Finance for Integrated Landscape Management

A landscape approach to climate-smart cocoa in the Juabeso-Bia Landscape, Ghana

TROPENBOS GHANA

About this Study

This report was prepared by Damnyag Lawrence (commissioned by Tropenbos Ghana) and Bas Louman. Support was provided by Tropenbos International (TBI), partner of the CGIAR research programme on Forests, Trees and Agroforestry (FTA), a global partnership that unites international organizations engaged in research on food security. Additional financial support was provided through Mobilizing More for Climate programme (MoMo4C) financed by the Ministry of Foreign Affairs of the Netherlands and NWO-WOTRO Senior Expert Program (grant number 19753).

The report is part of a series of case studies that provide insights into various mechanisms used to increase access to finance for smallholder farmers, SMEs and communities in their efforts to contribute to sustainable landscapes. The case studies focus on the strategies used by various stakeholders to reduce the risks of selected financial flows for investors, intermediaries and recipients. These case studies follow up on recommendations made by participants in the consultative process on innovative finance for sustainable landscapes. The goal is to provide more evidence of successful strategies in order to increase access to finance for smallholder farmers, SMEs and communities (Louman et al. 2020).

This case study looks at how an international agribusiness, the source of the flow, strengthens the capacity of its smallholder providers to generate more income from their cocoa production and become more climate resilient. The case study focuses on how the company integrates technical support to producers with strengthening their capacity to save and invest through village savings and loan associations (VSLAs).

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Preface

This is one of a series of case studies on financial value chains implemented by partners of the CGIAR Research Program on Forests, Trees and Agroforestry (FTA) and coordinated by Tropenbos International. These case studies aim to provide a greater insight into the strategies applied by their various stakeholders to increase the participation of smallholders and support the transformation to resilient landscapes.

Most tropical rural landscapes are still subject to high rates of deforestation and forest degradation, which makes them vulnerable to climate change and other shocks. Although smallholders are important actors in these processes, they rarely benefit from existing financial flows. They need to be considered when investing in tropical rural landscapes.

The methodology used by the case studies (Primo et al. 2021) was designed to be implemented by FTA and its partner organizations that are studying finance for integrated landscape management. While the methodology is useful in a wide range of cases, the authors specifically intend it to apply to the processes that key informants considered to be successful in supporting landscape initiatives and/or in increasing access to finance for all possible recipients — including marginalized and disadvantaged groups — within landscapes. Applying this methodology in a range of cases such as this one will contribute to generating an information base of comparable results. People can draw lessons from this information base to design processes that support inclusive financing for integrated landscape initiatives.

It should be noted that the case studies aim to learn from successful examples, to see what was accomplished, how it was accomplished and what more could be accomplished through improvements to the strategies applied. They do not include an evaluation of the overall performance of the cases studied, and therefore, do not provide statistically representative samples of all the impacts of the cases studied on all the farmers involved.

The methodology comprises three phases.

Phase 1 involves an in-depth interview with the implementing agency (IA), which plays a central role as broker or intermediary of financial flows to existing landscape initiatives. This phase aims to define six things: 1) the main sources of finance and their characteristics; 2) the principal groups of recipients; 3) the financial flows associated with the various sources and recipients; 4) the process of managing and channeling funds; 5) the financial mechanisms applied and their underlying rules; and 6) the risks and barriers involved from the perspective of the IA. In addition, the interview in Phase 1 will identify stakeholders to be interviewed in the subsequent phases.

Phase 2 comprises collecting data related to the sources of finance, recipients (groups and individuals), and the providers of non-financial services who engage with them. It includes interviews with four types of key informants, who were identified during Phase 1: 2a) representatives of the finance sources; 2b) representatives of recipient groups; 2c) service providers engaged with recipients; and 2d) selected individual recipients and

non-recipients (particularly smallholders). Phase 2 focuses on the risks and barriers perceived by each of the stakeholder groups, and ways to reduce them. It also seeks to determine the extent to which the financial flows have met stakeholder expectations, as well as the perceived effects of the financial flows on sustainability goals in relation to the landscape.

Phase 3 involves validating the information gathered in Phase 2. Focus group discussions held in Phase 3 involve representatives of principal recipients and groups of recipients, service providers, the implementing agency, and other stakeholders who are relevant to the financial flows.

This report describes a case study from Ghana that was based on the methodology. During a previous analysis of financial flows in the Juabeso-Bia landscape (Pamerneckyte et al. 2020), the income from cocoa was identified as one of the most influential financial flows in the landscape. The flow had the potential to increase positive impacts on landscape objectives, which include social, economic and ecological dimensions. This case study looks at how an international agribusiness, the source of the flow, strengthens the capacity of its smallholder providers to generate more income from their cocoa production and become more climate resilient. The case study focuses on how the company integrates technical support to producers with strengthening their capacity to save and invest through village savings and loan associations (VSLAs).

SECTION I

1. Introduction

1.1 Background

This case study details Ghana's contribution to the larger project, Finance for Integrated Landscape Management (Primo et al. 2021): Analysis of flows, arrangements, and mechanisms for mitigating risks. For the purpose of this research, one financial flow — from Touton Ghana — was selected for more in-depth study. It was one of the flows identified during a previous landscape assessment of financial flows (Pamerneckyte et al. 2020). The criteria for selecting this flow were the company's long presence in the landscape, its interest in participating in the study, the extent of its financial activities in this cocoa landscape (Juabeso-Bia), and the perceived potential of the flow to have positive effects on landscape objectives, which include conservation of forests, food security, and greater resilience for the farmer families. Unlike the other case studies in the project, this study does not look at the financial transactions themselves, but rather at investments that should support smallholder farmers to increase their access to finance to support their productive systems, while driving progress toward gender equality and climate-smart landscapes. The case study elaborates on the perceived risks, barriers and benefits associated with these investments from the point of view of the key stakeholders. The report also details how a cocoa landscape approach is being incorporated through three models in order to scale the impacts of small to medium enterprises (SMEs) on the forest ecosystem services that are essential for inclusive green growth in Ghana.

1.2 Objectives

1.2.1 Overall objective

The overall objective is to provide insight on innovative schemes that contribute to integrated management of cocoa landscapes and that mitigate risks and overcome key barriers that prevent smallholders and SMEs from having access to finance for sustainable agricultural and forestry practices.

1.2.2 Specific objectives

- identify all stakeholders at various levels of the selected flow that support financial investments in integrated cocoa landscape interventions;
- provide a deeper understanding of different stakeholders' expectations and the extent to which specific instruments address these expectations;
- identify the risk perceptions, mitigation strategies, and resulting risk exposure of various stakeholder groups; and
- define the main barriers to expanding finance for integrated cocoa landscape management and analyze the experiences with possible options to overcome these barriers.

1.3 Context

In the study landscape, the implementing agency (Touton Ghana) aims to increase its purchase of sustainably produced (and therefore certifiable) cocoa by supporting farmers to develop and manage climate-smart cocoa farms. As part of this strategy, it works with its partners to mobilize investments from the private sector to preserve and protect forest reserves and deliver socioeconomic benefits to people in the areas where it works (the western regions of Ghana). Touton Ghana's work complements ongoing development and conservation initiatives in the landscape. One is the Juabeso-Bia Hotspot Intervention Area (HIA), which is where this research was carried out. An HIA is a landscape that has been prioritized for the implementation of Reducing Emissions from Deforestation and Forest Degradation (REDD+) and sustainable climate-smart cocoa production activities (3PRCL 2020). This is the first HIA launched under

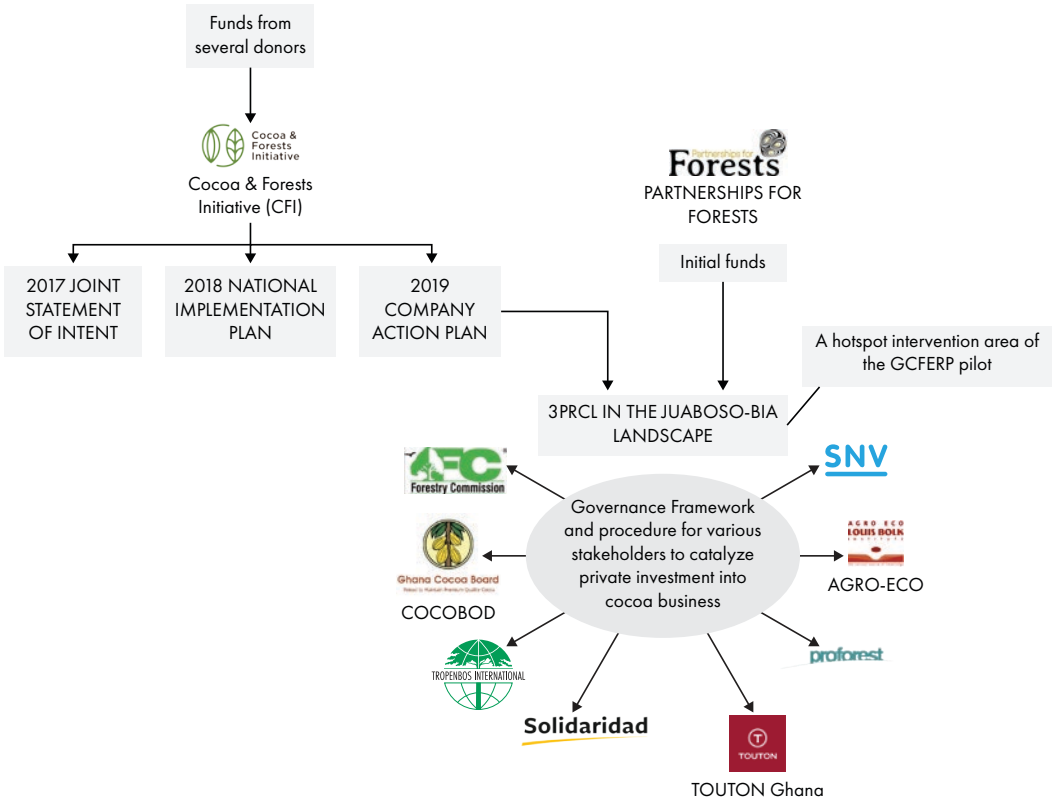
the Ghana Cocoa Forest REDD+ Programme, or GCFRP (FCPF 2017). The Juabeso-Bia HIA is one of the areas where the activities of Ghana's Cocoa & Forests Initiative (CFI)[1] are being rolled out.

The main objective of the Cocoa & Forests Initiative is for the private sector to partner closely with the Government of Ghana and align with national objectives and strategies for reducing deforestation in the cocoa sector. National public efforts are complemented by the implementation of individual private companies' action plans that focus on some or all of the elements of the National Implementation Plan of the CFI (GoG 2018). The Ghana Cocoa Forest REDD+ Programme (GCFRP) stemmed from Ghana's commitments to effectively implement REDD+ initiatives.

The Partnership for Productivity Protection and Resilience in Cocoa Landscapes (3PRCL) project was launched in Accra alongside the Second National REDD+ forum in 2017 in the presence of the president of Ghana. It is the first pilot of the Ghana Cocoa Forest REDD+ programme (3PRCL 2020) and it aligns with the objectives of the Cocoa Forest Initiative. A public-private partnership, the 3PRCL involved creating a governance framework and mobilizing private companies who are directly or indirectly involved in the cocoa sector in the Juabeso-Bia HIA to invest in the cocoa business while putting in place measures to mitigate climate change risks (Figure 1).

The 3PRCL is funded by the British Partnerships for Forests (P4F). Funds are channeled through private companies, who fund consortium partners to carry out activities, involve them in the action plan, show them how to create the intended governance framework and guide them on what should be done in the Juabeso-Bia cocoa landscape, in line with the objectives of the CFI. For the implementation of CFI activities, the private companies submitted their action plans in 2019. The

Figure 1: The link between the 3PRCL programme, the Cocoa Forest Initiative and the GCFERP



1 The governments of Côte d'Ivoire and Ghana and 35 leading cocoa and chocolate companies work together through the Cocoa & Forests Initiative to end deforestation and restore forest areas.

actions plans are summarized as follows: i) improving cocoa traceability from farm to first purchase point, with a focus on farm mapping; ii) putting in place systems to ensure that no cocoa is sourced from protected areas; iii) conducting assessments of deforestation risk throughout sourcing areas; iv) promoting cocoa agroforestry as a driver for forest restoration and protection; v) supporting farmers to register trees on their farm and secure their land tenure rights; vi) investing in sustainable agricultural intensification to grow more cocoa on less land, e.g., through training of farmers in good agriculture practices (GAPs), crop nutrition and soil fertility; viii) promoting sustainable livelihoods and income diversification for cocoa farmers; ix) promoting financial inclusion to increase farmers' access to working capital and investment funds; and x) scaling up work with communities to protect and restore degraded forests, with a specific focus on women and youth. Some of the companies who partnered in the 2019 action plan are indicated in Figure 1.

The 3PRCL is being implemented with the support of a consortium made up of the Forestry Commission of Ghana, Ghana Cocoa Marketing Board (COCOBOD), Touton Ghana, Agro-Eco, Netherlands Development Organisation (SNV) and the Nature Conservation Research Centre (NCRC) (Touton S.A. 2020) (Box 1 and Figure 1). The administrative work for the project is handled by the project manager in a secretariat headquartered in Accra, Ghana.

In line with Touton senior management's decision to tie strategic investments to climate-smart and multi-stakeholder approaches, which they envisage will ensure yields and help them reach out to new markets (IDH 2018), the company participates using its own resources. Touton is the leading organization in the consortium that supports the implementation of the 3PRCL project in the Juabeso-Bia landscape and it provides the template for implementation (Touton S.A. 2020). It develops the models and structures to provide incentives and extension services for the farmers in the Juabeso-Bia cocoa landscape. Touton provides training, sets up community business resource centres and provides low-cost services to farmers. It supports intensification on farms, and provides incentives to farmers to adopt climate-smart practices, with increased productivity, with the goal of positive economic returns. Financial incentive mechanisms such as revolving funds from the rural service centres are intended to be further developed and strengthened by Touton for long-term sustainability.

The activities that Touton implements in the landscape to contribute to the 3PRCL project and the objectives of the Cocoa Forest Initiative can be summarized in seven pillars:

1. training, professionalization and coaching;
2. access to inputs;
3. cocoa rehabilitation;
4. intensification and productivity;

Box 1. Other partners in the 3PRCL project

Of the other partners in the project, consortium member SNV is developing business models for the rehabilitation of old cocoa farms within the landscape. In collaboration with Satelligence, Ghanaian Geographical Information System (GIS) experts and Touton, SNV has developed high-quality satellite-based maps for the entire Juabeso-Bia landscape to provide the basis for monitoring zero-deforestation compliance (3PRCL 2020). The Nature Conservation Research Centre is supporting the design of a landscape management governance structure at the district and landscape levels, and is leading the development and testing of Ghana's landscape governance standard. Agro Eco-Louis Bolk Institute is an independent organization that advises the private sector, NGOs, governments and international organizations in the development of niche markets for high-quality products; it provides training and extension services to the cocoa farmers in the landscape (3PRCL 2020). Solidaridad works in the area to support traditional authorities in formalizing land access security (IDH 2018). The involvement of COCOBOD is limited to the recommendation of approved chemicals for application on cocoa farms.

