Climate change has become a reality also affecting the cocoa sector. To adapt to the environmental changes, new agricultural practices - so-called climate smart cocoa (CSC) - need to be established to increase the resilience and productivity of Ghana's cocoa farmers. However, to actualize the benefits of CSC, cocoa producers need access to financial means to invest into the adaption of their production systems. This document summarizes the work of the international Institute of Tropical Agriculture (IITA) on climate smart agriculture in the cocoa sector, targeted to financial institutions with the aim to initialize collaborations between financial institutions and IITA for the design of financial solutions, allowing stakeholders in the cocoa sector to invest in CSC.



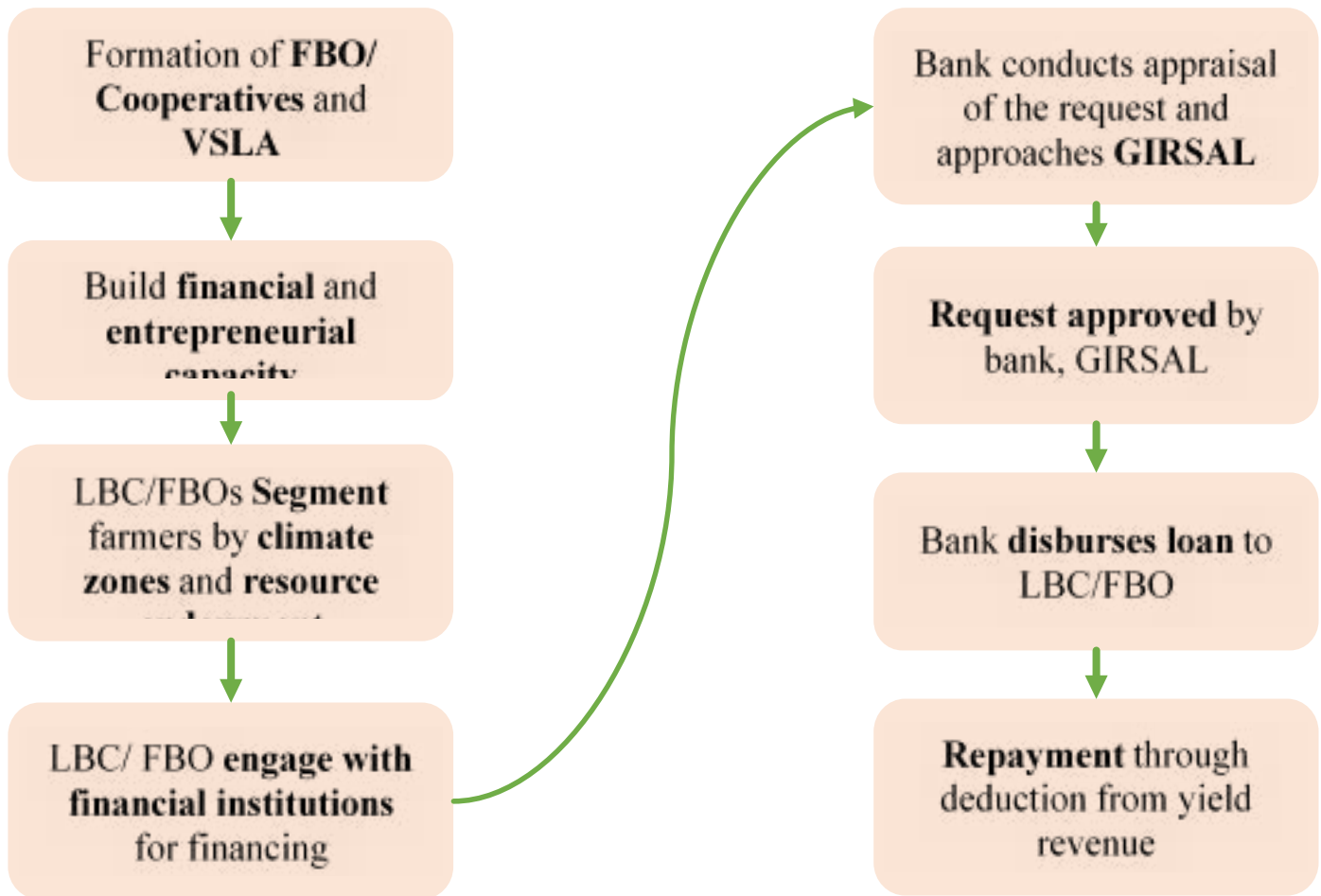


Figure 1. Financing Climate Smart Cocoa A Proposed Framework

To de-risk lending to the smallholder cocoa farmers in Ghana, IITA and its partners have developed this financing framework as part of a larger framework for developing a business case for private sector financing of CSC production. Given the structure of the cocoa sector, IITA expects that LBCs to serve as a critical mediator between the lending institutions and the farmers. From the model, we propose farmers should receive funds through LBCs and cooperatives who are in constant touch with these farmers.

