



Report on implementation of the Landscape Assessment of Financial Flows (LAFF) in the Juabeso–Bia and Sefwi–Wiawso Landscape

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This report reflects discussions and perceptions that local participants had during a training workshop, sector focal group discussions and interviews. It was not possible to verify information on the size of financial flows, nor measure the real impacts that these flows have on the landscape objectives as defined by the participants. If financial flows mentioned in this report are considered important for the development of the landscape, it is recommended to verify the information presented here by implementing more in–depth studies of the flows in consideration, before defining potential actions to improve the impacts of those flows. It should also be noted that assessments that resulted in positive or negative impacts of the flows do not imply any judgement on the source or recipient of these flows. They should be seen rather as a call of attention towards flows where actions could be taken to further improve impacts of the financial flows that enter the landscape and to increase coherence between investments and landscape objectives.

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Acronyms

3PRCL	Partnership for Productivity Protection and Resilience in Cocoa Landscapes project
CBO	Community Based Organization
CCBS	Climate, Community, and Biodiversity Standard
CCFF	Cocoa sector financial flow
CFF	Conservation sector financial flow
CHED	Cocoa Health and Extension Division
CMC	Cocoa Marketing Company
Cocobod	Ghana Cocoa Board
CREMA	Community Resource Management Area
CSA	Climate Smart Agriculture
CSO	Civil Society Organization
DACF	District Assemblies Common Fund
DDF	District Development Fund
DFD	Deforestation and Forest Degradation
DOLTA	Domestic Lumber Traders Association
EPA	Environmental Protection Agency
ESIA	Environment and Social Impact Assessment
FC	Forestry Commission of Ghana
FIP	Forest Investment Programme
FLEGT	Forest Law Enforcement, Governance and Trade
FoE	Friends of the Earth
FSD	Forest Service Division
FTA	CGIAR Research Program on Forests, Trees and Agroforestry
GH¢	Ghanaian cedi
GLA	Green Livelihoods Alliance
GoG	Government of Ghana
GTMO	Ghana Timber Millers Organization
IGF	Internally Generated Funds
JBSW	Juabeso–Bia and Sefwi–Wiawso
LAFF	Landscape Assessment of Financial Flows
LBC	Licensed (cocoa) Buying Company
LUFF	Land use financial flow
MAG	Modernizing Agriculture in Ghana
MMDA	Metropolitan, Municipal and District Assemblies
MOMO4C	Mobilizing More for Climate
NAHE	National Association of Handicrafts Exporters
NGO	Non–governmental organization
OASL	Office of the Administrator of Stool Lands
PERD	Planting For Export and Rural Development
QCC	The Quality Control Company
RA	Rainforest Alliance
REDD+	Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
RFG	Responsive Factor Grant
SAN	Sustainable Agriculture Network
SDG	Sustainable Development Goal
SIDA	Swedish International Development Cooperation Agency
SNV	Netherlands Development Organisation
SRA	Social Responsibility Agreement
TA	Traditional Authority
TFF	Timber sector financial flow
TIDD	Timber Industry Development Division
UNESCO	The United Nations Educational, Scientific and Cultural Organization
VCS	Voluntary Carbon Standard
WD	Wildlife Division of the Ghana Forestry Commission



1. Introduction

Collaborative landscape initiatives have demonstrated enormous potential to mobilize stakeholders across sectors, supporting them to work together toward shared objectives of landscape regeneration. This meets a wide range of human needs, economic goals and ecosystem objectives....However, implementing these partnerships is challenging. Perspectives, values and ways of working differ greatly among partners; in many cases there is a legacy of misunderstanding and distrust. Explicit strategies and tools are needed to overcome the resulting tendency for stalemate and conflict (Shames et al. 2019: 1).

To support collaborative landscape initiatives, Tropenbos International and EcoAgriculture Partners partnered to develop the Landscape Assessment of Financial Flows (LAFF) methodology. This practical two-phase approach helps stakeholders identify local sources of finance for “new investment ideas, [to] find the current financial flows that are most in need of transformation, and better understand the elements of a landscape’s financial context that require support” (Shames et al. 2019: 2).

The methodology starts with a general analysis of the landscape’s economic context (Phase 1). This analysis provides information about the importance of economic activities in terms of their contribution to local GDP and employment, and about the current trends in various activities in terms of growth in production value. Together with locally defined landscape objectives, this information provides the basis for Phase 2.

In Phase 2 the financial flows of economically important sectors are identified and analyzed for their impacts on landscape objectives. As a result, a picture is obtained of how various sources contribute to landscape objectives, and which set of economic activities require changes or more funds to increase their positive impacts. Such changes can be in the form of improved financial governance (e.g., criteria used in investment decisions), greater coordination of investments in the landscape, or identification of new opportunities to generate funding that contributes to landscape objectives.

The methodology does not necessarily provide data on the size of the flows, the size of the impacts (in terms of value, or number of people and hectares affected) or all the barriers that hamper the flows with positive impacts.

For such information more in-depth studies are needed. The LAFF methodology, however, does provide tools to identify those flows for which such more elaborate (and therefore more expensive) studies may be useful. It also provides inputs for the application of other tools, such as the landscape investment and finance tool developed by IUCN and EcoAgriculture Partners (<https://lifitkit.info>).

Considering that Tropenbos Ghana is starting new programs to attract more finance to sustainable activities in the JBSW landscape, the authors studied how LAFF could provide an important step in identifying and understanding those financial flows within the landscape that have potential for greater positive impacts on landscape objectives, as well as those economic activities with positive impacts that need additional finance. While at the same time the LAFF methodology has not been fully tested yet, we considered the start of these programmes, Working Landscapes (WL) and Mobilising More for Climate (MoMo4C)¹, provided a good opportunity to test the methodology and use its results as inputs, particularly to the MoMo4C planning process.

This report summarizes the results of both phases of LAFF implementation and discusses the possible implications for the design of an integrated landscape finance strategy in the Juabeso–Bia and Sefwi–Wiawso (JBSW) landscape.

¹ The MoMo4C program is a joint initiative by IUCN National Committee of the Netherlands, TBI and WWF.



2. Phase 1: Characterizing the landscape economy

The Juabeso–Bia and Sefwi–Wiawso (JBSW) landscape is located in Western Region, Ghana. In the case of the JBSW landscape Phase 1 was not necessary, since an economic assessment had recently been performed as part of the context analysis for TBI’s Working Landscapes Programme. That assessment was prepared by a project team from Tropenbos Ghana, with inputs from external consultants with a background in economics, forest governance and forest ecology and coordinated by an experienced consultant with a background in economics. The sources used for that assessment were district development plans, forest and wildlife policies (1994, 2012), Ghana Redd+ strategies and other public documents.

The economic assessment characterized the economic sectors and trends in the JBSW landscape that have the most impact on sustainable land use in the landscape. The analysis included existing and potential financial flows in the landscape that could be modified or supported in order to achieve more sustainable and climate–smart landscapes. This section summarizes the results of that analysis.

The JBSW landscape comprises four administrative districts: Juabeso, Bia West and East and Sefwi–Wiawso.

Ethnically, the cultural practices of the people in this landscape are the same as in other Akan–speaking communities in the country. There is one Traditional Council for the landscape, with a membership of 65 chiefs headed by the Paramount Chief of the Area (Omanhene), with the title Okogyebour. The Traditional Area covers the whole of the political districts of Sefwi, Akontombra, Juabeso and Bia West, Bia East and Bodi.

The landscape’s vegetation is moist and semi–deciduous (equatorial rain forest). The forest vegetation is made up of many different tree species, including wawa (*Triplochiton seleroxylon*), mahogany (*Khaya ivorensis*), esa (*Celtis spp.*), ofram (*Terminalia superba*), edinam (*Entandrophragma ivorensis*), onyina (*Ceiba pentandra*), kyenkyen (*Antiaris africana*) and odum (*Milicia excelsa*). The landscape includes forest reserves and protected areas. Occasional bushfires, poaching and encroachment of land pose a threat to the existence of these forests. Mechanized farming is not practised extensively in the district due to the dense forest cover. Table 1 summarizes the most recent data on population, land–size and forest reserves in the landscape.

Table 1. Population distribution (Ghana statistical services 2014) and forest reserves by district

District	Juabeso	Sefwi–Wiawso	Bia West	Bia East	Combined
Population	58,435	139,200	88,939	27,393	313,967
Urban (%)	90.7	35.8	74.4	—	—
Rural (%)	9.3	64.2	26.6	100	—
Male (%)	51	50.1	51.4	52.2	51
Female (%)	49	49.9	48.6	47.8	49
Area (km ²)	1,370	1,280	1,287	874	4,811
Forest reserves	Krokosue	Muro, Suhuma, Tano Suhien	Bia Game, Bia Torya	Bia Tributaries, Manzan	

The climate of the JBSW landscape is suitable for growing various food and cash crops. The landscape is one of the leading producers of cocoa in Ghana.

2.1. Actors and relevant sectors in the landscape

There are two main actor groups at the sub–national level (Damnyag et al. 2017): public and private.

Public entities include:

At international level:

- Food and Agriculture Organization;
- United Nations Development Programme.

At the national level:

- Forest Services Division of the Forestry Commission of Ghana;
- Cocoa Health and Extension Division (CHED) of the Ghana Cocoa Board (Cocobod);
- Wildlife Division of the Forest Commission.

At district level:

- District assemblies (local authority);
- District Magistrate Court;
- District Department of Agriculture;
- District Security Committees;
- District National Disaster Organizations; and
- District National Fire Services.

Private actors include:

- cocoa–buying companies;
- Rainforest Alliance;
- The Conservation Foundation;
- Timber processing companies;
- mining companies;
- chainsaw operators;
- World Vision; and
- Traditional authorities.

Each of these actors supports other actors in its sector. For instance, the district magistrate court and the district security committee support the Forest Services Division in controlling illegal logging and mining activities.

These are some of the actors at the local level in the communities in the districts:

- assembly members
- chiefs/traditional authorities;
- farmers;
- chainsaw operators;
- firefighting volunteers;
- charcoal producers;
- carpenters/wood carvers;
- sawmill operators;
- collectors of non–timber forest product;
- small scale miners (most illegal);
- unit committee members;
- mining companies; and
- cocoa–buying companies.

2.2. Economic sectors

More than 80% of the population in the JBSW landscape is engaged in agricultural production, which is largely rain-fed and involves slash-and-burn practices with few external inputs, particularly for crops. The major staple crops grown by farmers include plantain, cassava, cocoyam, maize and rice. Oil palm, cocoa and coffee are the main tree cash crops. As mentioned above, the landscape is one of the leading producers of cocoa in Ghana. Fruits such as oranges, pear, coconut and pineapple, as well as vegetables are also cultivated. Raising livestock is second to crop farming and is under-developed; most farmers raise small animals such as chicken, goats, sheep and pigs.

The landscape has a number of basic schools, electricity, markets and financial services, as well as some health-care facilities. Most roads are not tarred and access to portable water is mainly by boreholes.