5. village savings and loans (banking);
6. additional livelihoods; and
7. landscape governance.

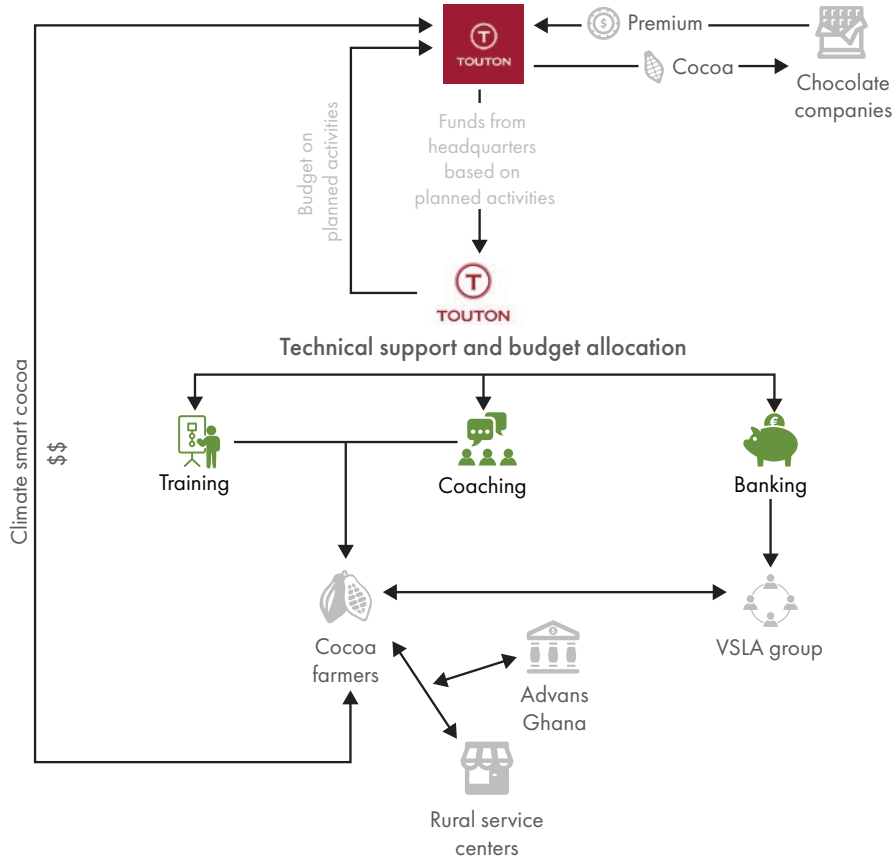
Through these seven pillars, Touton and the 3PRCL project aim to address the main challenges to increasing the productivity of Ghanaian cocoa farms in a sustainable manner (IDH 2018). These challenges are limited access to high-yield planting material, agro-pesticides and fertilizers (Pillar 2); lack of training (Pillars 1, 3, 4 and 6); lack of finance (Pillar 5); need for cocoa field renewal (Pillar 3); reducing pressure on the forest; and climate risks to future supplies of cocoa (all pillars).

1.4 Touton's strategy to make finance more accessible to its local providers

This case study focused on three models of support provided by Touton (Figure 2):

- training (Pillar 1);
- coaching (Pillar 1); and
- banking (Pillar 5).

Figure 2: Touton's models for increasing farmer cocoa productivity (*Source: Touton 2020 and Touton Field Coordinator (pers. comm. 2020)*)



These aspects were selected as models to research since discussions with Touton revealed that they would involve the questions that the case study proposes to answer. Banking in particular addresses the focus of the research on filling the finance gap for small and medium farmers and enterprises. Furthermore, training, professionalization and coaching activities on aspects of cocoa production and business administration enable farmers to get the most out of the remaining pillars thus generating the finance that enables farmers to save through the banking model and helps them pay back any outstanding commitments with other service providers.

A fourth aspect is access to agricultural inputs through rural service centres (Pillar 2). This has not been studied, but is briefly mentioned in this section, as during the interviews it was

brought forward as a factor that can address the barriers to successful participation in any of the other three models.

This section briefly describes the training (1.4.1), coaching (1.4.2) and banking (1.4.3) models offered through or with the assistance of Touton. The goal of the models is increasing farmer cocoa productivity, financial literacy and access to finance. Farmers who receive training and sell their produce to Touton may participate in one or more of the models' support activities. The various combinations of support received are based on agreements between the farmer and Touton and are adjusted to the needs of the farmer.

Touton cocoa farmers are those who receive training in good cocoa agronomic practices and subsidized cocoa chemicals from Touton and sell their cocoa beans to Touton. A farmer ceases to be a Touton cocoa farmer when he or she stops selling cocoa beans to Touton (Touton trainer 1, pers. comm. 2020). Touton pays a premium to farmers for sustainably produced cocoa beans that meet international certification criteria.

Touton seeks to purchase its cocoa from sustainable farms in the study area, but smallholders require finance to transform their cocoa practices to become sustainable and to meet international sustainability standards. They also require an income to meet their livelihood needs. For Touton, the main way to provide money to farmers is through the purchase of cocoa, but if farmers do not produce efficiently or have the opportunity to save and reinvest in their production system, the sale of cocoa will not provide them with enough financial resources to reinvest.

1.4.1 Training model

The training model was set up to build the capacities of cocoa farmers to meet the requirements of Touton and the national Climate-Smart Cocoa Standard under development by the government. Training seeks to increase cocoa productivity, while at the same time protecting the environment; for example, by supporting the creation of community resource management areas, reducing deforestation, increasing farmers' resilience through interplanting of shade trees, supporting school management committees to help prevent child labour on cocoa farms; and providing additional livelihoods so that farmers have some income during the cocoa off-season, when the cocoa beans are not available for sale. The training model receives an annual budget that is approved by Touton's main office in Accra.

Training enables farmers to get the most from the other six pillars and focuses on aspects related to the application of farm inputs, farm management practices and harvesting (Figure 3). The model was developed in 2017 to train trainers and was based on a manual prepared by Touton (Touton 2017). The activities are led by the head office-regional office (Sefwi-Wiawso), with support from the district offices and rural service centres (RSCs). Field training (training of trainers) starts with using the manual. A Touton officer (trainer of trainers) instructs field trainers linked to the RSCs. Participants travel to the training site in this model.

Together with Touton agronomists, lead farmers and Touton purchasing clerks (PCs)[2] these field trainers instruct farmers in a wide range of good agronomic practices, including:

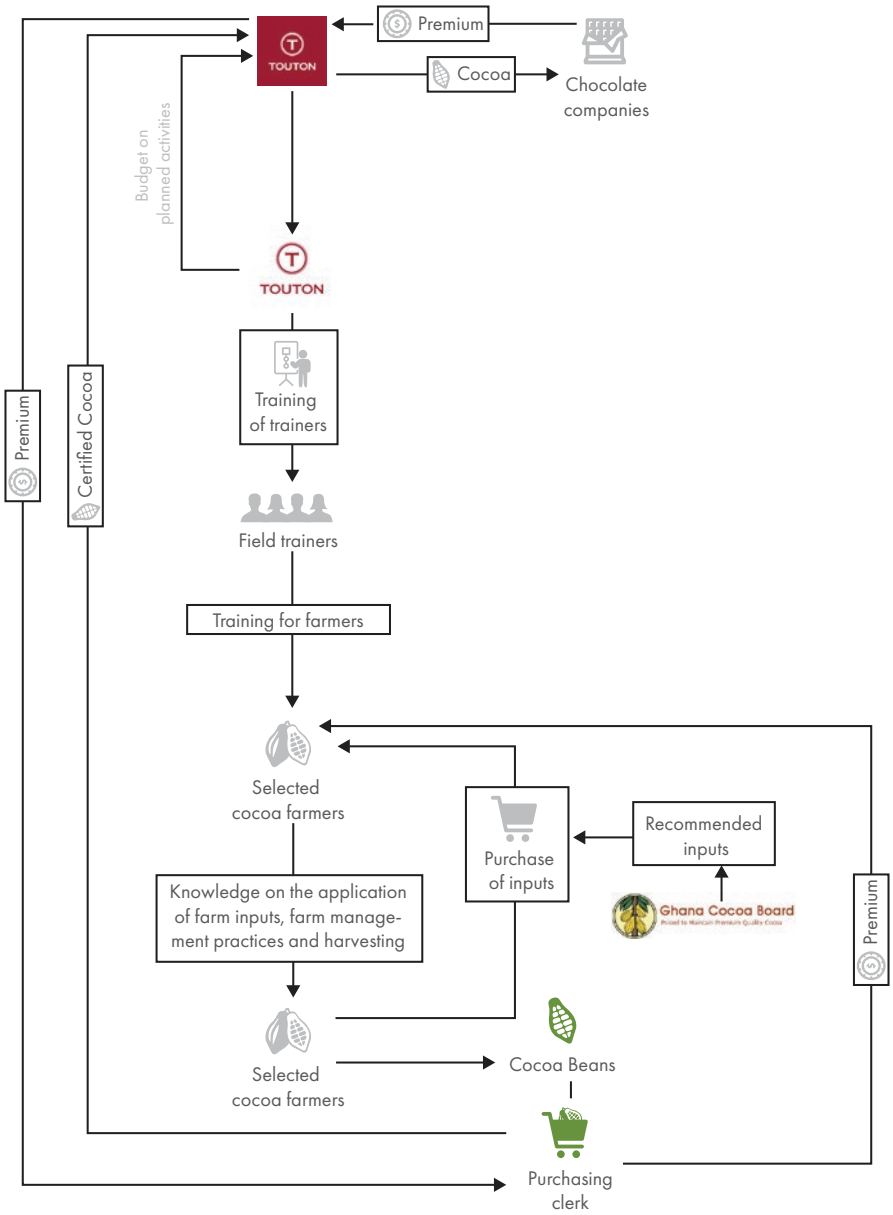
1. cocoa farm establishment;
2. soil erosion control;
3. soil fertility management;
4. integrated crop and pest management;
5. harvest and post-harvest activities;
6. cocoa productivity enhancement;
7. cocoa quality enhancement;
8. use of agrochemicals (with advice from COCOBOD);
9. ecosystem protection;

2 The Purchasing Clerks (PCs) are individuals within the Touton working communities. They are farmers who purchase the cocoa beans for Touton and receive a commission for their services to the company.

10. agro-ecosystem analysis;
11. waste management;
12. biodiversity conservation;
13. climate change and its effects on cocoa;
14. health and safety;
15. child labour;
16. working conditions; and
17. landscape diversity.

The cocoa farmers apply the lessons learned from the training model in order to increase cocoa yield and work towards zero deforestation in cocoa farming.

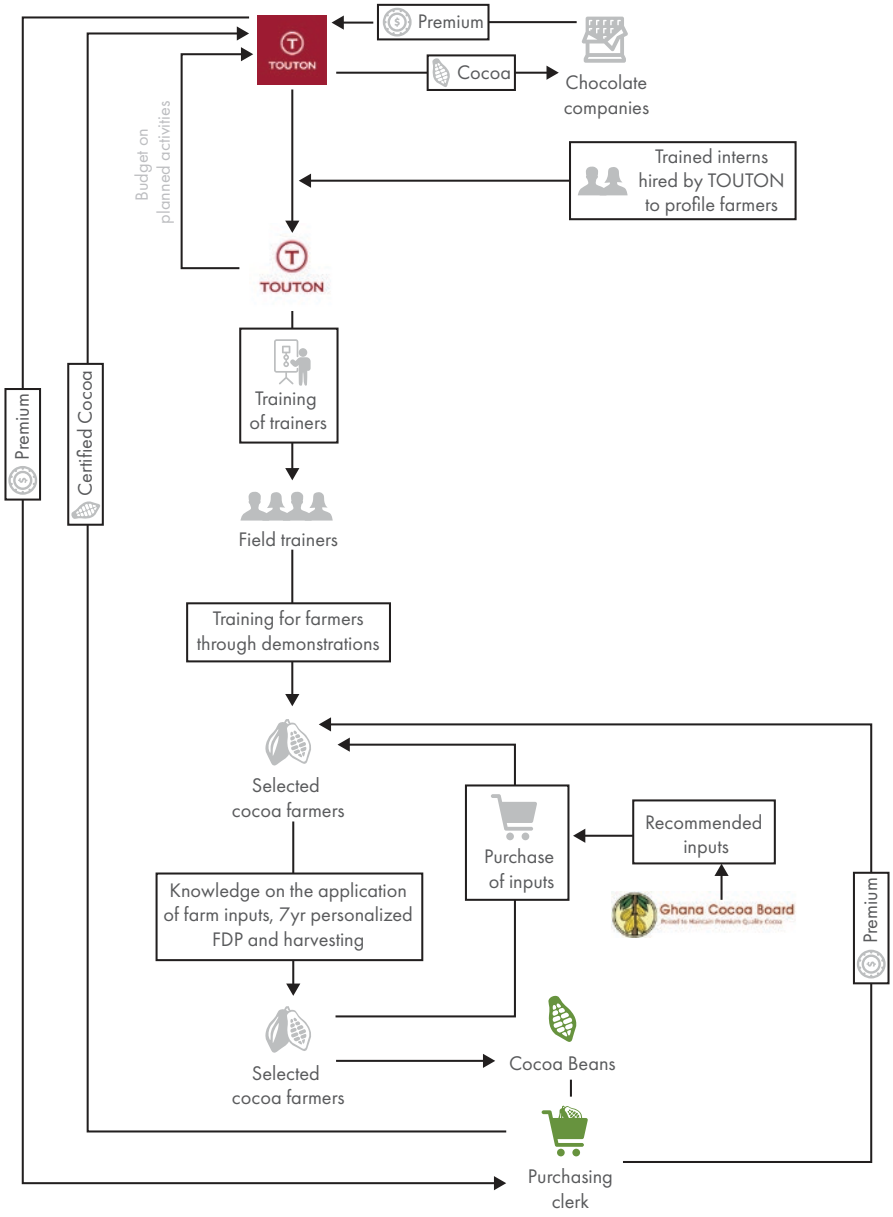
Figure 3. Schematic overview of the training model



1.4.2 Coaching model

The coaching model involves a seven-year farmer development plan (FDP). Touton's annual budget finances the activities of this model (Figure 4). The objective of this model is to coach farmers to understand and implement the business aspects of cocoa farming and to increase their yields. Achieving the maximum cocoa yield benefits both the farmer and Touton.