1. Formation of FBO/ Cooperatives and VSLA

To reduce the risk associated with lending to farmers, organizing farmers into Farmer based organization (FBOs) or Cooperatives provide significant social capital and reduces information asymmetry challenges associated with lending to smallholder farmers. By organizing cocoa farmers into groups, we expect that the high transactional cost associated with lending to farmers will be significantly reduced. Added to this we expect the FBOs to reduce the moral hazards on the part of the farmer and adverse selection on the part of the lender. Therefore, for this framework we expect that for a cocoa farmer to benefit from a CSC funding he/she must be a member of an existing farmer-based organization.

2. Build financial and entrepreneurial capacity

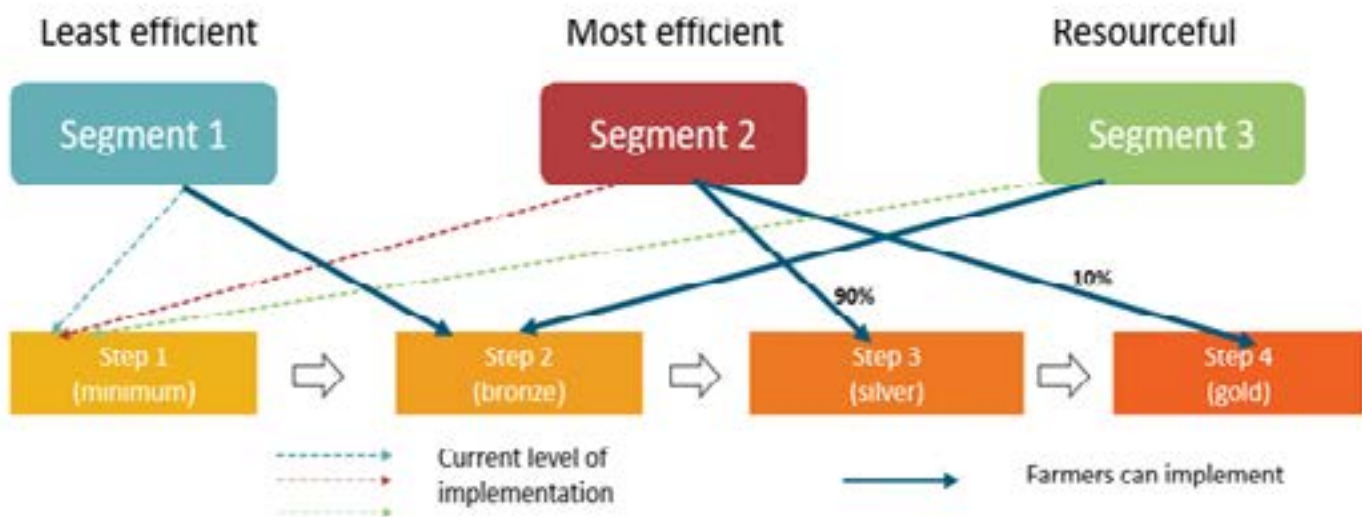
Low financial literacy (e.g., basic bookkeeping skills) among smallholder farmers limits their capacity to access to finance. This is because such farmers tend to misapply and mismange credit facilities advanced for agricultural production purposes. Building the entrepreneurial capacity of cocoa farmers is expected to change the perception of famers who see farming as a way of life than business. It is expected that by building the financial and entrepreneurial capacity of the cocoa farmers, the risk associated with lending in this sector will be lowered. These capacity building programs may be carried out by private sector companies with interest in promoting CSC adoptiong and funding of CSC activities of smallholder farmers.

3. LBC/FBOs Segment farmers by climate zones and resource endowment

IITA and its partner institutions expect the funding requirement for CSC practices to vary across the three climate impact zones. Farmers in the highly climate impacted zones will likely require more funds for their CSC practices compared to a zone with less impact. Hence assess the funding of a cocoa farmer practicing CSC must take into consideration the extent of climate

impact. Therefore, farmers must be segmented based on climatic zones and resource endowment. IITA and its partners have a cocoa segmentation tool that profiles cocoa farmers according to their resource endowments and maps farmer typologies to CSC recommendations in each climate zones. A prototype CSC Implementer APP has also been developed to help in this process and will soon be deployed on google play store.

Mapping farmer typologies to CSC recommendations



- In each climate change impact gradient, farmers are provided with the option to adopt CSA practices at 4 different levels: Minimum, Bronze, Silver and Gold (depending on technology level and availability of financing)
- Each CSA package and adoption level corresponds to a different level of farm-level investments over time.