Other economic activities are fish farming, lumber processing and commerce. The industrial sector is dominated by small-scale industries that involve approximately 4% of the working class (Juabeso District Assembly 2018; Ghana Statistical Services 2014).

A number of commercial banks operate in the landscape: HFC Bank (Ghana) Limited (in Essam and Adabokrom), Agricultural Development Bank (ADB) Limited in Essam and First National Savings Bank in Debiso. Kaaseman Rural Bank Limited is the only rural bank operating in the area. Its headquarters are in Kaase, and branches are located in Debiso, Yawmatwa and Oseikojokrom. The commercial banks provide credit facilities to both farmers and traders and thus help increase and sustain farming and commercial activities in the district.

2.3. Size of the landscape economy

The size of the landscape economy covered by the four districts is measured by the annual income, expenditure and net worth (assets minus liabilities) of each of the four district assemblies (Domelevo 2018).

The income of these districts is obtained from internally generated funds (IGFs). IGFs include revenue from property taxes, fees, licences, royalties and other miscellaneous items. Other sources of income for the districts include quarterly allocation of the district assembly's common fund; government salary grants; and financial support from Ghana's development partners.

In 2017, there were 22 districts in the country's Western Region, including the four districts studied here. The total annual income of the districts is indicated in Table 2. In 2015, 4% of the total annual income of the 22 districts was recorded in Bia East district; Sefwi-Wiawso district had 5.4% and 3% of the total annual income in 2016 and 2017 respectively. Incomes of the districts in the landscape – and for the entire region – were lower in 2017 than in 2015, but there is no clear trend due to a peak in 2016.

Table 2. Income (GH¢), 2015–17 (Domelevo 2018)*

District	2015	2016	2017
Juabeso	3,262,889	3,646,031	2,875,399
Bia East	4,229,990	3,798,432	2,478,317
Bia West	3,815,170	3,816,021	2,842,096
Sefwi-Wiawso	3,695,101	8,006,958	3,056,997
Combined total income of 4 districts	15,003,150	19,267,442	11,252,809
Total income of 22 districts, Western Region	114,586,267	147,517,421	107,466,963

*Note: At time of publishing, 1 euro = 5.96 Ghanaian cedis

No data were found for the private sector, although it is estimated that agricultural production is the main income generator in the landscape (Ghana Statistical Services 2014).

There has been a gradual but progressive loss of close forest cover since 1990, mainly due to an increase in the area of cropland in the landscape between 1990 and 2015. Agricultural expansion is the leading cause of

deforestation and forest degradation (DFD) in the landscape, followed by logging and illegal mining. In recent years, management practices in new cocoa farmlands have been associated with widespread forest clearing, and in the cocoa plantations little or no shade is maintained. Some of the underlying causes of DFD are economic: poverty and related factors such as low incomes; lack of off-farm employment; and an increase in the price of land and cash crops (cocoa). Cultural and political factors also underlie the reasons for DFD: lack of support for forest protection, insufficient education on forest conservation, and apathy toward conservation of forest for future generations. Demographic factors, including in-migration, are the third leading underlying cause of DFD in the landscape.

More specific barriers to forest conservation, management and restoration in this landscape include lack of revenue for managing trees on farms, lack of tree seedlings/late supply of seedlings, lack of income during the off-cocoa season, natural disasters (e.g., fires, floods), illegal logging, illegal small-scale mining (known as *galamsey*), sidelining of traditional authorities, insecure land and tree tenure, interference by political leaders, and lack of education about effective environmental management.

Ecosystem services have the potential to generate additional income for local stakeholders. Potential buyers for hydrological ecosystem services are the Ghana Water Company and the Electricity Company of Ghana.

The Ghana Cocoa REDD program, led by the Ghana REDD secretariat, could support financial activities in the landscape that contribute to carbon stock enhancement and conservation. Carbon stocks can also be enhanced through plantations. The carbon credits generated by plantations can be sold on the voluntary carbon market if plantation development follows an internationally recognized standard: the Verified Carbon Standard (VCS) for commercial plantations; Plan Vivo (Plan Vivo 2013) for smallholders and communities, or the Climate, Community and Biodiversity Standards for developments on community land.

2.4. Some key initiatives in the agri-food and forest sectors

Rainforest Alliance (RA) introduced a climate-smart agriculture (CSA) business model in the JBSW landscape. Rainforest Alliance works in the landscape to improve farmers' capacities to mitigate and adapt to climate change. RA's efforts emphasize restoring ecosystems within cocoa agro forests, enrichment planting, climate and REDD+ education, REDD+ documentation, timber production on farms, and community involvement in governing forest resources. These initiatives diminish pressures to further encroach on surrounding forestlands by providing alternative livelihood strategies while increasing cocoa production.

Olam International provided funds to Rainforest Alliance for technical assistance aimed at achieving Sustainable Agriculture Network (SAN) certification for cocoa as the basis of a REDD+ project. Olam agreed to pay premium prices for the certified cocoa and offered predictable market access. This builds reliability in the supply chain, which can help support climate finance.

Agro-industrial company Touton, through the Partnership for Productivity Protection and Resilience in Cocoa Landscapes (3PRCL), is leading a consortium of partners — the Ghana Forestry Commission, the Ghana Cocoa Board (Cocobod), SNV, Agro Eco, the Nature Conservation Research Centre and communities — to develop and pilot a landscape-wide governance framework in the Juabeso-Bia landscape in the Western Region. In collaboration with the IDH Sustainable Trade Initiative, local NGOs and CBOs, District Assemblies, and traditional authorities, the project is expected to provide farm-level support to 60,000 cocoa farmers. The goals are to improve their livelihoods through increasing productivity in an environmentally sustainable manner and developing incentive mechanisms for communities and cocoa farmers to sustain this productivity over time.



3. Phase 2 of LAFF: Identifying and understanding financial flows

In Phase 2 of LAFF participants identify, characterize and evaluate impacts on landscape objectives from the key financial flows in the focus landscape. This should help prioritize further work on identifying and improving those financial flows with the greatest scope for contributing to landscape objectives.

Phase 2 of the LAFF methodology in JBSW started with training stakeholders in the methodology and key concepts. Stakeholders were selected in a way that allowed the training to include a session that could be considered to fulfill the role of a multi-stakeholder platform (MSP) in deciding on key sectors and landscape objectives.² During that session, results of the economic context study (i.e., Phase 1) were presented. The participants were asked to validate the landscape objectives extracted from the district development plans, and to provide their opinions regarding the key sectors that were identified in the economic context study.

3.1. Key sectors

Participants agreed that these were the four key sectors in the JBSW landscape:

- conservation;
- timber;
- cocoa; and
- land use and planning.

3.2. Landscape objectives

Participants identified seven landscape objectives:

1. Reduce deforestation and enhance forest cover (within and outside forest reserves and including secondary forests);
2. Conserve biodiversity (diversification, maintaining or restoring habitats);

² The ideal context for implementing this methodology is a landscape where there is an established multi-stakeholder partnership (MSP) that has identified a set of landscape objectives that stakeholders are working to pursue.

3. Reduce emissions in various sectors (e.g., forestry, agriculture, development, etc.);
4. Strengthen capacity to adapt to climate change, including:
 - a. Improved knowledge and technology on climate change and adaptation to it
 - b. Diversification of livelihoods in relation to climate change and climate change adaptation
 - c. Adaptation to the effects of climate change
5. Food and nutrition security, looking at increased productivity, crop diversity, food accessibility and storage;
6. Enhanced livelihoods/improved local economy, considering alternative livelihood strategies and improved or new income opportunities; and
7. Inclusiveness in the landscape, where local people are involved in landscape governance and/or in the decision-making processes regarding their land/forests.

Once the four key sectors were identified, the local LAFF team organized sector focal group workshops. These workshops are interactive/participatory sessions where the participants represent various actors in one of the four key sectors. At the beginning of the workshop participants are introduced to the LAFF methodology, objectives and key concepts. Then, with the guidance of a facilitator, participants identify the key actors of that sector within the landscape and the financial flows between those actors. During this process the financial flows are illustrated on a big sheet of paper or a projector. This provides a visual map of the financial flows. When all the flows are identified, participants select 9–12 of them for further study.

The key financial flows were selected based on the following criteria:

- flows that have significant positive or/and negative effects on the JBSW landscape;
- flows that involve a very large amount of money;
- flows that provide the most opportunities for improvements to their impacts;
- flows that provide the most opportunities for expanding funding to other positive initiatives.

The last two criteria were difficult to get across to the participants; therefore, most of the selected key flows meet the first two criteria.

Sector focal group participants were then split up into groups of four to five people according to their expertise, and each of the groups was assigned three to four of the key financial flows. Participants have a say in which flows they prefer to work with. For example, a group with a representative of wood manufacturers chose to work on three financial flows that concern this group of actors.

The smaller groups scored the assigned financial flows, based on their perception of the flow's impact on the seven landscape objectives. Scores ranged from –2 for a very negative impact to +2 for a very positive impact. Participants were asked to explain why they assigned each score, and to describe the particular effects that the flow had on the landscape objectives. A template for scoring can be found in the methodological manual (Shames et al. 2019). During this exercise the smaller groups were also asked to estimate the magnitude of the flows (using three categories: < 1.2 million GH¢, 1.2–6 million GH¢ or >6 million GH¢) and to describe the financial instruments that facilitated the flows. They then selected the most significant financial flows, based on each flow's overall score (the sum of the scores for all seven objectives). The flows with the highest score (most positive impacts) and the lowest score (most negative impacts) were identified as key flows.

The work of the sector focal groups resulted in a diagram of the flows, and a more detailed characterization of each flow and its impacts on landscape objectives; see Figures 6–9).

After the focal group workshops, 23 key informants were selected based on their relevance to the key flows. These key informants were interviewed to provide more in-depth information on each financial flow's sources, recipients, financial mechanism, financial governance, and context (social, economic and ecological), as well as ideas for improving the flow's impacts on landscape objectives.

Data from this process were combined and analyzed for possible patterns. Facilitators asked the participants several questions during the analysis:

- Are there any sources or recipients that are active in more than one sector?
- What is the general impact of the sources identified in response to the first question?
- Do the financial instruments used offer possibilities for improvement in the case of negative impacts, or expansion in the case of positive impacts?
- On which landscape objectives do financial flows in general have no impact or a negative impact?



4. Phase 2 of LAFF: Results

During the LAFF process participants identified more than 100 financial flows that move money to, from and within the landscape. Around 40 of these financial flows were assessed more closely, and for 20 of them follow-up interviews were carried out. This section presents the general results of the process and a summary of the results for each of the four sectors. More detailed information is available in Annexes 1 to 3.