Figure 4. Schematic overview of the coaching model



One specific activity in the coaching model is spraying insecticide; this increases farmers' cocoa yields and thereby increases their business prospects, helping to sustain their cocoa farms. Part of the initial cost of spraying is covered by Touton; for example, spraying services during the first year and some bottles of insecticide. A Touton facilitator trains the trainers in the FDP; and the trainers then coach Touton's cocoa farmers in the plan. Participants travel to the coaching site in this model.

The coaching in the FDP includes i) farmer profiles; ii) socioeconomic profiles; iii) farm productivity information; iv) farm development plan; v) developing a full financial plan for the

cocoa farm; vi) recommendation and approval by the FDP Manager; vii) adoption, monitoring and self-assessment; and viii) records (Touton S.A. n.d., Touton S.A. 2017). The facilitator is supported by an intern who is hired by Touton. The intern mobilizes the farmers for selection and subsequent coaching by the trainers (who are trained by the facilitator from Touton). These trainers are not Touton staff; they are volunteer (i.e., unpaid) workers who reside in the same villages as the Touton farmers. They offer to be trained by the Touton officer and they render the FDP services to the farmers free of charge (at least for the first two years).

The intern makes a profile of the prospective farmers to be selected for training in the FDP. This profile includes the farmer's bio-data (socioeconomic information) and farm data (aged and diseased cocoa farms). This information is used to select eligible farmers. There are three key criteria for selecting a farmer : the farm must be diseased and/or aged; the farmer must be on site and be responsible for making decisions on the management of the farm; and the farm must be larger than 0.5 hectares (ha). The selected farmers are coached in the Farmer Development Plan, which includes good agricultural practices, plant genetics, soil fertility improvement, fertilizer application, and use of the right chemicals to fight disease. These practices are expected to improve yields from 0.4 metric tons to 1.5–2.0 metric tons per hectare. The FDP also assists cocoa farmers to prioritize their investments, and to obtain inputs and planting materials at the right time. FDP trainers also monitor adoption of these measures to guide farmers over a seven-year period.

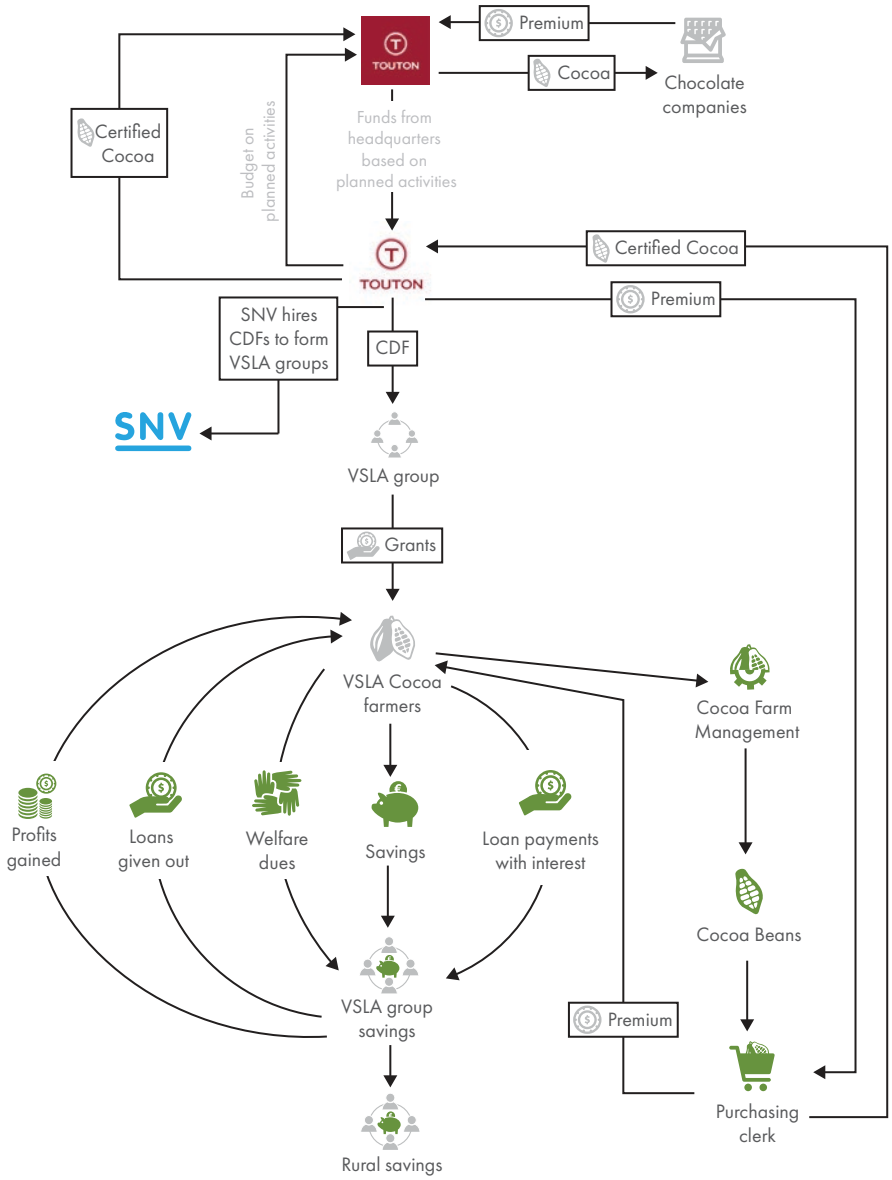
Participating cocoa farmers are coached to create personalized farm development plans that include activity plans and profit-and-loss statements for each plot. This helps them make informed decisions on how to maximize their return on investment and increase their income (Touton S.A. n.d.). This is linked to Touton's Pillar 3 (cocoa farm rehabilitation) and involves planting economic trees in the diseased and aged cocoa farm. Based on the seven-year plan, interns and service providers (in this case the field trainers) communicate the needs of farmers to Touton, which then supports the farmers in implementation where necessary. Examples of support provided by Touton are spraying of insecticide and providing access to approved inputs (chemicals and fertilizers).

1.4.3 Banking model

The banking model supports farmers to save money (see Figure 5). In the first component of the banking model, Touton connects its farmers (i.e., farmers who sell their cocoa beans to the company) with Advans Ghana, a savings and loan company, and opens accounts for each of them. The account opening is free and no initial deposit is taken by Advans from the farmers. Having an account helps Touton cocoa farmers save money and secure loans from their savings to invest in their cocoa farming business (3PRCL 2018).

The second component of the banking model is the support to the creation of village savings and loans associations (VSLA). The key objectives of the VSLAs are to support members in times of need; help members save, even without a formal financial institution in their community; bring cocoa farmers together for the development of the cocoa landscape; and support sustainable cocoa production. Through the VSLA, farmers learn the practice of savings and strengthen their position when applying for operational loans from Advans Ghana. This work is done by Touton through its Community Development Officer (CDO). Touton provides an annual budget for the CDO to carry out these activities. The CDO organizes Touton's cocoa farmers into VSLAs. There are about 30 to 60 such entities, including womens' and mens' groups, in the Juabeso-Bia study area. Executives are elected among community members to lead the groups. Touton supplies passbooks (membership cards), savings boxes, calculators, rulers, rubber stamps, bowls, bags, and registers to each group (3PRCL 2020). For the banking model, Touton officers travel to the participants in their catchment areas to support their operations.

Figure 5. Schematic overview of the banking model



Group members are involved in three key banking instruments provided by the VSLA:

1. savings through share buying; At the beginning of the farming season, Touton helps the saving groups to distribute the returns on their shares among members in the group, including returning to each individual the total value of shares purchased.
2. contributions to the social fund (each group member pays an agreed levy (GHC 1.00)[3] every time there is a meeting — this fund is used for the welfare of group members, e.g., related to social services, births, and death of a member or relation); and
3. a loan facility where group members can obtain loans in times of need.

The group members are also trained in financial literacy. This training covers the importance of savings, investments, how to grow/manage farming businesses, organizational management, and how to borrow, repay and distribute the returns on shares at the end of a saving cycle (Touton S.A. n.d.). Starting at the beginning of the saving

3 As of 19 August 2021, GHC 1.00 was equivalent to USD 0.16.

cycle for each group of the VSLA, members must contribute specific amounts of money at each meeting. This amount varies from a low value (five GHCs) to a high value (twenty GHCs). Each member deposits an amount within this range (according to his or her financial ability) into the money box, and the amount is recorded in the member's passbook and the membership register book. This deposit is called a share and it is made at every meeting of the group. This deposit is in addition to the contribution to the social fund.

The length of the saving cycle is one year. The money deposited is given out as loans to those members of the group that request it at an interest rate that is below the commercial lending rate. At the end of the saving cycle, the interest accrued from the loans is distributed to the members according to each member's share value. In addition to this amount, each member is given back the cumulative amount of the shares that he or she deposited at all the meetings during the saving cycle. Then a new saving cycle begins. Members of the group are able to use the proceeds to purchase high-quality seed, approved chemicals, equipment and fertilizer from community suppliers such as Touton suppliers' purchasing clerks (Touton CDO, pers. comm. 2020).

For the VSLA, Touton also partners with SNV (under the 3PRCL project) and Global Women Development Promoters (GWDP). SNV focuses on cocoa farmers and hires facilitators from Touton to help groups of cocoa farmers engage with the VSLA. GWDP focuses on women in the cocoa landscape, including those in the VSLA, and empowers them through the VSLA. The innovative share-purchase arrangement in the VSLA enables the group members to raise short-term capital on their own to invest in their cocoa farming business. Hitherto it was very difficult and expensive to raise funds from the money market or the informal financial sector (including moneylenders) in Ghana.

1.4.4 Provisions to make agricultural inputs more accessible

As part of Pillar 2 of its support strategy, Touton has built rural service centres (RSCs) in two places in the landscape that sell inputs (e.g., chemicals) at affordable prices. Touton head office sources the agro-inputs from various suppliers (e.g. KMG, Adama West Africa and Cali Ghana). These agro-inputs are sent to the RSCs and stored there. Due to the dispersed nature of the farmers across the landscape, service providers (SPs) have been introduced in the cocoa value chain to help distribute these inputs to farmers, or at least at closer proximity to farmers. These inputs are sent to the SPs at no cost to them. The SPs then sell to the farmers at a stipulated price. In the absence of SPs, some of the Touton purchasing clerks (PCs) fill this gap by buying the inputs from a retail source for farmers who are not able to travel to the RSCs. In some cases, Touton supplies these inputs to the purchasing clerks to sell to their farmers at the prevailing factory price. But the service provider concept appears not to be working; in most cases, Touton cocoa farmers travel to the RSCs to buy their inputs. However, farmers cannot afford to buy inputs that require a larger amount of capital; e.g., cocoa slashers, blower machines, etc. SPs used to be supplied with this type of machinery on a hire-purchase basis, but that did not work.

SECTION II

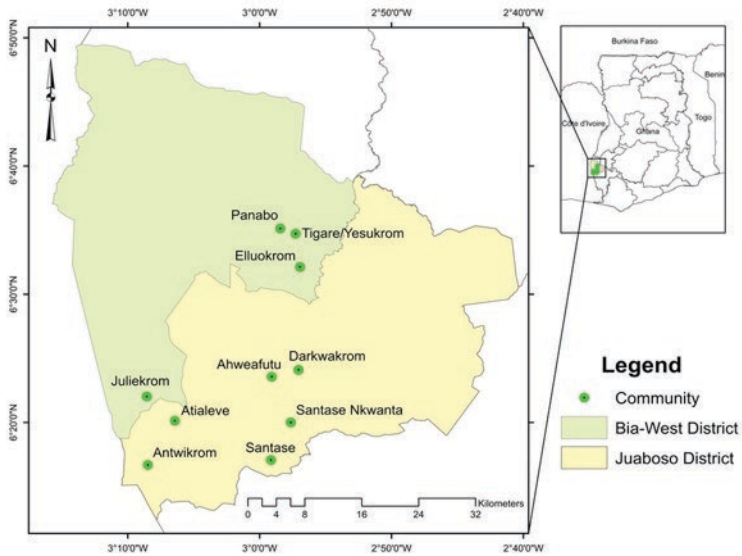
2. Methodology

This case study followed the methodological guidance of Finance for Integrated Landscape Management (Primo et al. 2021), combining a review of documentation with interviews and group discussions. Some adjustments were made in the data collection procedures due to the nature of the models studied and the restrictions imposed by the COVID-19 situation in the landscape.

2.1 Study area

The Juabeso-Bia landscape in the Western North Region of Ghana is the study area (Figure 6); it is located in the High Forest Zone. It has a total land area of 243,500 ha and harbours three protected areas: Krokosue Hills Forest Reserve, Bia North Forest Reserve and Bia National Park. The landscape is one of the major cocoa-producing areas in the country and is a major Hotspot Intervention Area (HIA) that has recorded increasing deforestation activities in recent years (3PRCL 2020). Although the HIA comprises a wider geographic area, this case study covered only Juabeso and Bia West districts (Figure 6), since that is the current geographical scope of the Touton programme that is the subject of the study. The Bia East District is also part of the HIA, but is not included in the case study because Touton has yet to extend its activities there. The activities outlined in the case study started in Juabeso District in 2017 and expanded into Bia West in 2019 (Touton S.A. 2020; Touton S.A. n.d.).

Figure 6: Map of Ghana showing the study districts and communities in the Western North Region of Ghana



2.2 Selection of interviewees

In addition to interviewing the management staff of the implementing agency, Touton (Phase 1 of the methodology), a list of potential interviewees was prepared using internal documentation of the company. This included representatives of the service providers and potential key informants for each model, (Phase 2). Phase 2 of the original methodology included interviews with the sources of finance. Since Touton uses its own annual budget as part of its strategy to achieve the company's long-term vision of sourcing sustainable cocoa, no separate interviews were conducted in this phase.

As part of Phase 2 of the study a survey was prepared to reach out to a large number of recipients. A survey was also sent to non-recipients. A selection of registered farmer participants, distributed among the various villages served by Touton, was made for each of the three support models. The sampling of study communities, individual farmers, key informants and other relevant stakeholders and experts was done with the assistance of Touton management, its field officers and purchasing clerks in the study communities. Communities that were not accessible by a vehicle were not included and were replaced by others with road access. (Inaccessible communities included Israel, Kumikrom and Addo Nkwanta in Bia West District.) The list of communities and number of individuals interviewed in the study districts is found in Table A1 (in Annex 1).