Figure 2: Mapping farmer typologies to CSC recommendations

Figure 2; Mapping farmer typologies to CSC recommendations

Financing Packages for CSC Recommendations

IITA and its partners in the field have run demonstration plots using these CSC recommendations in two climatic impact zone and have collected Cost and benefit data. It is expected to form the basis financial

institutions could use to develop financial packages using the CBA along these recommendations in different climate impact zones. Financial institutions/impact investors are better able to know and aggregate the funding requirements using the farmer typologies and knowledge of what CSC Practices they are expected to be implementation. The table below is an aggregated CBA from the CSC pilots with public and private companies. This aggregated CBA could serve as the basis for Financial institutions interested in CSC financing work through GIRSAL to access this loan packages for CSC.

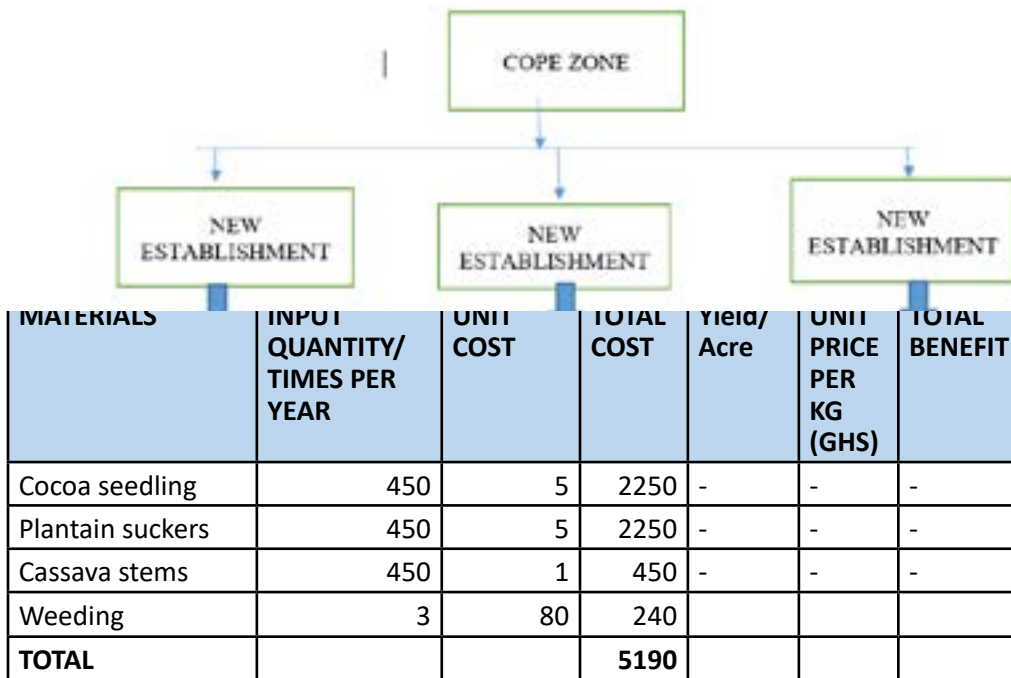
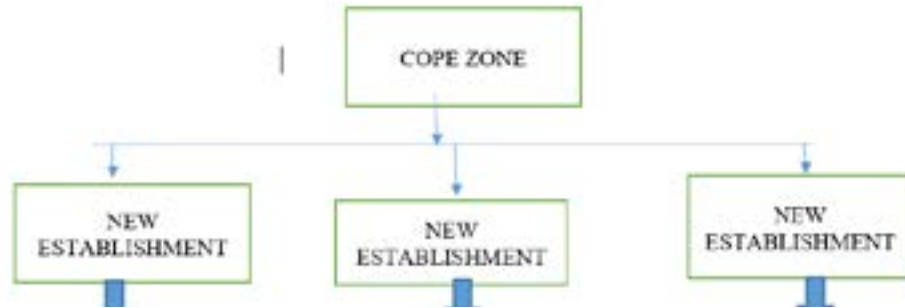


Figure 3: Cost Benefit Data from CSC pilots (new establishment) with public and private companies in the cope zone





MATERIALS	INPUT QUANTITY/TIMES PER YEAR	UNIT COST	TOTAL COST	Yield/Acre	UNIT PRICE PER KG (GHS)	TOTAL BENEFIT
Cocoa seedling	450	5	2250	-	-	-
Plantain suckers	450	5	2250	-	-	-
Cassava stems	450	1	450	-	-	-
Weeding	3	90	270			
TOTAL			5220			

Figure 4: Cost Benefit Data from CSC pilots (new establishment) with public and private companies in the adjust zone