4.1. Major impacts and types of sources

Figure 1. Total scores of all financial flow impacts for landscape objectives 1 to 7

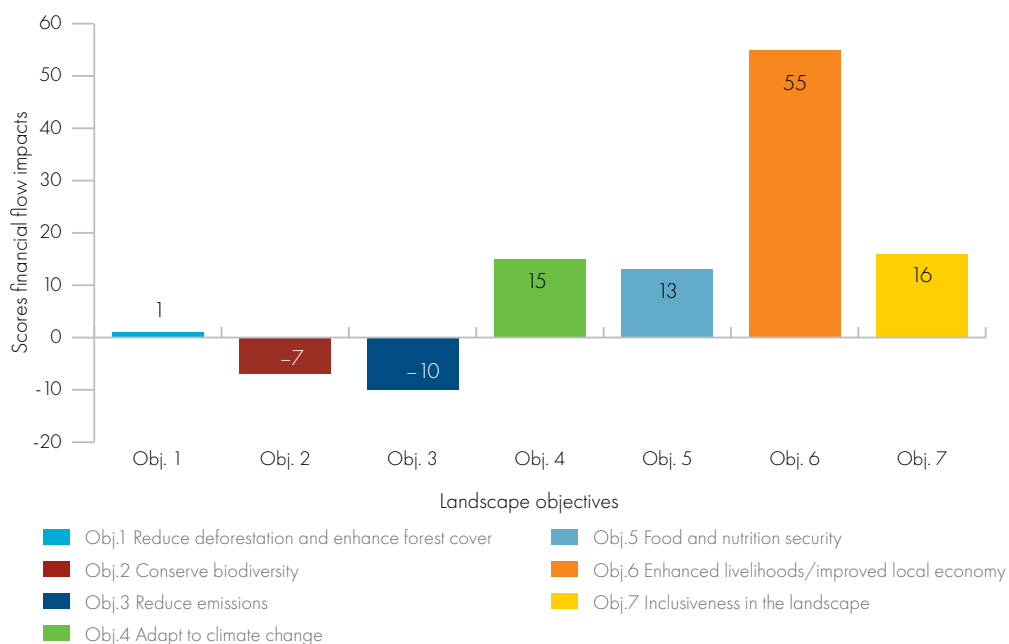
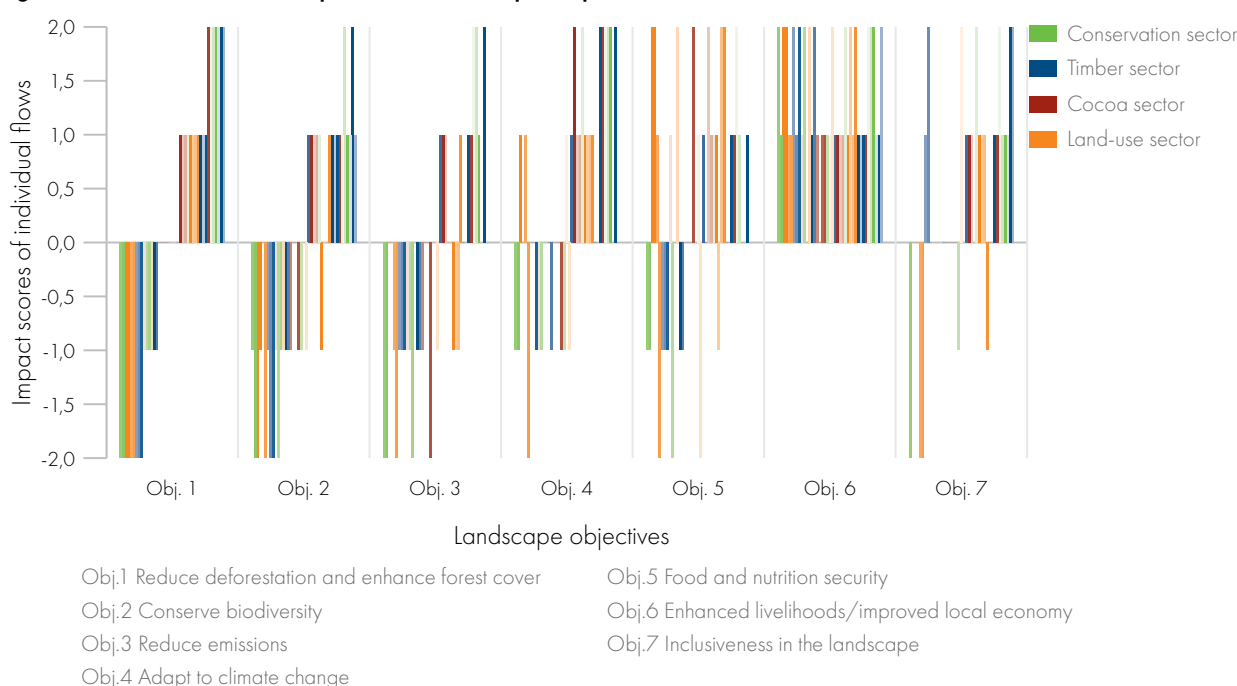


Figure 1 depicts the total combined scores of impacts on the seven landscape objectives for the four key sectors. The overall net effect of all of the financial flows is very positive on the objective of enhanced livelihoods and local economy (6). The figure also shows that objectives related to biodiversity and carbon emissions (2 and 3) experienced a net negative impact; any efforts to reduce deforestation appear to be counteracted by investments that drive deforestation (see also Figure 2). On the other hand, the expected net effects of the financial flows on adaptation, food security and inclusiveness are perceived to be positive, although some flows may still have negative effects on one or more of these objectives.

Interestingly, Figure 2 shows that most flows contribute to enhanced livelihoods (6), and that some of these flows also have positive effects on other objectives. Nearly half of these flows have no effect or negative effects on the other objectives, in particular on forest cover and biodiversity (1 and 2), two objectives that are closely linked. Negative impacts on forest cover also seem to correlate with reduced capacities to adapt to climate change and with weakened food and nutrition security (4 and 5).

Figure 2. Financial flows' impacts on landscape objectives 1–7

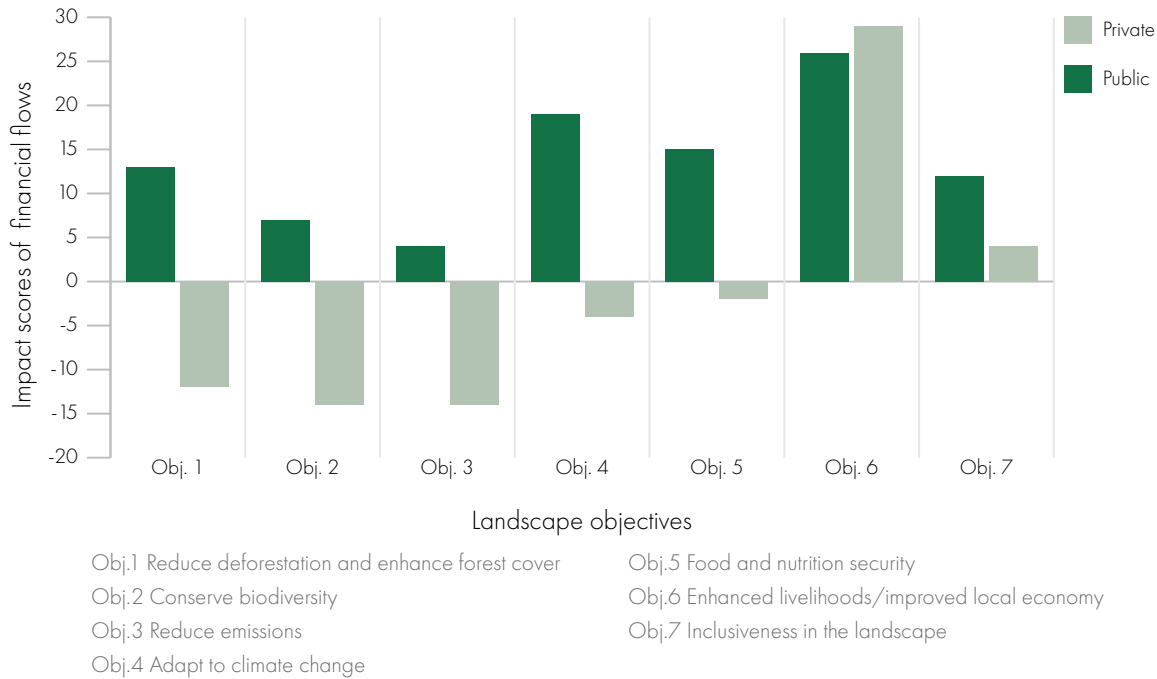


Note: 1 = somewhat positive impact; 2 = very positive impact; -1 = somewhat negative impact -2 = very negative impact.

Several sources of the financial flows were perceived to have positive effects on objectives 1–3 (although they were not designed only for conservation purposes): a private cocoa buying company (Touton), private loggers, cocoa farmers, other chocolate companies and the Cocoa Health Extension Division (CHED). Although their significant flows also contribute to inclusiveness in the landscape (7), only CHED also contributes to food security (5).

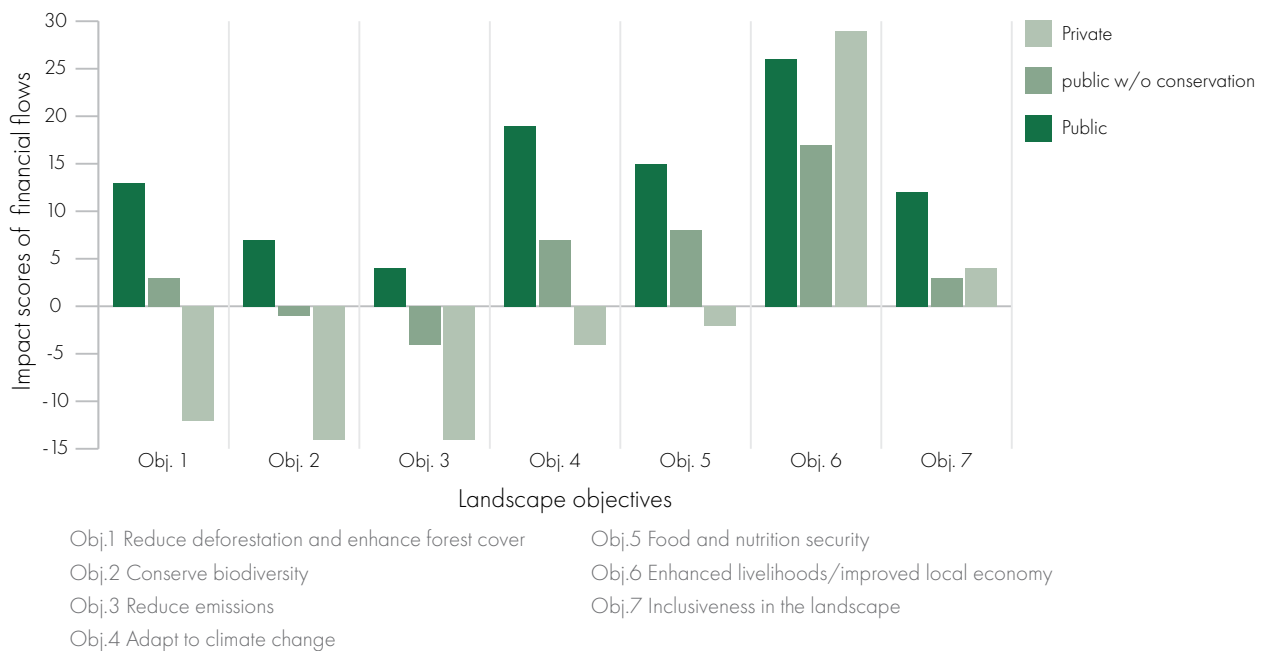
The combined sum of the perceived impacts of the flows is shown in Figure 3. Again, livelihoods and local economy (6) were improved by all of the flows. But for the rest of objectives there is a significant difference between the impacts of the money provided by the private and the public actors; public money generally compensates for the negative impacts of private money. However, as Figure 3 shows, this public money is not enough to fully compensate for the negative impact of private financial flows on biodiversity (2) and carbon emissions (3). It should be noted that these interpretations do not account for the size of the flows or the areas affected within the landscape. Unfortunately, it was not possible within the framework of this study to obtain reliable and comparable data on flow size or affected area.