2.3 Data collection

The data collection instruments from Tropenbos International (Primo et al. 2021) were reviewed and the relevant questionnaires and checklists were prepared for data collection. These included questionnaires for interviews with management of Touton; key informants (trainers of trainers); and focus group discussions; and farmer surveys for both recipients and non-recipients (Table 1).

Table 1. Number of persons interviewed with various data collection instruments

Data collection instrument	Type of participant	Number
Focus group discussion	VSLA, trainer; coach	VSLA Executive (1); PC (4); Touton FO (3); CDO (1)
Touton management interview	Field coordinator	1
Survey, recipients	Touton cocoa farmers	Banking model/VSLA (112); Training model (136); Coaching model (92)
Survey, non-recipients	Non-Touton cocoa farmers	Banking model/VSLA (40); Training model (29); Coaching model (28)
Key informant interview	Volunteer trainer of trainers	3

The data collection instruments were modified from those provided in in the methodological document (Primo et al. 2021). The modification was required to enable the instruments to align with the three identified models of the support strategy of the Implementing Agency (IA) (Touton Ghana). This support strategy does not involve financial transactions with the recipients; rather, Touton funds were used to build the capacities of the recipients to increase their cash earnings through more sustainable cocoa production and better management of those earnings. The original data collection instruments depicted direct financial flows to recipients; they were modified to reflect a situation where technical support was offered instead of direct cash transactions. This modification was done for Phases 1 and 2 in the original methodology.

The modified instruments were pre-tested for suitability and appropriateness for the respective data collection. Touton management also read through the documents and made inputs.

For the individual farmer surveys, face-to-face interviews were done in the local dialect (Twi) and the answers were written in English on the questionnaire sheet (see Annex 2 for type of questions asked). Due to COVID-19 restrictions, it was not possible to bring the participants together in central locations for the focus group discussions. The focus group discussion and key informants' interviews were therefore done on an individual basis too. These differed from the farmer interviews, however, in that they included representatives of stakeholder groups along the value chain and used more of a landscape approach to analyze barriers and opportunities along the chain. Participants and experts who were interviewed in the focus group discussions included representatives of identifiable

stakeholders in the study landscape. For instance, in the case of the training and coaching models, Touton officers engaged in the training of trainers, and an agronomist and PCs provided answers to the questions as experts. The community development officer of Touton, the Chairman/Chairperson or leaders of VSLAs, and PCs also provided answers for the banking model (VSLA) questions. The field trainers were interviewed as additional key informants. The questions answered by the participants in the focus group discussions are presented in Annex 3. Touton management provided answers to questions on sources of financial flows for the training; coaching and VSLA models; and on the process of implementation and the function of the various actors in each chain.

2.4 Data analysis

The data collected on the three financial models were analyzed separately; despite that participants in one Touton support model may also participate in one or more of the other models and in order to be able to identify the impacts of each model separately, participants were selected in such a way that none of them was involved in all three models and they were not asked about a model they had not participated in. The data from the smallholder farmer surveys (individual recipients and non-recipients) was entered into SPSS software and frequency tables and descriptive statistics were used to describe the results. The key informants' interviews and focus group discussion information were represented using direct reporting of the answers of the people in these groups. Answers on similar themes from the participants were grouped accordingly.

SECTION III

3. Results and discussions

Detailed results for each model are presented in Annex 1.

3.1 Relationship between surveyed recipients and implementing agency for each model

3.1.1 Characteristics of recipients in studied models

Table 2 indicates the total number of Touton farmers (recipients) surveyed in the three models studied in communities in the two districts. The communities were Santase Nkwanta A, Santase, Atialeve, Anhweafutu, Darkwakrom, Antwikrom and Juliekrom in Juabeso District; and Yesukrom, Elluokrom and Panabo in Bia West District. It should be noted that Juliekrom is in Bia West District (see Figure 6), but because it is closer to the Touton communities in Juabeso District, it is classified there.

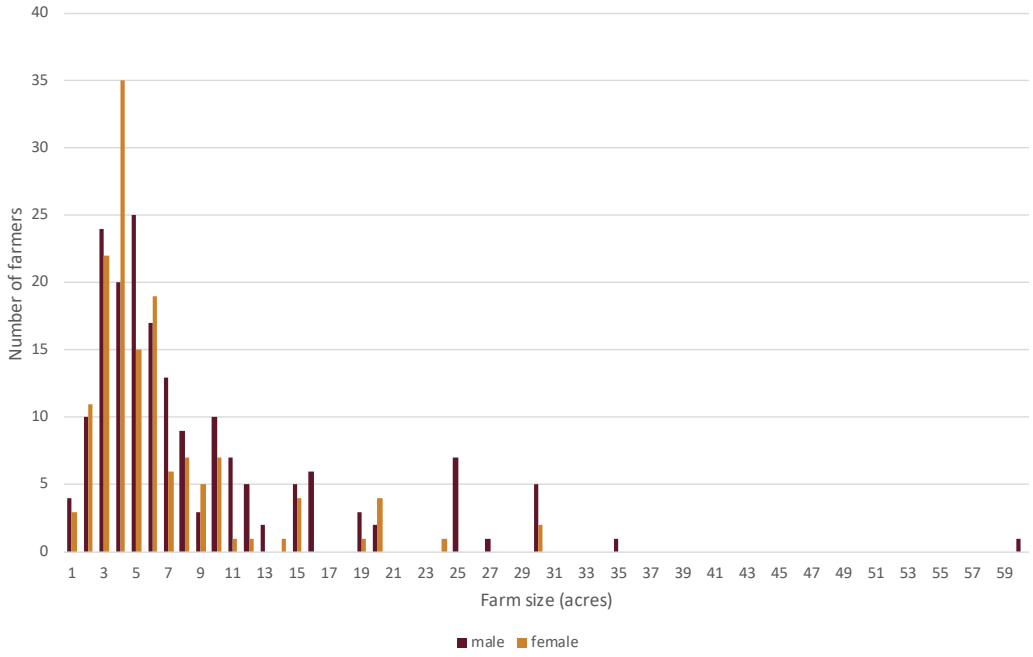
Table 2. Number of recipients in the three models studied according to district and gender (see also Table A1, Annex 1)

Model	Juabeso		Bia West		Total	
	male	female	male	female	male	female
Training	50	22	33	31	83	53
Coaching	32	19	23	18	55	37
Banking	39	37	6	30	45	67
Total	121	78	62	79	183	157
Total, male and female	199		141		340	

Almost all of the recipients (325 of 340) indicated that they owned farmland. Their average farm size was 7.6 acres (3.1 ha), with a range from 1–60 acres (0.4–24.3 ha). For recipients in the training model, the average cocoa farm size was 8.4 acres (3.4 ha) and the range was 1–60 acres (0.4–24.3 ha); in the coaching model the average was 7.3 acres (3.0 ha) and the range was 1–30 acres (0.4–12.2 ha); and in the banking model, the average was 7.0 acres (2.8 ha) and the range was also 1–30 acres. Fewer recipients have larger cocoa farms (>10 acres or 4.1 ha), and those who do are more often male than female (Figure 7).

Table 3 indicates the type of support received by the farmers from the implementing agency (Touton Ghana). Farmers receive different types of support in the banking model than they do in the other two models. It should be noted that the loans are agreements between the farmers and the VSLA, not directly with Touton. Touton, from its own budget, provides inputs and technical advice for setting up the VSLA. The knowledge that farmers gain from the capacity building in financial literacy enables them to manage and increase their cocoa income earnings through their contributions and interest on loans from their pooled financial resources (which are saved in the VSLA group accounts in a bank). Such savings are for future use (i.e., the VSLA model helps them to set aside a portion of their income that accumulates over a period of time and can be used in the future).

Figure 7. Distribution of recipients according to size of their farm and gender



For the training and coaching models, the support provided by the IA to the recipient farmers is mainly in the form of capacity building on good cocoa farm management. Participating farmers sign a contract which details the terms they have to fulfill.

Table 3. Types of support provided by Touton (the IA) to farmers

Form financial flow/model gets to participating farmer	Training model		Coaching model		Banking model	
	Juabeso (N=62)	Bia West (N=62)	Juabeso (N=49)	Bia West (N=39)	Juabeso (N=73)	Bia West (N=36)
Loan from VSLA					64%	56%
Farmer self-financing of contribution				1%	0%	
Farmer capacity built on good savings habits and farm management	100%	100%	100%	100%	16%	19%
Savings for the future					18%	25%

N = number

3.1.2 Additional income generated for recipients by support provided by the implementing agency

Training model

In the Juabeso District, on average, a recipient farmer who applied the knowledge gained from the training model received earnings in 2020 that were GHC 1,880.6 higher than those in 2019 due to increased cocoa bean sales (Table 4). In the Bia West District this difference was GHC 16,278.9 per farmer for the same period. It is possible that these increased earnings could be higher than those cited in Table 4 because farmers have not yet bagged all the cocoa beans from the 2020 minor cropping and harvesting season.

Table 4. Difference in average earnings (GHC) between 2019 and 2020 of recipient cocoa farmers in the training model for the two study districts

	N*	Mean# of bags per farmer	Unit price	#bags x price	Difference	SD
Juabeso District						
Average bags (64kg) of cocoa for 2019	66	17.84	515	9,187.6		12.03
Average bags (64kg) of cocoa for 2020	13	16.77	660	11,068.2	1,880.6	15.29
Bia West District						
Average bags of cocoa for 2019	61	34.98	515	18,014.7		68.15
Average bags of cocoa for 2020	24	51.96	660	34,293.6	16,278.9	117.73

*N = number of recipients; SD = standard deviation

CODAPEC (cocoa pest and disease control), implemented by the Cocoa Health and Extension Division, is the only programme in Bia West District that offers a similar training model for farmers. Only 3% of the farmers who participated in the case study mentioned the CODAPEC programme. In Juabeso District farmers receive training solely from Touton.

Coaching model

The data for the farmers who participated in the coaching model could be obtained for only one year of cocoa farming: 2019. It was therefore not possible to observe the impact of this model on yields between 2019 and 2020. Farmers in the coaching model in Bia West District recorded higher cocoa yields than their counterparts in the Juabeso district; see Table 5.

Table 5. Earnings (GHC) in 2019 of recipient cocoa farmers in the coaching model for the two study districts

	N*	Mean# of bags per farmer/year	Unit price (GHC)	#bags x price (GHC)	SD
Juabeso District					
Average bags of cocoa for 2019	48	17.89	515	9,213.35	13.94
Bia West District					
Average bags of cocoa for 2019	38	22.26	515	11,463.9	14.44

*N= Number of recipients; SD = standard deviation

The CODAPEC and Yonkopa programmes offer similar coaching services to farmers in Bia West District. Mondelez and the Ministry of Food and Agriculture (MOFA) farmer's cooperatives offer similar coaching services to farmers in Juabeso District.

Banking model

The rationale for the VSLA (the banking model) is that it improves the financial resilience of the recipient, and this enables him or her to invest the proceeds from the savings account in cocoa farming, which is the main economic activity (Table 6). For the two districts combined, on average, the earnings of a recipient farmer increased by GHC 2,558 from the increase in cocoa beans sale between the 2019 and 2020 farming seasons. This value is GHC 3,683 per farmer in the Juabeso District, due to both increased harvest and higher prices, whereas in the Bia West District increased earnings were only GHC 31 per farmer since harvests were not yet completed at time of the study, and therefore showed a decrease in volume harvested for the year. Another reason for the lower values in Bia West District is that not all the gains from the VSLA financial flow are invested

directly into the cocoa farm. Some of these gains are used, particularly by women, to improve small businesses, including alternative livelihood activities such as vegetable farming, and to provide direct support for household expenditures.

Table 6. Difference in earnings (GHC) from cocoa bean sales 2019–2020 due to reinvestment of proceeds from savings in the VSLA in the two study districts

	N*	Mean # of bags per farmer/year	Unit price (GHC)	Mean x unit price	Difference (GHC)
Juabeso District					
Average bags (64 kg) of cocoa for 2019	68	17.80	515	9,167.00	
Average bags (64 kg) of cocoa for 2020	17	19.47	660	12,850.20	3,683.20
Bia West District					
Average bags (64 kg) of cocoa for 2019	34	11.32	515	5,829.8	
Average bags (64 kg) of cocoa for 2020	8	8.88	660	5,860.8	31

*N= Number of recipients; SD = standard deviation

Besides the Touton-backed VSLAs, there is virtually no financing source for these recipients in the Juabeso-Bia Landscape. The nearest formal banking facilities serving the residents are in the district capitals: Dabeso in Bia West District and Juabeso in Juabeso District. Only 2.6% (N=111) of the recipients in the Juabeso District mentioned other sources (MOFA farmers' cooperative, GIZ and Baakoye) from which they receive similar banking services. None of these sources were mentioned by the recipients in the Bia West District.

3.2 Farmers' perceived benefits and level of satisfaction with support received

Farmers participated in the models mainly to obtain knowledge and build capacities to achieve increased productivity, reduce post-harvest losses and meet the quality demands of the market. They hoped to receive technical assistance through the models, as well as assistance to obtain funds to buy the right agricultural inputs in the right amounts.

Most recipients indicated that they were satisfied (33%) or very satisfied (61%) with the services received. Only a small percentage of women (<3%) were not satisfied with either training or coaching, probably because they were not able to fulfil their needs for agrochemicals and farm equipment (in either the coaching or training model) and because they considered the premiums received to be low and payments to be delayed. Men were slightly more satisfied with the banking model than with the other models, more so than the women.

The level of satisfaction is considered to be an indication of whether farmers' expectations were met.

Table 7 summarizes the models' benefits as perceived by surveyed farmers. As could be expected (see also previous section), nearly 90% of the recipients perceived income and employment benefits. Strengthening social capital and increasing food security and access to clean water were also considered benefits, but much less so than economic benefits, more so by men than by women and more so than benefits from training and coaching. A surprising finding was the low perception of increased productivity due to the support models, in particular the training model.

It is worth mentioning that within the banking model, the VSLA teaches its members to be engaged in alternative livelihood activities, including vegetable farming. Some members are able to invest a portion of their earnings from the VSLA in these activities to earn additional income and create employment for themselves and for the labourers who they engage for such activities.

About half of the surveyed farmers (male recipients slightly more than female recipients) perceived conservation of biodiversity and mitigation of climate change effects as ecological benefits. All models include good environmental practices in their training packages; among other things, this includes the purchase and use of approved agrochemicals.