PLOT NUMBER	PRACTICES	INPUT QUANTITY/TIMES PER YEAR	UNIT COST	TOTAL COST	Yield/Acre	UNIT PRICE PER KG (GH¢)	TOTAL BENEFIT (GH¢)
STEP ONE	Weeding	3	80	240			
	Pruning	1	375	375			0
	Cultural management practices	0		0			0
				615	88.88	10.3	915.464
STEP TWO	Weeding	3	80	240			
	Pruning	1	375	375			0
	Cultural management practices	0	0	0			0
	Fungicide Application	45	4	180			0
	Insecticide Application	3	45	135			0
				930	155.54	10.3	1602.062
STEP THREE	Weeding	3	80	240			
	Pruning	1	375	375			0
	Cultural management practices	0	0	0			0
	Fungicide Application	45	4	180			0
	Insecticide Application	3	45	135			0

	Fertility Management Practices (Compost)	18	15	270			0
				1200	177.76	10.3	1830.928
STEP FOUR	Weeding	3	80	240			
	Pruning	1	375	375			0
	Cultural management practices	0	0	0			0
	Fungicide Application	45	4	180			0
	Insecticide Application	3	45	135			0
	Fertility Management Practices (Compost)	18	15	270			0
	Fertilizer Application	7.5	120	900			0
				2100	266.64	10.3	2746.392
GRAND TOTAL				2100			7094.846

Figure 5: Cost Benefit Data from CSC pilots with public and private companies in the cope zone



PLOT NUMBER	PRACTICES	INPUT QUANTITY/TIMES PER YEAR	UNIT COST	TOTAL COST	Yield/Acre	UNIT PRICE PER KG (GHS)	TOTAL BENEFIT (GHS)
STEP ONE	Weeding	3	90	270			
	Pruning	1	375	375			0
	Cultural management practices	0	0	0			0
				645	84.436	10.3	869.6908
STEP TWO	Weeding	3	90	270			
	Pruning	1	375	375			0
	Cultural management practices	0	0	0			0
	Fungicide Application	45	4	180			0
	Insecticide Application	3	45	135			0
			960	133.32	10.3	1373.196	
STEP THREE	Weeding	3	90	270			
	Pruning	1	375	375			0
	Cultural management practices	0	0	0			0
	Fungicide Application	45	4	180			0

	Insecticide Application	3	45	135			0
	Fertility Management Practices (Compost)	18	15	270			0
				1230	155.54	10.3	1602.062
STEP FOUR	Weeding	3	90	270			
	Pruning	1	375	375			0
	Cultural management practices	0	0	0			0
	Fungicide Application	45	4	180			0
	Insecticide Application	3	45	135			0
	Fertility Management Practices (Compost)	18	10	180			0
	Fertilizer Application	7.5	120	900			0
				2040	244.42	10.3	2517.526
GRAND TOTAL				2040			6362.4748

Figure 6: Cost Benefit Data from CSC pilots with public and private companies in the adjust zone

4. LBC/ FBO engage with financial institutions for financing

After the first three steps have been successfully completed, the LBCs in collaboration with the FBOs are expected to identify and engage financial institutions that have business interest in funding CSC practices in Ghana. Using the CBA data and ROI computation for CSC activities LBCs and FBOs are expected to identify financial institutions.

5. Bank conducts appraisal of the request and approaches **GIRSAL**

Based on the documents of submitted by the LBC and FBO, the bank will undertake its due diligence and assess the merits of the request for funding. To provide a solid guarantee for the approving the loan facility. The framework expects the financial institutions to approach Ghana Incentive-based Risk-sharing System for Agricultural Lending (GIRSAL) a non-bank finance company set up to de-risk agricultural financing by banks through the provision of credit guarantees to the banks to lend to agriculture thereby sharing in the risk. Additionally, they provide technical support to farmer-based organisations to build their capacity for access to finance.

After GIRSAL approves the request from the bank, the bank then is expected to disburse the credit facility through the LBC and FBO. Disbursement of the facility will then be done by the LBC/FBO to their member farmers. Repayment of the facility will be from the cocoa revenue obtained by the farmer at the end of the season. The current proposal places vicarious responsibility on the LBC to ensure their member farmers repay the loan facility.

CSC Loan Repayment Process

The proposed loan disbursement and repayment process are as follows:

1. In all instances Loan is disbursed to the LBC or the FBO
2. The LBC / FBO is responsible for distribution of the monies to the farmers
3. When cocoa is harvested, and beans sold to the LBC / FBO the agreed loan deductions of capital and interest are deducted over a period and the balance paid to the farmer
4. Loans given to the VSLA's are collected through the executives of the association
5. The LBC / FBO guarantees the loan repayment with their assets
6. The VSLA members serve as guarantors for each other's loan

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