Figure 3. Sums of impact scores per landscape objective, private and public financial flows



It should also be noted that the positive impacts from public flows on the environmental (1, 2 and 3) and climate (4) objectives was largely due to funds from development cooperation aimed specifically at conservation-related objectives (see Figure 4).

Figure 4. Sums of impact score per objective for private, public and public financial flows without conservation efforts



Participants identified 43 financial flows: 9 for the conservation sector; 12 for the timber sector; 10 for the cocoa sector; and 12 for the land-use sector. See Table 3.

Table 3. Key to principle financial flows**Conservation sector**

CFF1	grant from the Forestry Commission's Wildlife Division to CREMAs
CFF2	grants from EPA to communities through the FIP for planting/management of trees on farms
CFF3	from UNESCO to the Wildlife Division of the Ghana Forestry Commission
CFF4	money paid by restaurants to poachers for bushmeat
CFF5	commission royalties paid by mining companies (based on one sample) to the Minerals Commission
CFF6	royalties paid by logging companies to traditional authorities
CFF7	from sawmills to chainsaw operators
CFF8	bank loans provided to medium-scale sawmills
CFF9	premium prices paid by Touton to farmers

Timber sector

TFF1	payments from loggers to the Forestry Commission
TFF2	from FC to Office Administration of Stool Lands
TFF3	SRA compensation payments from loggers to communities
TFF4	advance payments from retailers to chainsaw millers
TFF5	advance payments from retailers to milling companies
TFF6	purchase payments from manufacturers to millers
TFF7	millers' fees and levies paid to the Timber Industry Development Division
TFF8	manufacturers' direct purchases from retailers
TFF9	from FC to academia and research
TFF10	from donors to CSOs and NGOs
TFF11	compensation payments from loggers to farmers
TFF12	from public banks to chainsaw millers

Cocoa sector

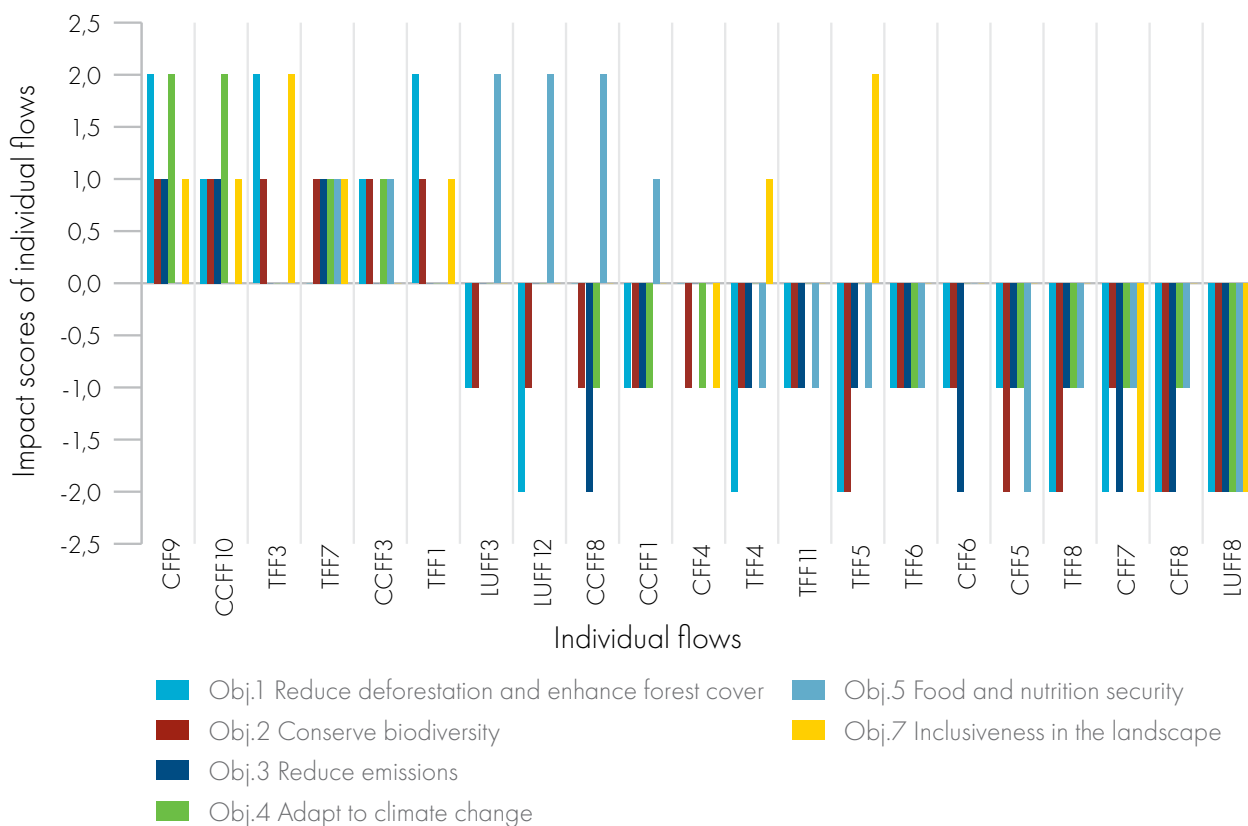
CCFF1	flows from licensed cocoa buying companies to farmers
CCFF2	money from CHED to farmers
CCFF3	financial flows from chocolate companies to cocoa farmers
CCFF5	financial flows from Cocobod to the Quality Control Company
CCFF6	flows from Cocobod to the Cocoa Marketing Company
CCFF7	flows from Government of Ghana to Cocobod
CCFF8	direct purchase by the consumer from retailer
CCFF9	grants from donors to NGOs that work on cocoa-related activities
CCFF10	farmers' direct payments for goods to nursery operators

Land-use sector

LUFF1	from the Government of Ghana to the MMDAs
LUFF2	from Cocobod to contractors
LUFF3	from licensed buying companies to farmers
LUFF4	from MMDAs to their education departments (D.E.)
LUFF5	from MMDAs to their health departments (D.H.)
LUFF7	concessions and sales of confiscated lumber that FC pays to the Government of Ghana
LUFF8	funds from wood marketing companies to illegal loggers
LUFF9	from the District Assemblies Common Fund to MMDAs
LUFF10	from the Responsive Factor Grant to MMDAs
LUFF11	from MMDAs to farmers (PERD)
LUFF12	loans from local banks to farmers

Some strong positive impacts on objectives other than livelihood enhancement (6) also result from financial flows from some of the private actors; see Figure 5.

Figure 5. Financial flows from private sources and their perceived impacts on landscape objectives



For example, the system of premium prices set up by a private cocoa buying company (CFF9) is perceived to have a positive effect (+5) on six of the seven objectives, while not affecting food security. In this case, it relates to a cocoa company that is leading a multi-actor consortium in an initiative to make cocoa production more sustainable and traceable in Ghana (see Section 4.2.3).

Financial flows from chocolate companies to cocoa farmers (CCFF3) have positive impacts on landscape objectives because the companies also implement premium schemes. It would be useful to see how many companies actually have such systems in place and how applicable they are to the cocoa farmers.

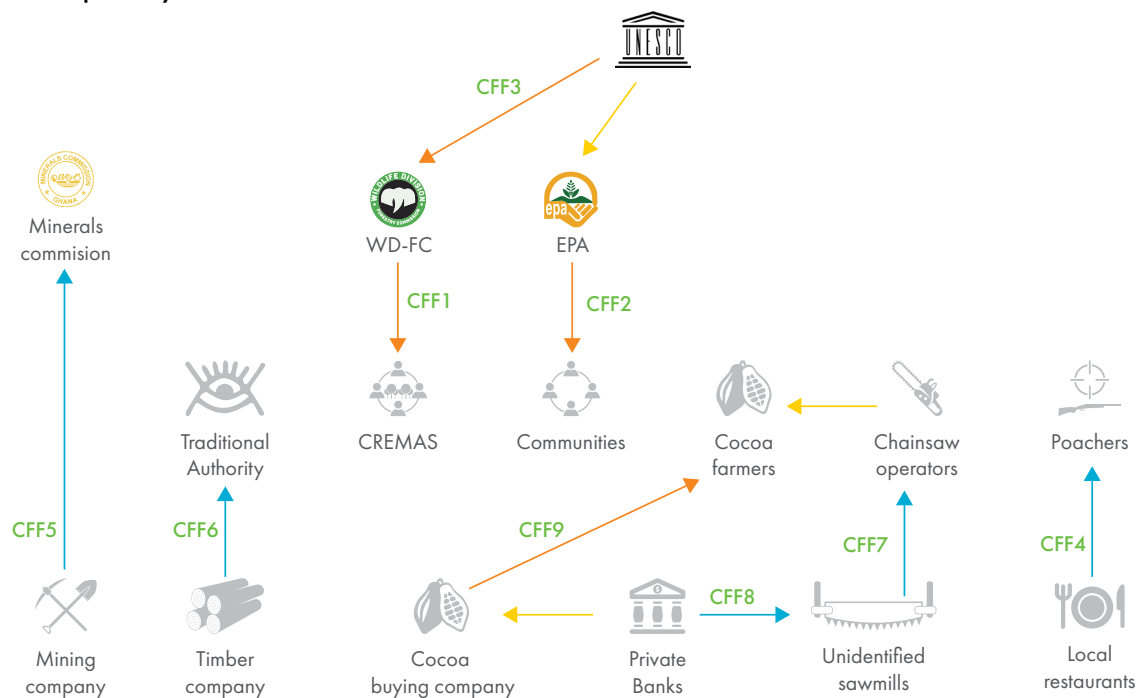
Payments from loggers to the Forestry Commission (TFF1) and to communities (TFF3) also have only positive impacts, although their source — the logging itself — is perceived to have negative environmental impacts. Money received by the FC and communities is used to restore or maintain forests.

4.2. Sectoral results

This section summarizes the results for each of the four sectors studied: conservation, timber, cocoa, and land use and planning. Each sector summary includes a map of the main financial flows and the highlights from the discussion groups and interviews. More details for each sector can be found in Annexes 1–3.