In the coaching model, where necessary, emphasis is placed on rehabilitation of aged and diseased cocoa farms. The rehabilitation process includes planting economic trees of other species to provide permanent shade on such farms, leading to biodiversity conservation, climate change mitigation and increased productivity.

Table 7. Percentage of male and female farmers surveyed who perceived socioeconomic and ecological benefits from each support model

	Training		Coaching		Banking		Total	Total Male	Total Female
	Male	Female	Male	Female	Male	Female			
N (valid responses to survey)	83	53	55	37	45	67	340	183	157
Socioeconomic									
income and employment	92	92	84	92	89	88	89	89	90
social capital	29	21	31	32	27	21	26	29	24
food security	41	32	64	49	29	18	38	45	30
clean water	18	15	22	22	0	0	13	15	10
additional livelihoods	0	0	0	0	2	3	1	1	1
increased productivity	5	6	0	0	0	1	2	2	3
education on child labour	4	4	0	0	0	0	1	2	1
money for future needs	0	0	0	0	7	1	1	2	1
Other*	0	0	7	0	0	0	1	2	0
Ecological									
biodiversity conservation	58	68	71	59	33	21	51	56	46
climate change mitigation	75	66	67	57	40	13	54	64	41
application good agric. pract.	4	2	0	0	0	0	1	2	1
access to loans for GAP	0	0	0	0	7	1	1	2	1
removal of plastic waste	2	0	0	0	0	0	1	1	0
Other**	0	0	0	0	0	0	0	0	0

*Other (1) includes receipt of technical support, improved cocoa productivity; other (2)** includes knowledge of cocoa farm drainage construction and erosion control

During the key informant interviews, increased technical know-how on improving farm management and increasing income were stressed as the most important benefits by farmer representatives, while Touton trainers stressed that achieving cocoa certification was the company's main benefit, which they achieved through providing additional benefits to the farmers, such as social amenities, school buildings, computers, boreholes and farm equipment. Interestingly, these benefits were not mentioned by the farmers during the survey. The purchasing clerks consulted also indicated that they perceived increased yields, and therefore increased commissions, due to the coaching and training models.

3.3 Perceived risks and barriers

Barriers perceived by recipients

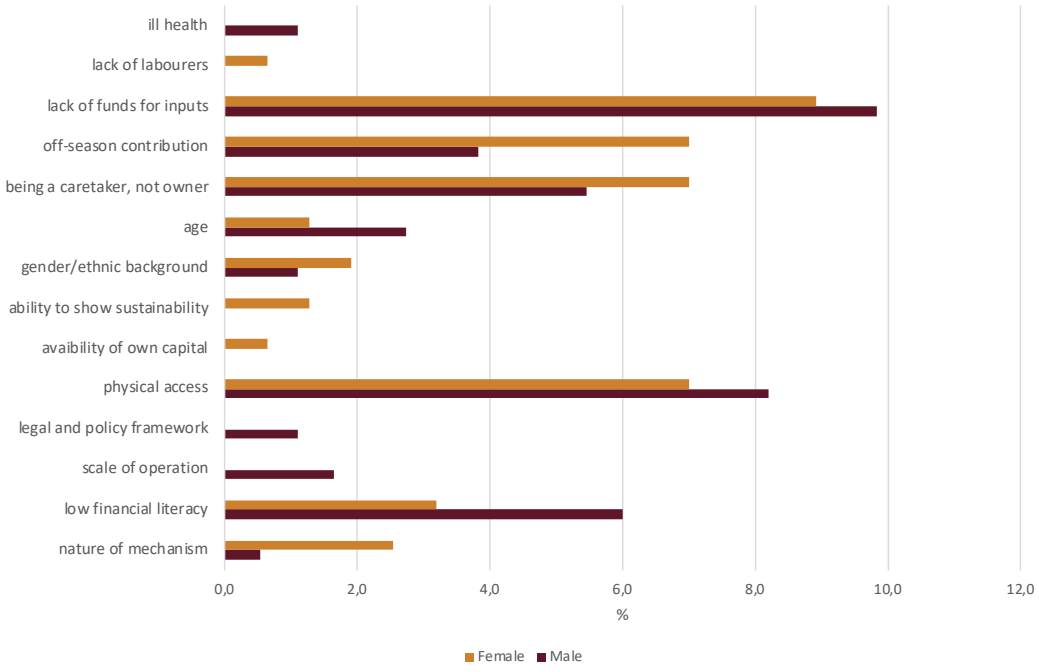
The respondents all participated in the support models, so the barriers they perceived were either obstacles that they were able to overcome or that they perceived might prevent others from joining the scheme. Of all respondents, 35% perceived some type of

barrier, usually not more than one barrier per respondent (average 1.2). This percentage was higher for participants in the coaching model (45%) than in the banking and training models (30 and 32%, respectively). In the latter two models, women perceived more barriers than men did, and the barriers were different in the training model (being caretaker of a farm rather the owner, lack of funds for required inputs), than in the coaching model (gender, age and lack of funds for required inputs) or the banking model (mainly related to off-season contributions). See Table A3 in Annex 1. Respondents who perceived other barriers were spread more or less evenly over the three models. Figure 8 shows the responses for each barrier as a percentage of the total number of male and female survey respondents.

The main barrier to getting involved in the VSLA (banking model) perceived by recipients was the difficulty of making the mandated contribution to the fund for the purchase of shares and the social fund (see Section 1.3 and 1.4) during the off season of cocoa, when the beans are not available for the farmer to sell to get the cash needed. Financial constraints were also mentioned by the participants in the training and coaching model, and although recipients seem to have overcome these barriers, not having sufficient funds to purchase the required inputs remains a risk (see below in this Section). During the focus group discussions for each of the models, some participants suggested reducing financial barriers by paying premiums and other types of bonuses during the off season, when financial needs are highest. This, however, caused some friction with other suggestions to pay these bonuses as soon as possible. This will need to be analyzed further before deciding on one or the other option.

Caretaker farmers are excluded from taking part in the training model. Only farmers who are owners of their cocoa farms and are present on a daily basis to make decisions on farm management are allowed to participate in the training model. Caretakers may take part in the VSLA model, however. This has been mentioned as a risk for the VSLAs (see above), and in the focus group discussions this has also been perceived a barrier to others' participating, out of fear that these caretakers could move to other communities without paying back their debts.

Figure 8. Percentage of male and female respondents who perceived barriers to participation in the support models provided by Touton (training, coaching, banking)



The following measures are used to overcome these barriers: involve the purchasing clerks in the VSLA groups; involve prominent people of the community in the VSLA group; have regular visits by the Touton facilitator to the VSLA group to address any challenges during the initial stages of formation; and encourage caretaker cocoa farmers to ask for permission from the farm owners to join the VSLA.

Lack of physical access is still a barrier to about 15% of the respondents (male and female), independent of which model they participate in. This has to do with the poor condition of the road network, particularly in the Juabeso District, which makes it difficult for the Touton officers to get to the participants in their catchment areas to support their operations (in the case of the banking model) or for participants to travel to the training and coaching sites (in those two models). These barriers were confirmed by the focus group discussions. Participants also suggested that the time needed for the training sessions — and, in the case of some female farmers, the schedule for the training sessions — did not allow them to participate, or made it difficult to do so. In the focus group discussions, language was also mentioned as a barrier, since many farmers only or mainly use a local language and therefore had difficulties in understanding the training sessions in another language. This barrier is also related to the low literacy level of some of the participating farmers.

During the focus group discussions, several strategies were suggested to overcome these barriers: hold training sessions early in the morning; make training sessions shorter but more intensive; select local field trainers who speak the local language, so that they can translate the lessons for the farmers into their language; and repeat training sessions for greater uptake of the lessons learned by the farmers.

A few respondents indicated that low financial literacy was a barrier to full participation in the models. The banking model addresses financial literacy, but VSLAs are not yet widely spread throughout the landscape and where they are available, they are accessible only to farmers who sell their cocoa beans to Touton.

Gender and age are considered to be barriers for some farmers in the coaching model, because the nature of certain farming practices is such that due to gender or age, a person might not able to implement them; for example, if the activity requires much strength. This was mentioned above all in relation to the coaching model, because farmers were selected for this model in particular to help them rehabilitate their cocoa farms. This requirement was mentioned by participants in the focus group discussions as a barrier in itself, since not all farmers are able to or prepared to invest in such rehabilitation. In some cases, age was a barrier; either the farmer was considered too old to practise the directives or too young to join or be coached.

A barrier that was mentioned in the coaching focus group discussions requires special consideration: apparently the additional income from improved cocoa farming is lower than the costs of improving farming practices. This needs to be investigated in more detail, for if this is the case any credit facilities will be doomed to fail. It may also, however, be a question of the chicken and the egg: farmers who do not earn enough money to purchase inputs therefore do not achieve the expected yields and are not able to cover all the costs of good management. In such cases, providing credit at the right moment may break this vicious cycle and convert it into a virtuous cycle.

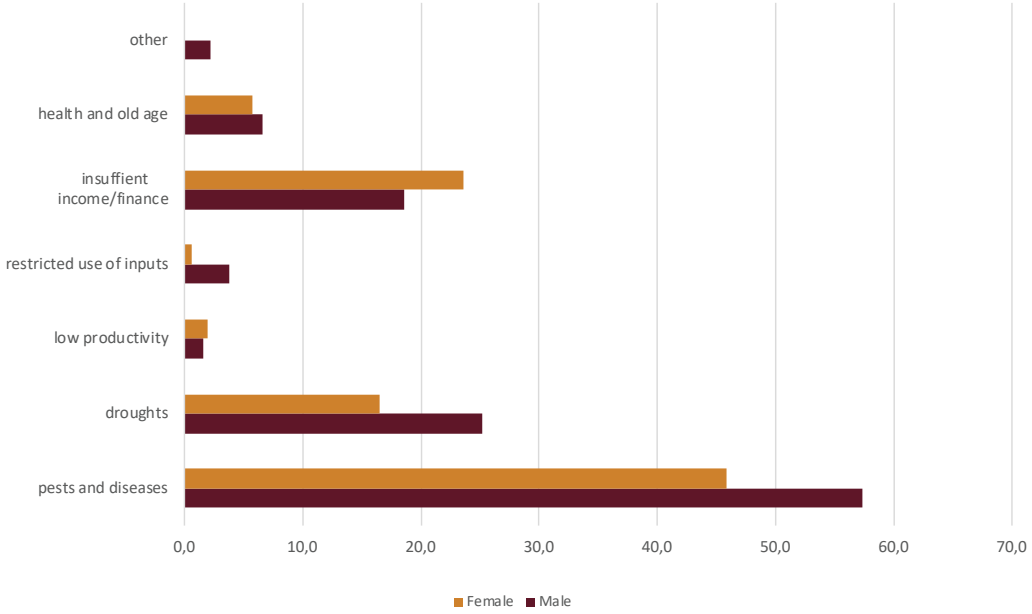
It is also clear from the focus group discussions that farmers need to gain trust in these models, since some have had bad experiences with previous government and NGO initiatives and others perceive the prevalence of the cocoa virus disease in the landscape as insurmountable.

Risks perceived by recipients

Although recipients in general were satisfied or very satisfied with their participation in one of the support models, and perceived both socioeconomic and ecological benefits from

the models, 274 (81%) indicated that they perceived some level of risk in doing so. This percentage was higher for the coaching model (94%) than for the banking model (69%); and men perceived a risk slightly more often (84%) than women did (76%). Figure 9 shows the distribution of risk perception for men and women for the three support models combined.

Figure 9. Risks perceived by male and female respondents participating in any of the three support models provided by Touton



Note: "Other" includes limited access to credit

Risks perceived were mainly production related, and respondents to the survey considered these as risking their participation in the different support models: due to low production they might not obtain the income needed to comply with the training and coaching model requirements. The risk perceived most often was pests and diseases, mainly related to the cocoa plants, in particular cocoa swollen shoot virus disease (CSSVD), which reduces yield and kills the plant within a few years. Pests and diseases have a doubly negative effect on a farmer's capacity to earn a living. They reduce yields and therefore reduce farmers' income, and farmers need a larger part of that income to buy chemicals to combat the pests and diseases. While nearly two-third of the male and female recipients who participated in the training and coaching models identified this as an important risk, only one-third of male participants and less than one-fifth of female participants in the banking model did so. Droughts were another main concern of respondents. Apparently, the application of knowledge and skills on the cocoa farms does not yield the desired increased output because of the damaging effect of pests, disease and droughts on such farms. To help reduce these risks, cocoa farmers in the landscape are looking to the government and private stakeholders for lasting solutions. The participants of the coaching focus group discussion thought that more attention should be paid to the application of the correct chemicals. Afriyie-Kraft et al. (2020) indicate that 90% of cocoa farmers in Ghana are interested in a proposed indexed insurance scheme as an adaptation option, but other supply side stakeholders identify various challenges that hamper the implementation of such insurance schemes, including insufficient data and infrastructure and low profitability.

Male and female participants in the banking model were more concerned with their

capacity to generate sufficient income to buy inputs for their farms and to be able to make their contributions to the VSLAs.

Table A2 in Annex 1 shows the responses to the survey from recipients per support model and type of risk. Participating farmers mainly perceived production risks and some finance risks. Since all recipients are cocoa producers and the models they participate in are linked to their selling their cocoa beans to Touton, it is not surprising that they did not mention any market-related risks.

Both Touton trainers and purchasing clerks confirmed that the main risks faced by farmers participating in the training and coaching models are financial constraints, which impede them from buying the inputs required to fully meet the training and coaching goals. This was particularly the case for those farmers who needed to rehabilitate old and/or diseased cocoa farms. This risk was confirmed during the focus group discussion for these models. Two suggestions were made by the farmers to reduce those risks: paying premiums to the farmers during the off-farm season; and providing loan guarantees to participating farmers so that they can buy farm inputs. It was also suggested by key informants that VSLAs could help solve this challenge; however, currently VSLAs are not widespread in the landscape and therefore relatively few farmers have access to one. In addition, the VSLAs still in their early stages of formation. During the focus group discussions for the coaching model, it was also suggested that due to the lack of funds of farmers who need to rehabilitate their farms, the government should support rehabilitation. Participants perceived that it is the responsibility of government to do this because cocoa is the third-largest revenue earner for the nation. These same focus group participants thought that another option would be to renew the old and diseased cocoa farms in stages, in order to spread the effort and the costs.