4.2.1. Conservation sector

Figure 6. Map of key financial flows in the conservation sector



Note: blue = negative impact; yellow = not assessed; orange = positive impact

At the workshop for the conservation sector, participants identified financial flows that both support and encourage nature conservation and social well-being.

CFF1. Grant from the Forestry Commission's Wildlife Division to the Community Resource Management Areas: +13

The flow that received the highest overall score (sum of scores for all objectives = +13) was the grant from the Forestry Commission's Wildlife Division (WD) to the Community Resource Management Areas, or CREMAs (CFF1). This flow scored +2 for each landscape objective except for biodiversity conservation, which received a score of +1. These grants are seen to contribute to reducing forest degradation and increasing forest cover; they lessen emissions through deforestation reduction and tree planting. Capacities to adapt to climate change are strengthened through technical training and provision of climate smart technologies and knowledge. In addition, diversified farming creates a favourable micro-climate for year-round farming, which increases food and nutrition security. Local livelihoods and economy are enhanced through increased and diversified income as a result of this financial flow. Grants to CREMAs are also perceived as contributing to the devolvement of power to local people and to support for participatory decision making, therefore increasing inclusiveness. The biodiversity conservation score (+1) was justified by the notion that although activities to conserve biodiversity are supported by this flow, participants said that "they" (presumably CREMAs) can do more. It should be noted, though, that some actors think that this flow may actually increase farmers' vulnerability to climate change by increasing their dependence on a single cash crop, and that it may threaten food security by indirectly stimulating the conversion of food crops to cash crops. These perceptions have not yet been verified.

CFF3. From UNESCO to the Wildlife Division of the Ghana Forestry Commission

The second-highest overall score (+12) was assigned to the financial flow from UNESCO to the Wildlife Division (WD) of the Ghana Forestry Commission (CFF3). The grant amounted to US\$150,000 per year (2013–16) and was meant for funding livelihood programs (beekeeping, snail farming, mushroom production, palm oil processing) in the areas surrounding the Bia Biosphere Reserve. These alternative livelihood commodities were selected due to their high nutritive and pharmaceutical value and the high demand for them at the local and national level. Beneficiaries of the UNESCO funds agreed to create a revolving fund to be used by recipients and other community people to support their venture. Safeguards were established to ensure environmental standards for a palm oil processing centre regarding the disposal of waste water and materials.

CFF3 contributes to deforestation reduction and forest cover enhancement (+2), biodiversity conservation (+2) and emission reduction (+2) through maintaining the biosphere reserve status, which designates the area purely for conservation. The WD staff are trained in capacities to adapt to climate change and are supposed to carry out similar training in the communities they work with (+2). The UNESCO grant also improves food and nutrition security (+1); the WD staff train local people in improving crop productivity and intensification to produce higher yields per hectare. Intensified productivity and training in alternative livelihoods in turn enhance local livelihoods and economy (+2). Eventually, inclusiveness is also promoted through this financial flow (+1), because WD consults with local people about what they would like to do before providing them with the alternative livelihood training.

CFF9. From LBC to cocoa farmers

Another highly positive financial flow (+9) is the premium that a LBC pays to cocoa farmers (CFF9). These premiums are similar to certification schemes that allow farmers who comply with certain production standards to sell their product for a higher price. Participants in the conservation focal group workshop scored this flow's impact on each of three of the landscape objectives with a +2:

- forest cover enhancement (1), because several of the premium's criteria relate to maintaining existing farm area, with intensified yield, planting trees on cocoa farms, and leaving existing trees;
- capacity to adapt to climate change (4) through educating farmers on the reasons to comply with the criteria (including climate change adaptation);
- livelihoods and local economy (6) are enhanced due to increased yield and premiums for complying with criteria.

When it comes to the biodiversity conservation objective this flow was scored with a +1. It does encourage maintaining existing farms instead of encroaching on forest reserve, but it does not necessarily enrich biodiversity since the farm is still there and contributing to some loss of biodiversity. Another criterion for the premium – tree planting – contributes to emission reduction objective and scored +1. Inclusiveness is promoted through this flow (+1), since the criteria and standards for the premium are developed together with the farmers, and participation for the premium is voluntary. This financial flow was perceived by workshop participants as having no direct impact (0) on food security.

CFF2. From the Environmental Protection Agency to communities through the Forest Investment Programme

Grants from the Environmental Protection Agency (EPA) to communities through the Forest Investment Programme (FIP) for planting and management of trees on farms (CFF2) also received an overall score of +9. This financial flow has minor positive impacts (+1) on deforestation reduction since it enables farmers to plant trees on their farms, but not in the forest. It also positively affects biodiversity conservation (+1) through enabling farmers to conserve biodiversity on their farmlands, but, again, not in the forests. The extent to which the FIP plants trees is not enough to have a significant impact on emission reduction (0). Capacities to adapt to climate change seem to be encouraged by this flow (+2), because planting trees modifies the micro climate for cocoa farms and the program improves knowledge of and technology for forest preservation. Moreover, this grant is used for alternative livelihoods and economy (+2); the farmers are given money to plant trees, which then belong to them. Therefore, tree fruits or the trees themselves can be sold and generate alternative income. This grant may also be used for palm oil extraction or beekeeping, which also discourage people from exploiting the biosphere reserve. Planted trees further serve as windbreaks for food crops, and some trees are also food trees, which contributes to food and

nutrition security in the landscape (+1). Decisions regarding on-the-ground implementation of this program are agreed on through community meetings where everyone is welcome to participate, thus promoting inclusiveness (+2).

CFF4: From restaurants to poachers for bushmeat

One of the financial flows that inhibits conservation in the landscape (-2) is the money that the restaurants pay to poachers for bushmeat (CFF4). This flow is rated to have no direct impact (0) on forest cover or emission reduction. It has a negative effect (-1) on biodiversity due to the hunting/poaching, which is not effectively monitored. Restaurants that buy bushmeat from poachers also create a disincentive for other people to keep a variety of farm animals, therefore weakening their capacity to adapt to climate change (-1). This financial flow might be expected to have a positive impact on food and nutrition security, but since the source of meat is unsustainable, food and nutrition security received a score of 0. When it comes to enhancing livelihoods and improved local economy, purchases of bushmeat do increase and diversify income, but not in a sustainable way (+1). The flow does not promote inclusiveness in the landscape (-1) because it creates unfair competition to (legal) farmers of small animals.

CFF6. Royalties from logging companies to traditional authorities

Another overall negative financial flow (-4) in the conservation sector is the royalties that are paid by logging companies to traditional authorities (CFF6). This is a transfer of funds that is made by a company as an initiation of a partnership with the traditional authorities (TAs). In this particular study, data are based on only one sample but were considered by study participants as representative in direction and type of impacts for this type of flow. There is very little reported evidence of how TAs use their share. Nor are there any guidelines on how these royalties should be shared; for example, investing in community infrastructure or providing revenue to community members. By paying the royalties companies obtain the right to log, therefore disturbing the forest cover (-1) and biodiversity (-1), which also results in reduced capacity to sequester carbon (-2). The remaining landscape objectives are seen to be unrelated to this flow (all scored 0).³

CFF5. Commission royalties from mining companies to the Minerals Commission

Conservation efforts are also seen to be disrupted (-5) by the commission royalties paid by mining companies to the Minerals Commission (CFF5). Mining activities that take place because of these payments are seen to reduce forest cover (-1), disrupt biodiversity in the area (-2) and increase emissions due to topsoil removal (-1). These activities are also perceived as reducing the landscape's capacity to adapt to climate change (-1). Loss of wild fruits, animals and farmlands due to mining activities has a very negative impact (-2) on food and nutrition security, but this financial flow is seen as very positive when it comes to enhancing livelihoods and improving the local economy (+2). Inclusiveness in the landscape is seen as unaffected by this financial flow because local people are not involved in any decision making regarding this financial flow and its effects (0).

CFF7. From sawmills to chainsaw operators

One of the most negative (-7) scores in the conservation sector was for direct purchases by sawmills from chainsaw operators (CFF7). Activities related to this financial flow reduce carbon sequestration (-2), forest cover (-2), and biodiversity and habitats (-1). The flow is also perceived to make the landscape more vulnerable to climate change (-1) and to have a negative impact on the microclimate needed for local farm production (-1). Even though local people are not involved in this financial flows between the chainsaw operators and sawmills (-2), they do benefit from the flow since it improves their income and provides jobs (+2).

CFF8. Bank loans provided to medium-scale sawmills

The last financial flow identified by the participants of the conservation sector, which also received a very negative score (-7), was in the form of bank loans provided to medium-scale sawmills (CFF8). These loans are seen to have a very negative impact (-2) on forest cover since the loan is used for logging, some of which is illegal.

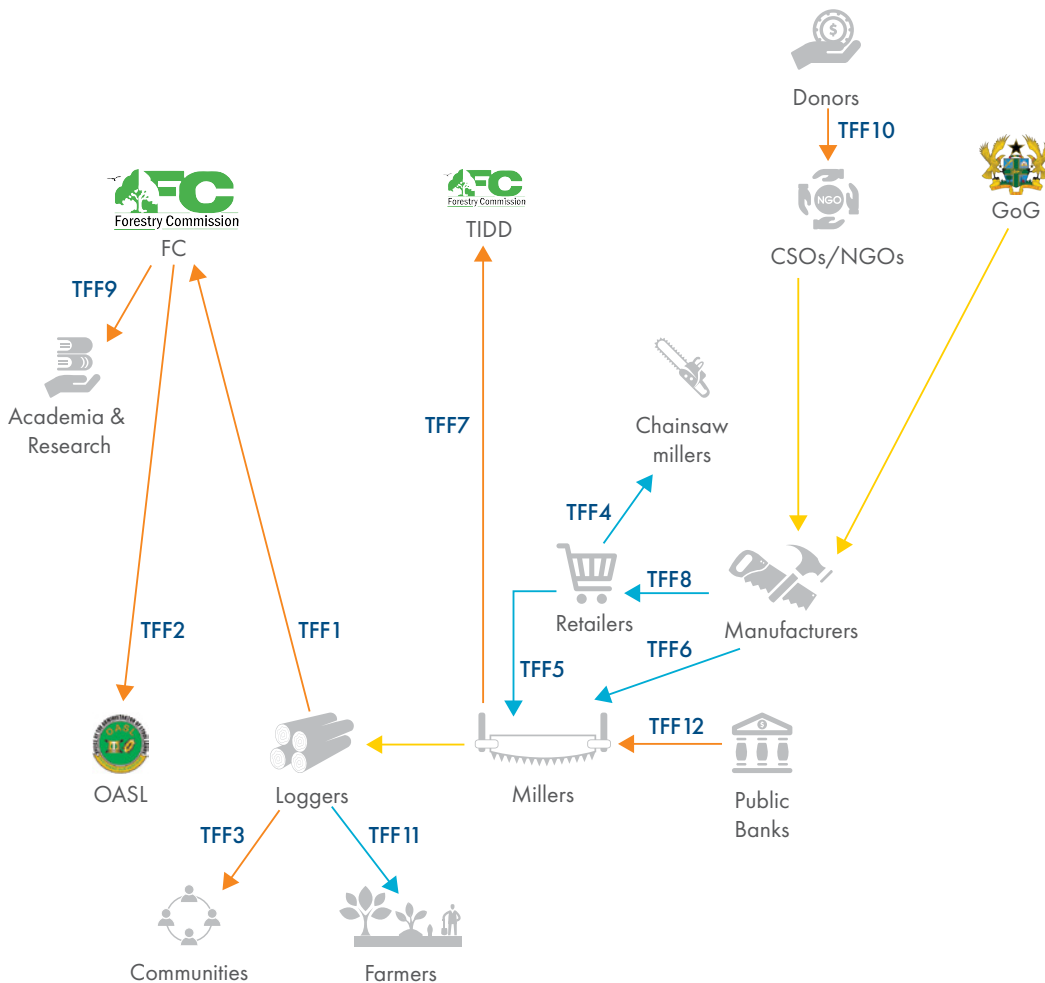
³ Assessment of this financial flow is a good example of the complexity of scoring impacts. Although the logging does cause all the impacts mentioned, the financial flow is received by the local authorities. When evaluating this particular flow (and several others) it should be kept in mind that although the logging impacts perhaps could be minimized by better managing this financial flow, the use of the money/royalties is what actually should be the main focus of the flow's impacts.