The focus groups basically confirmed the risks identified in the key informant interviews and the surveys. However, the banking focus group stated that VSLA members are concerned that other members might not be able to make their contributions or repay their loan; that they might pass away, leaving a debt; that they might relocate to other communities and leave their debt behind; or that they might be delayed in paying back their loans. These concerns may be related to the fact that the VSLAs in the Juabeso-Bia landscape are still new and have not yet built up a track record of performance. Also, potential members have not yet gained trust in the measures that the associations have taken to reduce risks:

- requiring two guarantors in the loan application process;
- using the current share of a member to defray loans in case of default;
- selling a defaulting cocoa farmer's beans to defray his or her loan;
- transporting the savings of the VSLA members to the nearest rural bank in the daytime and not at night; and
- having Touton purchasing clerks bear the cost of transporting the members' contribution to the bank (motivated by the expectation that in the future these savings will be used to increase cocoa production, leading to more beans that the purchasing clerk can purchase, and thus leading to an increase in the clerk's commission payment from Touton).

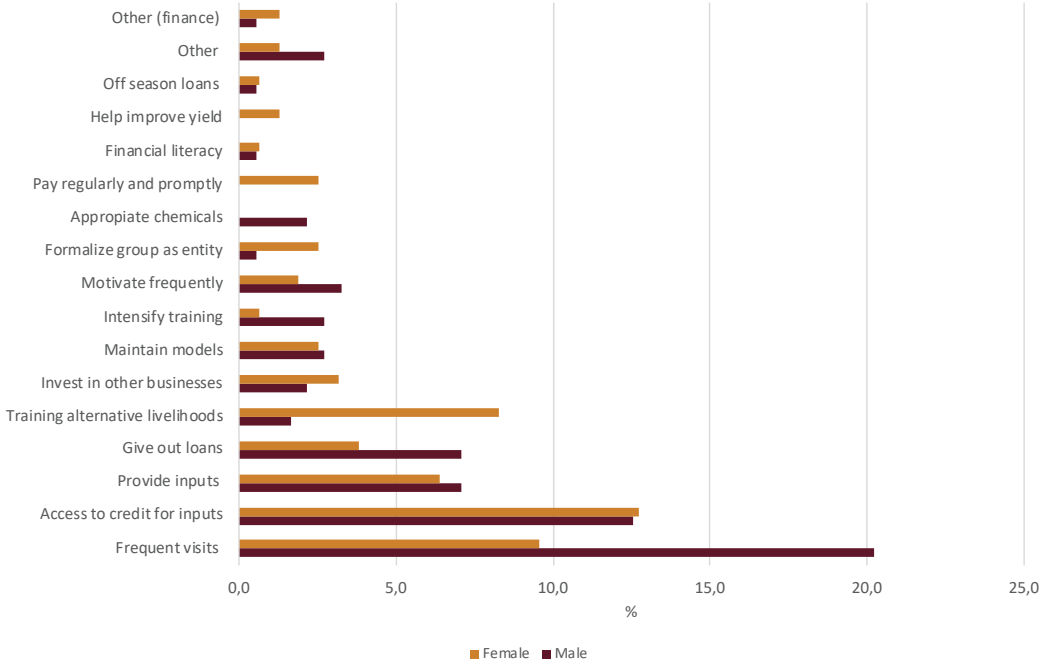
In relation to the concern expressed by the VSLA focus group that the transport of the savings to the nearest rural banks is to costly, and that the money may be lost on the way, it was considered that digital banking would reduce these risks.

3.4 Main suggestions for improvement

On average, one of two respondents suggested an improvement, most of which seemed to be influenced by his or her personal experience (Figure 10). A slightly higher percentage of respondents involved in the training model made suggestions (60%)

than in the other two models (52% each). The improvements that were suggested most often were increasing the frequency of visits to monitor the progress of the participants (in all of the three models). Also suggested often was the need for inputs: some farmers requested that these be provided by the implementing agency (Touton); others requested support to be able to buy them, either through subsidized prices, selling inputs at credit or facilitating loans through the provision of loan guarantees.

Figure 10. Main improvements as suggested by survey respondents and the frequency with which they were suggested as percentage of the respondents per gender (N male=187, N female=157)



Of the five improvements most often suggested, more frequent visits and loans were more often suggested by men, while additional opportunities for alternative livelihoods were more often suggested by women. Examples of the latter include animal rearing, engaging in commerce, driving and soap making. Alternative livelihoods were mentioned more often by women involved in the banking model than men and then women in the other two models. The group of women in the banking model also requested access to inputs through credits more often than the women in the other two models (see Table A4 in Annex 1 for detailed results).

The frequency of visits was mentioned by participants independent of the model they were involved with. In the case of the training and coaching models, participants also mentioned that training could be more intensive, either by extending training or going more in-depth in each session. Some farmers requested more expertise to help improve cocoa yields.

Across the three models, the need for better access to inputs (either provided to them or available with credit) was mentioned by a similar percentage of recipients for both men and women (19%). The respondents involved in the banking model mentioned this because they considered that the income generated by savings was not enough to complement their farm income and meet all their financial needs for household food, health, education and purchase of farm inputs. The respondents involved in the other two models mentioned it because they did not have enough funds to buy the necessary inputs at the right moment to follow the farming practices suggested during training and coaching sessions. Although some inputs were provided, some of the farmers complained that the fertilizer was not provided

according to the needs and sizes of the farms. Also, particularly during the coaching focus group discussions, participants mentioned the need to improve access to inputs or finance for inputs. They suggested that the IA provide guarantees for credit or give the inputs for spraying and fertilization on a credit basis, so that farmers could do the spraying and fertilizing at the correct time, rather than having to wait to have enough cash to buy the chemicals.

Converting VSLAs into formal entities was suggested by participants in the banking model in order to be able to invest in other businesses, thus diversifying their income while also supporting diversification of the local economy. In other parts of Ghana this strategy has been quite successful, particularly in supporting the economic activities of women (Gurbin Harley n.d.). Interestingly, this suggestion came more often from the female respondents than from the male respondents. Suggestions for additional businesses that these VSLAs could invest in are group farms or group commercial vehicles that would further generate extra income.

Key informants had similar suggestions, and in addition observed that farmers who participate in one model did not have automatically have access to either of the other models. This is particularly the case for the banking and the coaching models. Improving linkages between the models would probably overcome a number of the risks and barriers indicated by the survey respondents, but not all of them. The key informants also mentioned that the coaching model was rather exclusive: a farmer must have an area larger than 0.5 ha of diseased and aged cocoa before he or she is eligible to participate. In addition, the focus group participants for this model indicated that coaching should be more focused on a few farmers, and that successful farms should be used as demonstration sites for further training.

3.5 Barriers, risks and expected benefits as perceived by non-recipients of the support models

Barriers to participation perceived by non-recipients

In order to get an idea of the possible scope of expansion of the models to farmers who were not yet involved, non-recipient farmers were also surveyed: 97 of these farmers responded to the survey, 41 of whom were women. See Table A5. They were asked whether they would like to participate in one of the three models of support, and if so, why did they were not yet doing so; and if not, why not. Table 8 shows the main reasons for not participating that were identified by both male and female non-recipients. Of the men and women surveyed, respectively 25% and 37% would rather not participate in any of the three models. 90% of them were clear about their reasons to not participate, the main reasons differed between men and women: male respondents were more often hampered by possessing land in different communities and not being permanently present on any of these parcels. Females more often responded that they either were not interested or lacked funds or time to participate.

Those respondents who did have an interest in participating in the future were less clear about their reasons for not yet doing so: 60–70% of these respondents did not indicate a reason (this was as high as 95% and 81% for the training and coaching models, respectively). This may be the result of the limited capacity of the IA to implement the models, and the fact that it is not yet these farmers' turn to be invited. Of those who did give a reason, the one most often mentioned by both male and female respondents was that they did not have enough time to participate, which includes not being in the community at the time that the model was initiated.

Table 8. Percentage of non-recipient male and female farmers and reasons for not participating

	Male			Female		
Participation in future		Would	Not		Would	Not
Number of valid responses received	56	42	14	41	26	15
Not available in community				2.4		6.7
Not stable (land in different communities)	16.1	7.1	42.9	4.9	3.8	6.7
Caretaker, not owner				2.4	3.8	
Insufficient funds to participate	3.6	2.4	7.1	4.9		13.3
Not interested	1.8		7.1	7.3		20.0
Ownership of decisions on farm	5.4		21.4			
Already involved elsewhere	3.6	2.4	7.1	4.9	3.8	6.7
Not aware of support	3.6	4.8				
No farm				2.4		6.7
Pregnant				2.4		6.7
Not enough time available	10.7	14.3		12.2	11.5	13.3
It is a womens' group	3.6	2.4	7.1			
Negative social-economic impact				2.4		6.7
Transparency	3.6	4.8		4.9	7.7	0.0
No response	48.2	61.9	7.1	48.8	69.2	13.3

Risks perceived by non-recipients

Similarly to recipients, 40% of the respondents to the non-recipient survey indicated that pests and diseases were a major concern (Table 9 and Table A6). This was independent of model and gender, but higher among respondents who would be prepared to participate (50%) than among those who would not (28%). The latter, on the other hand, were more concerned about not having enough money or access to credit to be able to participate (41%) than those who would like to participate (13%). This probably relates to the need for extra inputs such as fertilizers. Access to inputs was a concern for all respondents, but was not always related to having enough money to acquire them.

The perceived risks for non-recipients are similar to those perceived by the participants in the three models (see Figure 9), and therefore would probably not be a major reason for not participating once the non-recipients had the opportunity to do so. These risk perceptions could, however, move the balance toward non-participation.

Table 9. Risks perceived by non-recipients (%), according to model and gender

	Training	Coaching	Banking	Total	Male	Female
Number of valid responses received	29	28	40	97	56	41
Pests and diseases	41,4	46,4	42,5	43,3	42,9	43,9
Drought and other climate issues	20,7	21,4	7,5	15,5	14,3	17,1
Inadequate finance to participate	17,2	7,1	7,5	10,3	12,5	7,3
Lack of access to funds and credit	13,8	3,6	15	11,3	12,5	9,8
Lack of access to inputs	24,1	39,3	20	26,8	30,4	22,0

Expected benefits perceived by non-recipients

Of the non-recipients, 91% indicated that they expected positive or very positive socioeconomic effects from the implementation of the models, and 75% expected positive or very positive ecological aspects. See Table A7. As could be expected, those who

indicated that they would participate in one of the models if they could had a more positive perception of the models' socioeconomic and ecological effects than those who would rather not participate. Male respondents recognized more benefits than female respondents, and socioeconomic benefits were recognized more often than ecological benefits by both male and female participants (Table 10). This did not differ substantially between the models.

Table 10. Perceptions (% of non-recipients) of how the models contribute to local socioeconomic and ecological benefits, according to gender and willingness to participate

Prepared to participate	Would		Would not		Total
	Male	Female	Male	Female	
Number of valid responses received	42	26	14	15	97
Socioeconomic benefits					
Negative	0	0	0	7	1.0
Neutral	0	4	21	13	6.2
Positive	12	31	43	47	26.8
Very positive	88	62	36	27	63.9
No response	0	4	0	7	2.1
Ecological benefits					
Negative	0	0	0	0	0.0
Neutral	0	4	21	13	6.2
Positive	7	35	36	47	24.7
Very positive	64	46	36	33	50.5
No response	29	15	7	7	18.6

Most non-recipients mentioned that they would expect economic benefits (income and employment) from participation; the percentage of female respondents who said this was a bit higher than that of male respondents, and those who would not participate expected fewer benefits than those who would (Table 11). Proportionally, more female respondents expect economic benefits from the banking model than their male counterparts do, while in the coaching model the reverse appears to be true. Further, more male respondents expect the banking model to strengthen their organizational capacities (social capital).

Table 11. Main benefits of the models expected by non-recipients (% of total males and females surveyed), according to their willingness to participate

Prepared to participate	Would		Would not		Overall
	Male	Female	Male	Female	
Number of valid responses received	42	26	14	15	97
Economic	67	77	57	67	68
Social capital	26	12	7	0	16
Food security	7	12	0	13	8
Clean water	0	12	0	0	3
Livelihood support	7	8	0	0	5
Technical support	5	0	0	0	2
Conservation and biodiversity	38	46	43	53	43
Climate change mitigation	48	58	36	47	49

Five percent of respondents indicated that if they participate in the coaching model they expect to receive support in diversifying their livelihoods; for example, through growing vegetables or tree farming.

Non-recipients who thought that the models contribute to forest and biodiversity conservation and climate change mitigation perceived that by IA (Touton) coaching the farmers to grow more shade trees and reduce burning on farms the rate of climate change can be moderated. The IA also teaches the farmers practices that reduce biodiversity loss by restricting forest clearing and applying strict rules on the use of agrochemicals.

Reasons why non-recipients want to be part of one of the support models

The reasons that non-recipients mentioned for wanting to participate in the banking model were more varied than those for the training and coaching models (Table 12). The four main reasons mentioned by non-recipients regarding the banking model were i) the opportunity to get access to loans at a reduced interest rate (compared to the high interest rate charged by the moneylenders in the communities); ii) help to increase cocoa productivity; iii) the opportunity to receive financial support in times of difficulty; and iv) the opportunity to receive training in how to save and invest (financial literacy). About two-thirds of respondents who wanted to participate in either the training or coaching model said that building their capacity to manage their cocoa farms was their main reason.

Table 12. Main reasons for non-recipients wanting to participate in one of the support models

	Training	Coaching	Banking	Total
Number of valid responses received	20	21	27	
Financial support		3	7	10
Financial literacy			7	7
Benefit from package offered	1	1	2	4
Help increase productivity	3	2	4	9
Help maintain cocoa farm			1	1
Access to finance (loan)			2	2
Building capacity	14	14		28
Learn about child labour	1			1
No response	1	1	4	6

The non-recipients mentioned only a few suggestions for improving the models, and these appeared to be independent of whether they wanted to participate in the future. More suggestions were offered for the banking model. Intensification of training, more frequent visits by the trainers/coaches of the IA, encouraging members to practise what they are taught and greater transparency by the leaders were mentioned more than once (2, 3, 3 and 4 times respectively).

SECTION IV

4. Discussion

Due to the nature of cocoa production, Touton works with many smallholder farmers in the Western North region of Ghana. These farmers find it difficult to meet international sustainability standards. Dalaa et al. (2019) identified that lack of access to hybrid seedlings, financial challenges and extension service delivery problems are the main barriers to farmers adopting climate-smart practices. Economic barriers include lack of access to markets and to finance, while technical barriers relate to knowledge as well as the application of modern technologies. Louman et al. (2020) came to a similar conclusion after reviewing documented cases on innovative finance for sustainable landscapes. They (ibid.) identified seven groups of barriers for smallholders to access finance: three — scale, rate of return and risk — limit investors; and four — the nature of the financial instruments, financial illiteracy, lack of physical access and inability to generate one's own capital — limit smallholders. In Touton's efforts to meet an increasing global demand for cocoa from sustainable resources, the company has endeavoured to deliver a support system for its providers that should help them reduce these financial and technical barriers and should provide incentives for sustainable cocoa production. This case study shows how Touton is addressing each of the four types of barriers that smallholders face in gaining access to finance. In addition, through its coaching model, Touton addresses the four types of barriers that Louman et al. (2020) identified as limiting smallholders' ability to adopt more sustainable production once finance is available: not being part of a strong social network; lacking a strong internal organization; not managing production risks; and not having adequate and up-to-date knowledge on production systems and markets.

4.1 Addressing smallholder barriers to finance

Touton addresses farmers' need for finance to make their cocoa production more sustainable by collaborating with partners of the publicly funded Partnership for Productivity Protection and Resilience in Cocoa Landscapes (3PRCL), who contract the Community Development Officers (CDOs) who facilitate the VSLAs. SNV contributes to extending the VSLA facilities to many more cocoa farmers. It partners with Touton, hiring Touton's CDOs to train and engage some of the Touton's cocoa farmers who do not have the opportunity to use the VSLA's services. Participating farmers in general are satisfied with the VSLAs, which allow them to address some of their major finance issues. Through the VSLAs, a number of the barriers that prevent farmers from having to access finance mentioned by Louman et al. (2020) are being at least partially resolved. For many farmers the VSLA is their first contact with organized financial instruments and through the VSLA they gain financial literacy. The CDO provides support through facilitating the formation of savings groups (which supports aggregation and increasing scale), while Touton also provides operational logistics and trains the group leaders in bookkeeping. This allows the savings groups to grow into mature businesses. Through having savings, individual farmers build up some capital of their own, which helps them to access more formal sources of finance, such as local microfinance institutions. At the same time, the financial literacy gained through the VSLA allows the farmers to do more with their cocoa income than they did before, and to build a credit history that will strengthen their credibility when seeking loans from the formal banking system.

Several farmers, however, said that the VSLA services are not sufficient to address all their financing needs due to their low saving

capacities, among other reasons, and that improved cocoa production requires more inputs than they can afford. An attempt by Touton to address this issue was not successful: credits for more expensive inputs and services were linked to future cocoa production, but farmers sold their produce to buyers from other companies to address their need for immediate cash, rather than paying back their credits.

Despite the spread of VSLAs in the districts of the study area, it has not been possible to form sufficient savings groups to cover the entire landscape due to a lack of funds to procure the needed inputs for the many groups of cocoa farmers scattered over the landscape that require the services. It is also difficult to reach out to these farmers because of the poor road network in the area. Many farmers are not able to join a savings group because such a group does not exist in their community. Many households are not able to join even when these savings groups are available in their communities. There are several reasons that some farmers do not join or are not able to join:

- general low income level;
- they are caretakers rather than farm owners;
- they need no support as they are able to manage their cocoa farms;
- the savings group is dominated by women (some men consider VSLAs as organizations for women);
- lack of interest in such activities; or
- they are not based in the community (such farmers have many cocoa farms located in different areas and villages, and travelling around to manage them means that farmers are not based in a single community and therefore not able to regularly attend the VSLA meetings).

The costs of the VSLA appear to be carried partly by the company (Touton), partly by the purchasing clerks and partly by the 3PRCL project. It is probably too early to have a good idea of whether the VSLA income (from loan interest) is sufficient to maintain the VSLA once external support ends. In other parts of Ghana, however, VSLAs have been transformed to cooperatives with relatively good results in terms of building up their capital and providing access to credit for farmers.

Since financial constraints have been reported by Dompreh et al. (2021) to be the major barrier to the widespread adoption of good (certifiable) agricultural practices by smallholder farmers in Ghana, it seems to be a good strategy to further explore the possibilities of VSLAs to professionalize, invest in a wider range of economic activities and thus generate local financial infrastructure.

4.2 Addressing investment risks

Bonnieux (2019), in a study for the Swiss Platform for Sustainable Cocoa, identified five factors for the successful implementation of strategies that address risks and operational challenges of investments in cocoa production: strong partnerships; capacity building in business and agricultural skills; locally tailored financial instruments and products; bundling of financial and non-financial services; and use of digital technology to more efficiently meet the needs of the farmers. Addressing these factors requires expertise in a wide range of knowledge and skills, and some of this goes beyond the normal business practices of agro-companies. Forming partnerships, such as the one coordinated by Touton, therefore seems to be an appropriate strategy to address these factors and reduce the risks of investments in cocoa in the study area. Nasser et al. (2020) found, however, that the goal of the Ghana cocoa sector — to implement sustainable intensification of cocoa to allow for an increase in production without increasing deforestation — in itself carries certain risks for the cocoa farmers. They may not have access to the seeds of the best hybrid cocoa varieties; there may not be sufficient clarity on what the best shade density is for cocoa plantations; tree tenure remains uncertain; increased yields may still result in cocoa area expansion (because it becomes a more attractive land use); and the proposed production system risks

creating a dependence on agrochemicals. The results of this case study indicate that some of these risks are addressed by the support models, but questions remain on how to successfully reduce the risks of investment.

While the three support models of Touton address these risks, they remain focused on a particular cocoa production system, and the surveyed farmers still perceive risks in production that could lead to failed harvests and non-payment of loans. The latter was the main risk perceived by the Touton officers and the focus group participants. The main production risks perceived were from cocoa swollen shoot virus disease (CSSVD) and not being able to acquire the recommended inputs (mainly agro-chemicals, such as fertilizers). The former risk is being addressed in collaboration with the spraying program of COCOBOD, but having access to the right inputs at the right time in the production cycle remains a problem for most of the recipient farmers surveyed and is perceived as a barrier by those surveyed farmers who do not yet participate in the Touton support models.

Based on a literature review of the available scientific evidence, Andres et al. (2018) suggest that use of shade and more importantly, strip cropping to create a barrier, may be relatively effective in reducing the risk of CSSVD, but both measures require further studies to, for example, determine the optimum shade density and the best barrier crops. Such agroforestry schemes have been shown to contribute to a number of ecosystem services, besides the suppression of pests and diseases. Some of these services directly benefit farmers (water regulation, temperature regulation, diversification of income) or long-term productivity (e.g., maintenance of soil structure and carbon content) and have enabled farmers to overcome times of low prices by reducing the negative effects of cost-reduction measures such as reduced fertilizer application (Vaast and Somarriba 2014). Based on the risk perceptions of the surveyed farmers, it would be worthwhile to investigate in more detail the degree to which the use of a range of different species and crops would reduce the risks for farmers under current and future climatic conditions.

Reducing farmers' dependence on just one crop; for example, by responding to the call of (mainly female) farmers to provide more support for non-cocoa land use or off-farm businesses, would also reduce the investment risk.

4.3 Addressing smallholder limitations to sustainable production

The idea behind the training and coaching models is that, through increased knowledge and improved use of technology in cocoa farm management, yields will increase and subsequently, so will the income of the cocoa farmers. In addition to increased yields, this support should also lead to more sustainable production that meets international standards. There clearly is an interaction between the effects of training, coaching and participation in VSLAs, with the potential to create a virtuous cycle where improved production due to training leads to greater savings, which can be used to further improve (or diversify) production.

Unfortunately, training is geared to the "best" form of cocoa production according to the company's definition. This requires inputs, and when farmers do not have the funds to acquire the inputs, they either need to request credit, committing at least part of their future cocoa yields to the company, or choose not to meet the training/coaching requirements, the consequences of which are not clear. Farmers who are unable to buy the required inputs to apply on their farms will not get the expected increase in cocoa yield that the training and coaching models promise. In addition, some of the inputs are expensive (especially machinery, e.g., motor blowers and slashers); others (such as fertilizers) are scarce in the area. Apparently Touton is studying various possibilities to provide cheaper inputs or make them more available and accessible, but at the moment this issue remains a concern to those

farmers participating in both the training and coaching models.

A related concern is the focus on renewal of existing aged and diseased cocoa plantations. This requires a major investment by the farmers. The farmers feel that this should be supported by the government (cocoa being a big revenue earner for the country) and also consider that this a risky investment since many of the current (old) plantations have reduced production capability due to infestation by CSSVD and the effects of climate change. While renewal with new cocoa varieties is currently considered to be the only way to combat these two threats (Andres et al. 2018), the farmers are not yet convinced. The same experts suggest that providing shade and vegetation barriers may be better risk-reducing strategies for CSSVD damage, but indicate that this needs to be studied in more detail. Such CSSVD-reducing measures do not appear to be included in the training and coaching models of Touton. Showing that shade and barriers reduce CSSVD, and incorporating these measures in renewal efforts, may improve the uptake of the plans by the farmers.

4.4 Is there a gender gap?

Danso-Abbeam et al. (2020) found a difference in technical efficiency between male and female farmers in Ghana and recommended that extension programmes pay more attention to non-farm activities and provide access to education and land utilization in order to reduce that gender gap. This case study did not focus on technical efficiency, but did find a number of differences in responses from surveyed male and female farmers. The fact that women perceived more barriers to training and coaching may be an explanation for the technical efficiency gap. Nearly all the barriers identified by both men and women relate to access to resources (land, finance, time and labourers), which is also identified by Danso-Abbeam et al. (2020) as one of the causes of the technical efficiency gap. Lack of access to resources, however, also needs to be interpreted in context.

Surveyed female farmers more often used income and savings for alternative livelihoods and household expenditures than their male counterparts did, and thus had less to spend on cocoa production.

In general, Lebaron and Gore (2020) found that women in cocoa farm households were more prone to labour exploitation due to their commitments to multiple tasks. It is therefore no surprise that the female farmers surveyed in this case study found it harder to attend training and coaching sessions, which were often held in the evening, when they either have household chores to do or find it unsafe to travel.

When asked for suggestions on improvements, women more often than men identified improved access to various resources as a need, and more often than men suggested strengthening support for alternative livelihoods, while men had a preference for more training and more intense training.

Both male and female farmers are reached through the Touton models, productivity is increased, and ecological benefits are perceived by many of the farmers, so the approach seems to lead to the climate-smart cocoa production aimed at by Touton. Achieving a climate-smart landscape, however, requires additional efforts.

It involves reaching out to farmers who are not participating in the Touton programme and diversifying income opportunities for all farmers, to reduce their dependence on a single crop. It also means looking for less costly alternatives to control pests and diseases and to reduce the risk of droughts within the cocoa production system. From the responses of the surveyed farmers, it seems that both male and female farmers could play an important role in these efforts. Male farmers are more worried about droughts and pests and diseases and may be more open to changes that reduce those risks, while female farmers more often seek alternative livelihoods. However, in order to reach out to more female farmers, other factors in the landscape

may have to be addressed first, such as their access to resources, including land, finance and education. Achieving a gender-inclusive, climate-smart landscape, therefore, requires more than can be expected from an initiative led by a private company.

4.5 The innovations of the system

Although other cocoa-buying companies in the region have adopted similar strategies to help their farmers transform their cocoa production systems to be more sustainable and climate resilient, Touton does this in an integrated way, combining technical support with strengthening of farmers' capacity to save and invest. This approach, and the collaboration with Civic Society Organisations in achieving it, are innovations. It is to be expected that some aspects of the approach can still be improved; further study may be needed to be able to identify the best way to do this.

One of the innovations of the IA's approach is the focus on creating local financial infrastructure that will allow farmers to diversify production beyond cocoa and become more resilient to outside shocks, whether environmental (such as climate change), or due to international events or political decisions that affect market prices or market access. This financial infrastructure should support greater financial literacy and improved financial decision-making and business organization, as well as providing a financial safety net for people in periods of need. The VSLAs form an important component of this infrastructure. Members of the VSLAs, who are largely women, have increased their financial literacy and were able to mobilize funds from their cocoa farming and alternative livelihood activities such as vegetable farming to improve their cocoa farm business and general household upkeep, leading to improved living conditions.

The integrated nature of Touton's support also allows for different aspects of the system to interact with and support each other. Thus, Touton links the distribution of the premium received from its buyers for sustainably sourced (and thus certifiable) cocoa to an adequate implementation of the training program by farmers: If the farmer complies with the recommendations of the program he or she is considered a sustainable source, the cocoa can be sold on as certified cocoa by the company with a premium and the farmer receives a premium price for his/her cocoa. This should incentivize farmers to participate in the training. However, in practice this premium is not regularly paid, possibly because most farmers find it hard to comply with the full training requirements (for example, acquiring and using all required inputs), but also because of administrative problems in the system. The exact reason for these problems with payments, however, need to be further discussed by the various actors involved.

Another interesting feature of the Touton approach is the coaching model, which involves intensive guidance for selected groups of farmers to become fully fledged business cases that apply sustainable farming practices and do not contribute to deforestation. The coaching model allows for a greater interaction between Touton and CSO-led trainers and the farmers than the other two models do. Trainers are also facilitators; during their work they become aware of the barriers that farmers face when seeking to make their cocoa production system more sustainable. It is not clear from the information gathered whether this understanding also is translated into adaptation of the training or coaching models. This in-depth relationship between trainers and farmers could become more beneficial for the programme in general if such feedback is structurally incorporated into it.

SECTION V

5. Conclusions

The Touton example is an interesting case study in the application of an integrated approach to increasing the sustainability of resource areas. Collaboration with local NGOs and a financial institution is key to achieving results. By ensuring the purchase of the farmers' cocoa beans Touton addresses one of the main concerns of farmer communities: access to a market in order to receive an income. This income should enable the farmers to maintain their households, and to save and reinvest in improving cocoa production. Touton and its partners have developed a programme of three support models that helps farmers do this. These support models are highly appreciated by nearly all the farmers surveyed and by the key informants, showing that the approach has great potential to achieve the company's goal of being able to purchase their cocoa beans from climate-smart cocoa production systems.

Cocoa yields of the farmers who provided data increased from 8 bags to 12–13 bags per acre and farmers achieved a slightly higher price for their beans, although the programme needs more time to be able to show that these increases can be sustained. Farmers who participated in the support models and those who do not also perceive other benefits. These include greater social cohesion, increased food security, better access to clean water, reduced carbon emissions and conservation of biodiversity, all of which can be linked to the Sustainable Development Goals and previously defined landscape goals.

It should be noted, however, that despite so many recipients being satisfied or very satisfied with the support received, the majority also observed possible barriers to and risks of participation. Many of these barriers and risks were also mentioned by the non-recipients and are an indication that the models could be improved. Some improvements (e.g. training frequency and intensity) were suggested by the respondents themselves and could be incorporated by the support models; however, other suggested improvements indicate that there is a need for greater involvement of third parties in the landscape. In particular, increasing the number of VSLAs, increasing the availability of agricultural inputs at reasonable prices, diversifying economic opportunities to reduce the dependence on cocoa, and developing and implementing agroforestry practices that reduce the need for inputs and increase the diversification of production on the same land, seem to be issues that public and private third parties could collaborate on with the existing multistakeholder platform to increase resilience in the landscape. It should also be noted that male and female farmers have different strengths and weaknesses, both of which need to be considered in order to move beyond climate-smart production systems to climate-smart landscapes.