The flow also has a negative effect on biodiversity (-2) since there are no attempts to minimize the destruction of biodiversity or habitats; and on emissions (-2), because unsustainable tree cutting increases emissions. Capacities to adapt to climate change are also weakened (-1) by this financial flow because activities funded by these loans reduce forest cover; they also affect the water catchment area and hydrological system. Moreover, most of these activities are known to destroy farmers' crops by felling and transporting trees through farms (and rarely compensating for this), which reduces food and nutrition security (-1). However, these loans do allow sawmills to hire local people and to sell lumber at the local market, thus enhancing livelihoods and improving the local economy (+1).

Note: It is rather unexpected that legal and official activities have such negative impacts on landscape objectives. This issue is explored in more depth in Section 5.

4.2.2. Timber sector

Figure 7. Map of key financial flows in the timber sector



Note: blue = negative impact; yellow = not assessed; orange = positive impact

Participants in the timber sector focal group identified key financial flows with impacts that varied in their overall scores from +12 to -5.

TFF10. From donors to NGOs

This flow had an overall score of +12; it involves funds from donors to NGOs (TFF10). The NGOs use the money for sensitization and education of local stakeholders in the forest sector. Combined with NGO monitoring activities these educational efforts have a very positive impact on reducing deforestation and enhancement of forest cover and on biodiversity conservation (+2 each). NGOs also provide training and education in tree planting, climate

change mitigation, and food and nutrition security, which have a positive effect on emission reductions (+2), local capacities to adapt to climate change (+2) and food/nutrition security (+1). The flow is also seen to enhance communities' livelihoods (+1) and their participation in forest governance (+2).

Several NGOs in the JBSW landscape work on activities related to timber and forests. To deepen the knowledge of flows from donors to these NGOs interviews were carried out with three of them: EcoCare, Friends of the Earth Ghana and SNV. EcoCare is funded by the Rainforest Alliance and FERN; the latter two NGOs are funded by governmental institutions from the Netherlands and Germany respectively (see Table 4).

Table 4. NGO use of donor funds for activities related to forestry in the JBSW landscape

NGO	EcoCare	FoE	SNV
Donor	Rainforest Alliance (RA) and FERN	Dutch Ministry of Foreign Affairs	The International Climate Initiative, under the German federal ministry for the environment, nature conservation and nuclear safety
Amount	RA: €124,000 FERN: £8,000	€ 120,000	€ 1.39 million
Timing	RA: for two years FERN: for 12 months	For 3 years	For 3 years
Terms	<u>RA grant:</u> (financial) reporting every six months; if there is an unsatisfactory performance during a particular period of time, then EC might not get the money next period. <u>FERN grant:</u> There are no conditions besides justification of expenditures. The focus is on national cocoa policy.	Green Livelihoods Alliance: reflection and learning meetings	Delivering the agreed objectives. If SNV doesn't comply with the safeguards and guidelines the national REDD+ secretariat and donor would probably discontinue the funding until the issue is resolved.
Activities	<u>RA:</u> Human resources, operational costs, equipment; Project activities (capacity development, monitoring). Monitoring CFI (cocoa and forest initiative); how companies are implementing CFI commitments; how Ghana as a country is putting CFI commitments and systems in place. <u>FERN:</u> Influencing national forest-sector policies (not sponsoring specific project activities, but enabling EC to be part of the national level processes); Some support for operational costs.	Green Livelihoods Alliance: Capacity building for forestry communities (forest use rights, fair share of revenue for the forest harvest, consent and compensation rights); Training in engagement in forest monitoring activities, tree planting, registering planted trees and claiming ownership of them; Raising awareness of the issues regarding the off-reserve logging cooperatives/corporations, and relation with timber industries. Working on changes to tree tenure policies in Ghana (to reflect equitable benefit sharing, and harvesting). Afforestation.	Cocoa traceability. Trying to establish a deforestation-free supply chain. Developing a monitoring system and mechanisms to trace the source of the cocoa to the farm level (deforested area or not). Financing cutting and rehabilitation of diseased farms (farmers clear by themselves). Mapping of cocoa farms (healthy and diseased), Nursing hybrid cocoa seedlings; Providing economic tree seedlings to farmers, shade trees. Support farmers in lining and pegging of their farms. Technical and extension services. Training and farm inspections, monitoring of farmers' activities. Collaborating with CHED of Cocobod. Land-use planning, establishment of CREMAS. Also with FC-WD.

All three NGOs receive funds from other sources that are used for various projects. Only SNV receives co-funding for its cocoa program. A consortium of several organizations, with the cocoa buying company Touton in the lead, contributed around £100,000 in 2019. These complementary funds are used to support rehabilitation, establishment of CREMAs and landscape governance sector and traceability.

Neither the FoE or SNV grants has specific guidelines for social and environmental responsibility. Nevertheless, safeguards are implied and also listed in the bylaws of these organizations. The SNV program, for example, operates under the international climate initiative of Germany and is supportive of REDD+. It also supports the Cancun safeguards, with seven principles that every REDD+ project should adhere to (in this case it includes Free, Prior and Informed Consent for cutting trees infected with disease on the cocoa farms). Activities in Bia West also fall under the Ghana Cocoa Forest Emission Reduction program, which requires adherence to and respect for local community organizations and for environmental and social safeguards.

EcoCare is focused on building the capacity of forest communities and empowering (including gender empowerment) local people to monitor company commitments. Friends of the Earth (FoE), through the Green Livelihoods Alliance (GLA), works on ensuring respect for communities' rights. FoE also trains farmers to know their consent rights when it comes to situations such as timber operators removing trees from their farms. FoE aims to increase tree cover in the landscape, and communities have started planting trees on their farms. Furthermore, FoE is working on improving food security and reducing disruptions to food sources. SNV contributes to the sustainability of the landscape through focusing on ways to influence farmers to remain within existing cocoa farms instead of clearing the forest for new plots. SNV supports biodiversity by providing tree seedlings and plantain suckers for crop diversification, shade for cocoa plants and extra income.

TFF9. From Forestry Commission of Ghana to academia and research

TFF9, the flow from the Forestry Commission (FC) to academia and research, scored a total **+8**. As research results are passed on to policy makers, natural resource managers and industry this information has a positive effect on deforestation reduction (**+1**), forest cover enhancement (**+1**), biodiversity conservation (**+1**), emission reduction (**+1**), and food and nutrition security (**+1**) (assuming that research results are taken seriously and applied to policies and forest management plans). Since researchers often engage local people in forestry activities that conserve, manage or restore forests, they also are perceived to contribute to enhancing local livelihoods (**+1**). The flow is perceived to increase public and stakeholder awareness and knowledge on climate change adaptation and mitigation and scored **+2** for that criterion.

Forest-related research was estimated to cost the FC more than GH¢6 million per year. There are a few ways that FC funds research regarding forests. When FC is making budgets it allocates some money for research and academia. If someone from the research field comes up with a proposal that fits FC's interests then the commission gives financing to the research from the money set aside. If nobody asks for the money FC will use it for something else. FC as an institution has thematic areas for research where the services of academia will be of interest. When FC is writing projects they bring in academics as collaborators, who can obtain some funds through the FC. Moreover, FC is a member of the International Tropical Timber Organization and as such can submit proposals that often include academia.

TFF3. Social responsibility agreement payments from loggers to communities

Social responsibility agreement (SRA) payments from loggers to communities (**TFF3**). This flow scored **+7**. A social responsibility agreement is negotiated between the affected communities and the logging company and before the logging starts farmers have to express their consent. The agreement is signed before the logging takes place and is stipulated by law (Act 547(section 3E, section 20) ,LI 2254,section 11 (D)). By law, it amounts to 5% of the total stumping (value of logs logged), but at times the communities negotiate a higher amount. According to the workshop participants, deforestation reduction is highly encouraged (**+2**) by this flow, since the money reaches the communities and motivates people to protect the forests; this results in conserving biodiversity (**+1**). This financial flow is also directed towards building infrastructure for the community, which enhances livelihoods and local economy (**+2**). There also are community forums to discuss SRA, promoting inclusiveness (**+2**). In addition, logging companies pay compensation to farmers when crops are destroyed during logging operations on private farmlands, but this flow is unpredictable and was not assessed here.

Similar compensation payments are made by millers to farmers. This flow was not evaluated separately but was briefly described by one of the participants of the focal group in this sector. Per year the affected communities in Juabeso forest district receive GH¢68,003.34 from one of the milling companies (based on the information provided by one of the milling companies). This money is meant for communities to undertake development projects. The Forest Service Division acts as an intermediary. The division is usually provided with cheques by the milling companies before the funds are sent to the communities. To ensure that fair amounts of money reach the communities, a WhatsApp group was established for communities to communicate with millers. The terms are stipulated in the SRA manual. Communities have responsibility for protecting the resource that the millers have an interest in. Millers have to respect the rights of the communities, taboos, sacred sites, etc. These agreements provide social amenities and elevate interest in environmental protection. They also encourage participation by local people in forest management.

TFF 7. Millers' fees and levies paid to the Timber Industry Development Division

Millers' fees and levies paid to the Timber Industry Development Division, or TIDD (**TFF7**) scored **+6**. This flow seems to have no impact on forest cover since the money is used to restore the forest after logging. It does, however, have a positive effect on conserving biodiversity through a percentage of levies and fees being channeled to afforestation (**+1**); emissions are reduced by planting trees (**+1**); and capacities to adapt to climate change are built by TIDD for its staff and other stakeholders (**+1**). Food and nutrition security is supported through practices of agroforestry in afforestation programs (**+1**). Agroforestry provides livelihood diversification, which together with employment opportunities contributes to enhanced livelihoods and improved local economy (**+1**). Inclusiveness in the landscape is promoted through participation in decision making (**+1**).