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Annex 1: Survey data per support model

Table A1. Number of recipients in the three models studied, according to district, community and gender

Community	Training model		Coaching model		Banking model	
	Male	Female	Male	Female	Male	Female
Juabeso						
Santase Nkwanta A	7	1	9	3	8	4
Santase	14	6	9	8	3	7
Atialeve	12	5	7	3	12	5
Anhweafutu	4	5	1	1	5	9
Darkwakrom	3	2	4	3	7	3
Antwikrom	4	1	2	1	2	2
Juliekrom[1]	6	2	0	0	2	7
Bia West						
Elluokrom	11	12	5	4	0	0
Panabo	13	14	9	9	4	13
Yesukrom	9	5	9	5	2	17
Total	33	31	23	18	6	30

Table A2. Number of recipients who perceived risks, according to risk type, gender and support model

	Training		Coaching		Banking	
	Male	Female	Male	Female	Male	Female
Number (valid responses to survey)	83	53	55	37	45	67
Risks						
Pests and diseases	53	36	36	24	16	12
Droughts	12	7	21	9	13	10
Low productivity	1	0	2	3	0	0
Restricted use of inputs	7	1	0	0	0	0
Insufficient income/finance	15	7	5	5	14	25
Health and old age	0	1	7	6	5	2
Other	0	0	1	0	3	0
Total	88	52	72	47	51	49

1 Administratively, Juliekrom is part of Bia West, but due to its closeness and accessibility it has been included in the data for Juabeso.

Table A3. Number of recipients who perceived barriers, according to gender, support model and barrier type

	Training		Coaching		Banking	
	Male	Female	Male	Female	Male	Female
Number (valid responses to survey)	83	53	55	37	45	67
Barriers						
Nature of mechanism	0	0	0	1	1	3
Low financial literacy	6	2	2	0	3	3
Scale of operation	2	0	1	0	0	0
Legal and policy framework	1	0	1	0	0	0
Physical access	7	5	5	3	3	3
Availability of own capital	0	0	0	0	0	1
Ability to show sustainability	0	1	0	1	0	0
Gender/ethnic background	0	0	2	3	0	0
Age	0	0	5	2	0	0
Being a caretaker, not owner	9	10	1	1	0	0
Off-season contribution	0	0	0	0	7	11
Lack of funds for inputs	9	5	9	7	0	2
Lack of labourers	0	0	0	1	0	0
Ill health	0	0	2	0	0	0
Total	34	23	28	19	14	23

Table A4. Number of recipients who suggested improvements, according to gender, support model and improvement type

	Training		Coaching		Banking	
	Male	Female	Male	Female	Male	Female
Number (valid responses to survey)	83	53	55	37	45	67
Frequent visit by entity and making necessary corrections	17	7	13	5	7	3
Provide access to credit facilities; e.g. through guarantees, to support what the group is giving or to buy inputs	10	5	9	5	4	10
Provide or subsidize inputs such as effective agrochemicals, machinery, shade trees	9	7	4	3	0	0
Give out loans	7	2	6	4	0	0
Train members in alternative livelihoods	0	2	0	0	3	11
Invest in other businesses	1	1	0	0	3	4
Maintain the model	2	1	1	1	2	2
Intensify training	5	1				
Frequently encourage members to be part	0	0	2	0	4	3
Group's entity will help	0	0	0	0	1	4
Selection of the chemical based on local needs and conditions	3	0	0	0	1	0
Pay group contributions and bonuses regularly and promptly	0	2	0	0	0	2
Educate members in financial literacy	0	0	0	0	1	1

Help farmers by offering professional assistance to improve yield	0	1	0	0	0	1
Provide off-season loans to maintain the farm	1	1	0	0	0	0
Other (allowance and warning signs during training and coaching, increase bonus, invite expert to train in emerging diseases)	4	2	1	0	0	0
Other, finance (interest on loans, sanctions, loan recovery)	0	0	0	0	1	2
	59	32	36	18	27	43

Table A5. Number of non-recipients (respondents who did not participate in any of the support models) and barriers participation they identified to, per gender, support model and barrier type

	Training				Coaching				Banking			
	Male		Female		Male		Female		Male		Female	
Number	13		16		18		10		25		15	
Participation in future	Would	not	Would	not	Would	not	Would	not	Would	not	Would	not
Valid responses received	9	4	11	5	14	4	7	3	19	6	9	7
Not available in community	0	0	0	0	0	0	0	0	0	0	0	1
Not stable (land in different communities)	0	1	1	0	0	2	0	0	3	3	0	1
Caretaker, not owner	0	0	0	0	0	0	1	0	0	0	0	0
Insufficient funds to participate	0	0	0	0	0	0	0	0	1	1	0	2
Not interested	0	1	0	2	0	0	0	0	0	0	0	1
Ownership of decisions on farm	0	1	0	0	0	2	0	0	0	0	0	0
Already involved elsewhere	0	1	0	0	0	0	0	0	1	0	1	1
Not aware of support	0	0	0	0	1	0	0	0	1	0	0	0
No farm	0	0	0	1	0	0	0	0	0	0	0	0
Pregnant	0	0	0	1	0	0	0	0	0	0	0	0
Not enough time available	0	0	0	0	1	0	1	1	5	0	2	1
It is a women's group	0	0	0	0	0	0	0	0	1	1	0	0
Negative socioeconomic impact	0	0	0	0	0	0	0	1	0	0	0	0
Transparency	0	0	0	0	0	0	0	0	2	0	2	0
No response	9	0	10	1	12	0	5	1	5	1	3	0

Table A6. Number of non-recipients (respondents who did not participate in any of the support models) and risks of participation they identified, per gender, support model and risk type

	Training				Coaching				Banking			
	Male		Female		Male		Female		Male		Female	
Participation in future	Would	not	Would	not	Would	not	Would	not	Would	not	Would	not
Valid responses received	9	4	11	5	14	4	7	3	19	6	8	7
Pests and diseases	9	3	4	1	5	0	6	1	5	2	5	1
Drought and other climate issues	2	0	0	1	1	0	3	2	4	1	0	1
Inadequate finance to participate	0	1	1	1	1	3	0	1	0	2	0	0
Access to funds and credit	2	1	2	1	3	1	0	0	0	0	0	1
Access to inputs	6	0	1	1	0	0	5	2	8	3	0	0
Total	19	5	8	5	10	4	14	6	17	8	5	3

Table A7. Number of non-recipients (respondents who did not participate in any of the support models) and potential benefits they perceived from participation, per gender, support model and benefit type

	Training				Coaching				Banking			
	Male		Female		Male		Female		Male		Female	
Participation in future	Would	not	Would	not	Would	not	Would	not	Would	not	Would	not
Valid responses received	9	4	11	5	14	4	7	3	19	6	8	7
Socioeconomic benefits												
Negative	0	0	0	0	0	0	0	1	0	0	0	0
Neutral	0	1	0	1	0	2	0	0	0	0	1	1
Positive	0	2	5	3	0	2	1	1	5	2	2	3
Very positive	9	1	6	1	14	0	5	1	14	4	5	2
No response	0	0	0	0	0	0	1	0	0	0	0	1
Type of socioeconomic benefits												
Economic	7	2	10	4	10	2	4	1	11	4	6	5
Social capital	0	0	2	0	2	0	0	0	9	1	1	0
Food security	0	0	3	0	1	0	0	0	2	0	0	2
Clean water	0	0	3	0	0	0	0	0	0	0	0	0
Livelihood support	1	0	1	0	0	0	0	0	2	0	1	0
Technical support	1	0	0	0	1	0	0	0	0	0	0	0
Ecological effects												
Negative	0	0	0	0	0	0	0	0	0	0	0	0
Neutral	0	1	0	0	0	2	0	1	0	0	1	1
Positive	0	2	7	4	0	1	0	1	3	2	2	2
Very positive	9	1	4	1	11	0	5	1	7	4	3	3
No response	0	0	0	0	3	1	2	0	9	0	2	1
Type of ecological effects												
Conservation and biodiversity	4	1	6	3	6	2	3	1	6	3	3	4
Climate change mitigation	9	2	8	2	9	1	4	2	2	2	3	3

Annex 2: Survey of individual recipients (cocoa farmers in three models)

a. survey of individual recipients

Name of region	
Name of district	
Name of community	
1.Program studied (Type of financial mechanism)	This varies according to model studied: training , coaching or banking. Where in this questionnaire banking is mentioned, this should be replaced by training or coaching, depending on the model studied.
2. What is your name? and contacts (telephone)	
3. What is the sector in which the entity (recipient) is included?	A. Agricultural sector B. Mining sector C. Forestry sector D. Nature conservation sector E. Financial sector
4. What is the main practice of the entity (recipient)?	A. Commerce B. Service provider C. Investment D. Others (Smallholder farming...) E. In case of others, provide sector: e.g. agric
5. What is the size of the entity (recipient)? (closed options)	A. 1-5 people involved B. 5-15 people involved C. 15-50 people involved D. over 50 people involved
6. Average number of bags of cocoa for 2019 and 2020 obtain *N.B. Convert based on producer price of cocoa*	Estimates average bags of cocoa obtained before and after the banking model intervention
7. Are there other sources of finance	A. yes B. no
8. If yes, what is the name of the entity/entities?	
9. What are the financial mechanisms involved (between you and the Implementation Agency (IA))?	A. Loan (if applicable) Time span: short/ medium/ long-term loan (for profit) B. Impact equity investment (for profit) C. Direct purchase (for profit) D. Company self-financing (for profit) E. Grants (not for profit) F. Public finance instruments (direct investment, taxes and subsidies) G. Public budget allocations (not for profit) H. Other. For example farmer capacity built on good cocoa agronomic prices
10. What are the terms for the agreement that you have to fulfil? (more than 1 option can be ticked)	A. Required disclosures of environmental, social and cooperate governance (ESG) policies? B. Limits on certain activities (e.g. deforestation)? C. Requirements for certain activities (sustainable practices)? D. Participant in the Global Reporting Initiative (GRI)? E. Others. Requirement:
11. How do you perceive the risks involved between you and the IA?	A. Low B. Medium C. High

12. What types of risks are involved? (more than 1 option can be ticked)	A. Production hazards, specific risk: B. Financial hazards, specific risk: C. Market/prices hazards, specific risk: D. Institutional/legal hazards, specific risk: E. Human hazards, specific risk: *Ref to annexes for definition of these risks*
14. Main barriers to access finance? (more than 1 option can be ticked) What makes it difficult for you as you engage in this banking model/component	A. Nature of financial mechanisms/instruments (Ease of implementation, legitimacy, transparency, coherence with objectives) B. Lack of financial literacy (Reduced understanding of key financial concepts, not able to make decisions based on financial information) C. Scale (Lack of aggregation to be more cost effective and reduce risks, Unable to produce results/impacts at scale) D. National policy and regulatory framework (difficult conditions for monetary transactions) E. Physical access (Distance to financial services, lack of access through for example virtual means) F. Own capital G. Ability to ensure sustainability of practices (Lack of organization, risk management, certification and knowledge and experience) H. Other constraints related to gender, age or ethnic group, Migrant/caretaker cocoa farmer (specify).....
15. What are the perceived social and economic positive impacts of the flow (banking model/ component)? (more than 1 option can be ticked)	A. Creates economic benefits for local people (income, employment) B. Strengthens social capital, explain C. Contributes to food security, explain D. Contributes to secure access to clean water E. None F. others:
16. What are the perceived positive ecological impacts of the flow(banking model/component)? (more than 1 option can be ticked)	A. Contributes to conservation of biodiversity B. Contributes to climate change mitigation C. None D. Others:
17. What is your level of satisfaction for this flow (banking model/component)? 1 (not satisfied) - 4 (very satisfied)	Level of satisfaction:
18. (if applicable) Do you have any suggestion for improvement of the flow(banking model)? (open question)	

About Tropenbos International (TBI)

Tropenbos International (TBI) is a not-for-profit foundation that envisions a future in which forests and trees are used sustainably for the benefit of local people and the global community. By making knowledge work for forests and people, Tropenbos International contributes to inclusive and evidence-based decision making for the improved management and governance of tropical forests. TBI's longstanding local presence and ability to bring together local, national and international partners makes it a trusted partner in sustainable development. Since 2017, Tropenbos International (TBI) has been a managing partner of the CGIAR Global Research programme on Forests, Trees and Agroforestry (FTA). www.tropenbos.org

RESEARCH PROGRAM ON Forests, Trees and Agroforestry

About the Forests, Trees and Agroforestry (FTA) research program of the CGIAR

The Forests, Trees and Agroforestry (FTA) program of CGIAR is coordinated by CIFOR in partnership with CGIAR centers ICRAF and Biodiversity/ CIAT, and non-CGIAR partners CIRAD, CATIE, INBAR and TBI. It aims to reduce poverty, ensure food and nutrition security for all, address climate change, protect natural resources and ecosystem services, and achieve sustainable production and consumption by enhancing the role of forests, trees and agroforestry systems in addressing these challenges. FTA considers the landscape to be the spatial unit that is most appropriate to study in order to improve these contributions of forests, trees and agroforestry. The program recognizes that the sustainability of landscapes depends on seeking a balance between various objectives and land uses in order to maximize synergies and minimize trade-offs. Studying how to increase investments in land uses in such landscapes, and improving the social and environmental impacts of these investments, is one of the priorities of the FTA program. www.foreststreesagroforestry.org

About Tropenbos Ghana

Topenbos Ghana aim is to ensure that, forest sector actors in Ghana apply sound and adequate information for poverty reduction policies, implement activities that increase forest cover, promote climate-resilient practices, reduce conflicts associated with forest management and ecosystem services. Tropenbos Ghana uses approaches such as research, capacity building, and multi-stakeholder dialogues on topical forestry issues and sharing of lessons and experiences at local, national, and international levels. With decades of experience, Tropenbos Ghana acts as a knowledge-broker to provide local communities, civil society organizations, government agencies, and private sector with evidence-based information to support decision-making regarding sustainable resource management. In the Juabeso-Bia and Sefwi-Wiawso cocoa forest landscapes Tropenbos Ghana works towards the sustainable management and restoration through the promotion of inclusive decision making, non-intimidating civic space, responsible businesses and sustainable livelihoods for local communities. Tropenbos Ghana is a member of the Tropenbos International (TBI) network.

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