TFF1. Direct payments from loggers to the Forestry Commission

The direct payments from loggers to the Forestry Commission (**TFF1**) scored an overall **+5**. According to the workshop participants this flow has a very positive (**+2**) effect on forest cover and deforestation reduction since the money is directed toward sustainable management of the forests; for example, youth participation in afforestation programs. These fees also enable the forestry commission to maintain forest cover and therefore maintain biodiversity (**+1**). This flow is seen to have no significant effect on emission reduction, improving capacities to climate change adaptation, or food and nutrition security. Livelihoods and local economy seem to be enhanced (**+1**), with part of the money being directed toward the District Assembly and Traditional Council. For instance, the District Assembly uses part of the money to build schools, hospitals and construct markets. The flow also promotes inclusiveness (**+1**) by consultation with the local community when the FC decides on its rates.

TFF2. From Forestry Commission to Office Administration of Stool Lands

The FC pays Office Administration of Stool Lands (OASL) through a direct purchase (**TFF2**); this flow had an overall score of **+3**. The OASL collects royalties in the form of annual rents and stumpage fees from the timber companies and redistributes them to several stakeholders. The timber companies make their payments to the Forestry Commission, which forwards the funds to the OASL for onward redistribution to stakeholders. The flow is seen as an incentive for recipients to help conserve forests (**+1**), and protecting the forest leads to preserved biodiversity (**+1**). Money to the OASL has no impact on reducing carbon emissions, strengthening capacity to climate change adaptation, food and nutrition security or on inclusiveness. It does, however, contribute to local livelihood and economy enhancement since part of the money is used for infrastructure (**+1**).

TFF12. Loans from public banks to chainsaw millers

The last flow in the timber sector with an overall positive score (**+3**) is in the form of loans from public banks to chainsaw millers. With sufficient loans millers are more efficient through acquiring new machinery and training in good operational practices; this is perceived to have a positive (**+1**) impact on reducing deforestation and conserving biodiversity (**+1**). The flow is perceived to have no impact on emission reduction, capacities to adapt to climate change, food and nutrition security, or on inclusiveness. It does have a positive impact (**+1**) on local livelihoods and economy.

Short-term loans are obtained from the banks for logging, processing, SRA payments and compensation to farmers before exporting or trading their products. The banks pay directly to the millers provided they meet their requirements, such as provision of guarantors, etc.

TFF4. Advance payments from retailers to chainsaw millers

Advance payments from retailers to chainsaw millers (TFF4) received an overall score of -2 . This flow is estimated to be worth as much as GH¢ 1.6 million per year. These payments are mostly based on verbal agreements that require the chainsaw miller to keep the retailer updated on the progress of activities. If the lumber is confiscated by the FSD the chainsaw miller does not pay back the money, but if the chainsaw miller fails to update the retailer on activities or fails to deliver the order this can lead to conflicts between the two parties. The activities resulting from this flow do not consider environmental factors and have a very negative impact on forest cover (-2), since chainsaw operations increase deforestation within and outside forest reserves (including secondary forests). These payments are seen to have a somewhat negative impact (-1) on biodiversity. Deforestation leads to loss of biodiversity and cutting forests increases carbon emissions (-1) and crop damage, which also reduces food and nutrition security (-1). Although the flow does not seem to be related to the capacity to adapt to climate change, it does have a positive effect ($+2$) on livelihoods and local economy because it is also a source of local communities' income. Inclusiveness is promoted ($+1$) through negotiations that chainsaw millers, farmers and land-owners have at the community level. Despite these two positive impacts, the flow is still seen to have generally negative effects on the communities and on water bodies (due to deforestation). When asked about the relation of this flow to artisanal milling, one interviewee said:

"The artisanal milling concept has helped a lot. Through the concept the chainsaw operators have stopped operation. It is through the artisanal millers concept that the Domestic Lumber Millers Association of Ghana is rising and working through the right channels."

TFF5. Advance payments from retailers to milling companies

Advance payments from retailers to milling companies⁴ (TFF5) have an overall negative impact on landscape goals (-3). About GH¢ 6 million per year flows from retailers to millers. These agreements are transparent and supervised by the TIDD. Besides payments for deliveries retailers support other services such as purchasing of equipment parts. For this financial flow environmental and social safeguards apply only to purchases of legal wood (when a Voluntary Partnership Agreement (VPA) is in place). These advance payments are perceived to have a very negative impact on forest cover/deforestation reduction (-2) and biodiversity conservation (-2), because milling increases deforestation, thus affecting biodiversity. Payments are also seen to increase emissions (-1). Activities funded by this flow might also destroy food crops and farmlands, negatively affecting food and nutrition security (-1). This financial flow does, however, contribute to local livelihoods and economy by providing a source of income to workers ($+1$), and it was noticed to have a very positive impact on inclusiveness ($+2$).

TFF11. Compensation payments from loggers to farmers

Another flow with an overall negative score (-3) is in the form of compensation payments from loggers to farmers (TFF11). In contrast to the compensation paid from loggers to communities (TFF3), this flow is perceived to negatively affect forest cover (-1), biodiversity conservation (-1), emission reduction (-1) and food and nutrition security (-1). The flow has no impact on climate change adaptation capacities or inclusiveness. It does, however, contribute to the enhancement of livelihoods and local economy ($+1$). The negative score of TFF11 compared with TFF 3 may be due to the fact that individual farmers do not reinvest in the forests as communities do.

TFF6. Purchase payments from manufacturers to millers

Purchase payments from manufacturers to millers (TFF6) scored -3 for their overall impacts on landscape objectives. The flow has a negative impact (-1) on forest cover, biodiversity conservation (-1), emission reduction (-1), capacities to adapt to climate change (-1) and to food and nutrition security (-1), because the money is used to cut trees and possibly destroy crop farms. It does have a very positive ($+2$) impact on local livelihoods and economy.

⁴ Milling companies are sawmills that do their own logging and also log for others.

TFF8. Manufacturers' direct purchases from retailers

Manufacturers' direct purchases from retailers (TFF8) have mostly negative impacts, which add up to a score of -5 . Activities that are financed by this financial flow are perceived to reduce forest cover (-2), reduce biodiversity (by destroying flora and fauna (-2), increase emissions (-1), affect capacities to adapt to climate change (-1) and often destroy farms, which reduces food and nutrition security (-1). On the other hand, direct purchases by the manufacturers contribute substantially to local livelihoods and economy by creating jobs and generating revenue ($+2$). The flow is considered to have no connection to inclusiveness in the landscape.

Manufacturers and the timber sector

Manufacturers are involved in a number of financial flows in the timber sector. To analyze this in more depth a representative of the National Association of Handicrafts Exporters (NAHE) was interviewed. The association receives its money from membership fees and from grants, and receives money and other inputs from the national government. Such inputs cover, for example, the expenses of manufacturers for training in foreign countries to see how cultures view handicrafts. The public banks give grants to leverage orders, which then lead the association to request loans from the same bank to be able to comply with the orders.

Assessed financial flows that involve manufacturers are the payments from them to retailers (TFF8) and millers (TFF6). The Domestic Lumber Traders Association (DOLTA) is an example of a retailer and the Ghana Timber Millers Organization (GTMO) is an example of a miller. DOLTA is made up of 25,000 domestic lumber traders and has a yearly turnover that is higher than GH¢6 million, whereas GTMO has more than 100 members and an unknown turnover. The interviewee of NAHE estimated that manufacturers from NAHE spend around GH¢1.8 million per year on purchases from DOLTA members, and about GH¢600,000 on buying from millers. Manufacturers usually prepare their orders for both retailers and millers four times per year. In addition to money, manufacturers also provide training opportunities for retailers and millers on timber legality. Moreover, manufacturers sometimes provide a guarantee for retailers/millers when they take out a bank loan. Manufacturers, retailers and smaller millers all get the same loan terms of 25% interest/year, or 15% if the loan is repaid earlier.

VPA and Forest Law Enforcement, Governance and Trade (FLEGT) safeguards — social and environmental — apply to manufacturers' legal wood orders, but are disregarded by illegal woodworkers. Social safeguards are not well implemented. For example, at timber trade centres safety measures are not addressed. The workers do not like to follow the safeguard guidelines, because safety measures are usually uncomfortable and distracting and impede the work process. Millers work with legal wood and do apply environmental and social safeguards, since this is required by law. Safety inspectors come to check millers' compliance with the safeguards, generally on a quarterly basis.

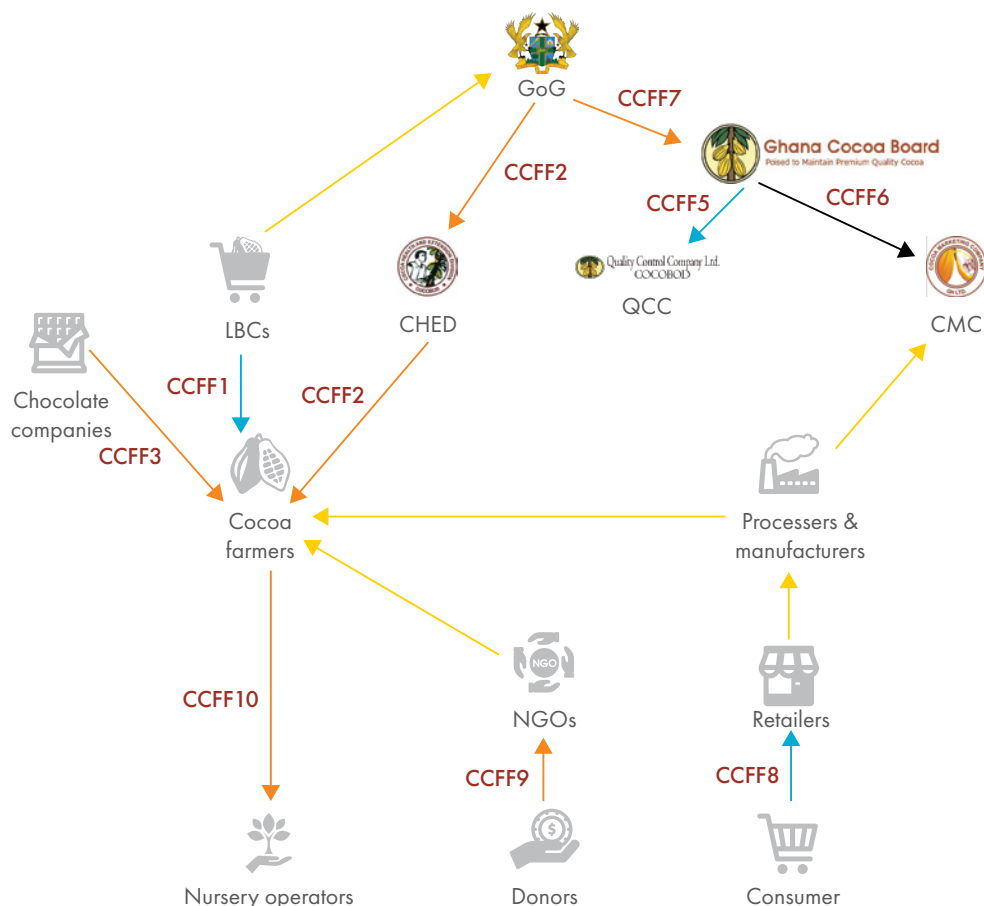
The local market remains ignorant about the legality of wood products, but the export market requires handicrafts to have documentation proving its legal origin. Export requirements are the main driver of changes in manufacturers' practices; they have begun to adhere to wood legality policies such as FLEGT and other requirements. The number of manufacturers complying with the timber legality requirements is growing.

FLEGT licence certification is currently being pioneered in Ghana, but since some of the manufacturers cannot acquire certification because of lack of documentation about legal origin, they cannot export their products. Sometimes, certified manufacturers ship others' products under their name. Therefore, licensed manufacturers have to perform due diligence on the production of those whose products they're shipping. There should be an innovative way for the retailers to provide and ensure legal wood. This will most likely involve money and incentives.

The subject of payments by millers to loggers for their services in providing the millers with concessions or timber utilization contracts came up while conducting follow-up interviews. It was not evaluated by the focal group participants, but has large potential impacts.. These payments are estimated to reach GH¢4 million per year; they finance tree felling, skidding and log transport, the main activities done by the loggers. There are no specific terms of agreement except for the number of logs and time for delivery. Sometimes loggers take loans from private banks to support their activities for fulfilling the agreement with the millers. It was noticed that this flow contributes to economic improvement in the landscape, but at the same time brings negative aspects such as crime, prostitution, etc.

4.2.3. Cocoa sector

Figure 8. Map of key financial flows in the cocoa sector



Note: blue = negative impact; yellow = not assessed; orange = positive impact; black = neutral

Cocobod has a monopoly over most of Ghana’s cocoa sector and shapes nearly every aspect of the cocoa value chain. Cocoa sales typically begin at the smallholder level: smallholders sell cocoa to licensed buying companies (LBCs); LBCs sell to Cocobod; and Cocobod then sells to exporters or food processors, both domestic and global. Cocobod sets cocoa prices and trade terms, controls margins, and provides inputs (e.g., seedlings, fertilizer). It is also a key financial intermediary and capacity builder for cocoa smallholders, and the main provider of financing to LBCs to purchase cocoa.

LBCs are also key players in the cocoa value chain, buying cocoa from smallholders. During the LAFF interviews it was established that most smallholders sell to only one LBC. The provision of inputs and services are one of the main drivers for smallholders to sell cocoa to a particular LBC, as LBCs are the primary source of financing for smallholders outside of private loans and savings. LBCs require considerable amounts of working capital, especially during harvest seasons. Some of this financing is provided by Cocobod. Through its Syndicated Pre-Export Finance Facility, it raises funds from an international banking syndicate and then allocates them to LBCs to purchase cocoa from smallholders.

CCFF9. Grants from donors to NGOs

One of the financial flows that is perceived to have the greatest positive impact on the landscape is a grant provided by donors to the NGOs that work on cocoa-related activities (CCFF9). CCFF9 scored an overall +9 by having a positive impact on the landscape through providing funds for helping afforestation within and outside the forest reserves and for educating farmers on the ways to maintain and restore natural habitats. Moreover, these grants often support other sectors, such as agricultural departments of district assemblies, the Forest Service Division and Cocobod, in running programs that reduce greenhouse gas emissions. Organizations that receive these

grants also provide training for cocoa farmers on climate change and its effects and on additional/alternative livelihoods to reduce reliance on a single crop; support for climate change adaptation, and diversification of their livelihoods. The design processes of these activities and other governance–related actions involve local people in decision making and implementation. Refer to annex 3c for the scores on individual objectives.

EcoCare and SNV, two of the NGOs introduced in Section 4.2, also work on projects and programs focused on cocoa. EcoCare’s Cocoa and Forest Initiative focuses not only on the forest but also on cocoa–related issues — and on the connection between the two. SNV in Ghana is focused on establishing a deforestation–free cocoa supply chain through its Partnership for Productivity, Protection and Resilience in Cocoa Landscapes (3PRCL), and on implementing a cocoa traceability system. The project is funded by the UK Department of International Development and is implemented in Ghana by a consortium that includes SNV, Touton, Cocobod and a few other actors. SNV also tries to influence cocoa farmers to remain within existing farms instead of clearing the forest for new plots. SNV addresses biodiversity by providing tree seedlings and plantain suckers for crop diversification, shade for cocoa plants and extra income.

CCFF2. From national government to farmers via CHED

Another flow that scored an overall +8 is the money coming from CHED to farmers (**CCFF2**).⁵ This flow represents payments to farmers whose cocoa farms have been clear–cut due to cocoa tree diseases. The compensation for clear–cut cocoa farms started at the beginning of 2018. Farmers receive GH¢ 1000 per hectare of clear–cut area. This provides an incentive for farmers to rehabilitate and intensify farming and to intercrop cocoa with forest trees instead of expanding their farms. Through planting trees on their farms, farmer’s capacities to adapt to climate change are perceived to increase. This financial flow also leads to cocoa farmers abstaining from burning plots of their farms and practising zero tillage. Farmers that receive compensation from CHED intercrop cocoa farms with cassava, maize, etc., which increases food security and contributes to livelihood enhancement.

CCFF10. Farmers’ direct payments to nursery operators

Farmers’ direct payments for goods to nursery operators (**CCFF10**) contribute positively to landscape objectives, with an overall score of +7. These payments positively affect the reduction of deforestation and forest degradation, conserve biodiversity and reduce emissions because farmers plant trees bought with the financial flow. Growing trees is also an additional livelihood for some local people, and decisions made regarding these activities involve both the financial source and the recipient.⁶

CCFF3. Payments for cocoa from chocolate companies to farmers

Chocolate companies’ payments for cocoa to the farmers, **CCFF3**, scored +5. This financial flow represents the premium prices that are paid by companies to farmers who produce cocoa in compliance with organic or sustainability standards (similar to **CCFF9**). This payment encourages farmers to conform with certification standards, which helps reduce deforestation and contributes to biodiversity conservation. Some of the cocoa–growing practices that are encouraged by the premiums are maintaining the existing farm area, planting trees (other than cocoa) on farms and leaving existing trees in place. However, although farmers who comply with the standards receive premiums from the companies, it does not make them avoid activities that do not reduce emissions.

CCFF5. From Cocobod to the Quality Control Company

The financial flow from Cocobod to the Quality Control Company, or QCC (**CCFF5**) had a total score of –1. It has a negative impact on the objectives of conserving biodiversity, since QCC uses fumigation in the warehouses to kill pests. This results in chemicals being released, which also contributes to emissions. On the other hand, the flow scores +1 for the criteria of livelihood improvement since the QCC hires local people to check the quality of cocoa and to assess the moisture content before the experts examine it.

⁵ CHED signs and distributes the cheques that are provided by the Government of Ghana.

⁶ The impact assessed seems to be caused by the practices of the CCFF10 source rather than by the use of the financial flow. One could argue, though, that without these payments the recipient of the flow could not provide the service, which would result in positive impacts from the source’s actions.

CCFF8. Direct purchases by consumers from retailers

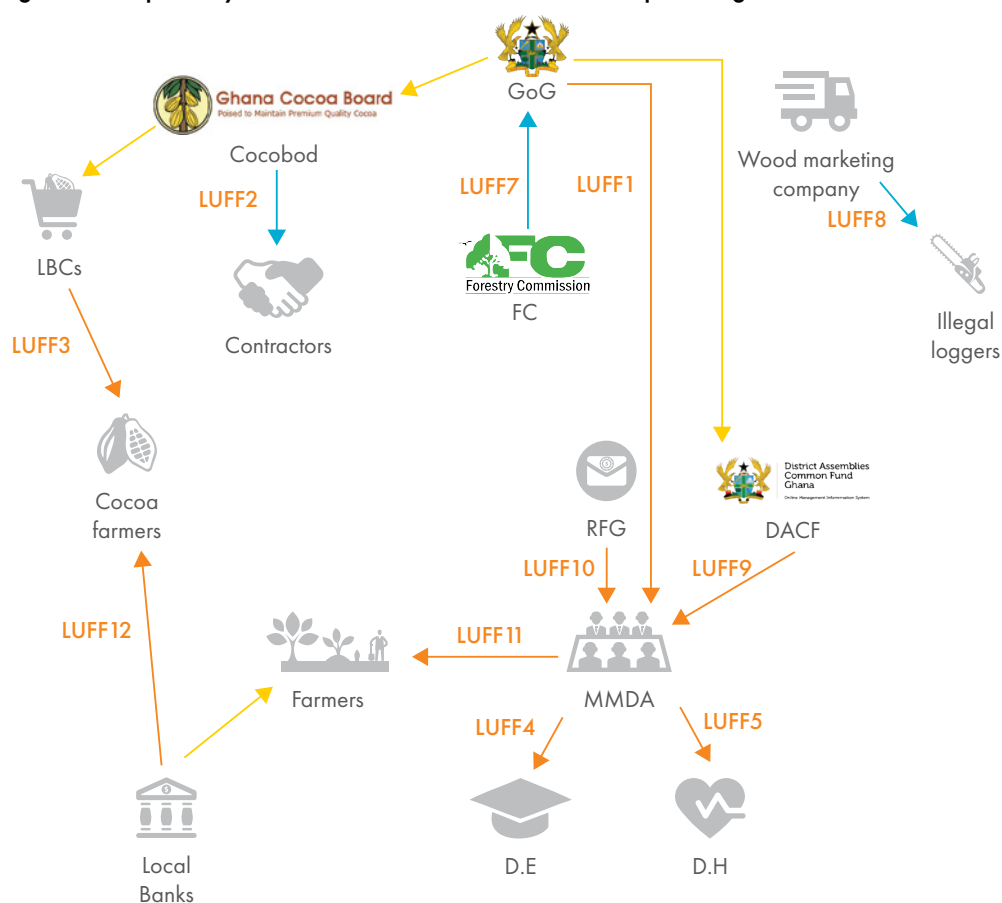
Another flow with an overall negative impact score (–1) is the direct purchase by consumers from retailers (CCFF8). Consumers are individuals or groups of final users of the processed cocoa bean products, such as chocolate, Milo, toffee, cookies, etc. Biodiversity conservation is affected slightly negatively (–1) because cocoa farming requires land clearing, which displaces the natural habitats of flora and fauna. A score of –1 was also assigned to the criteria of strengthening capacity to adapt to climate change, since farmers aiming to increase their yields often disregard the skills received from capacity–building activities. Emission reduction is nonexistent because clearing and burning lands for farm activities emit greenhouse gases. Food and nutrition security and enhanced livelihoods/improved local economy objectives seem to benefit from this financial flow. The money from the retailers increases the funds available to farmers to use for purchasing farm inputs to increase its productivity. A particular positive aspects of this flow was perceived to be that it capitalizes the retailer and therefore allows for a rapid financial flow between the retailer and farmers.

CCFF1. From LBCs to farmers for direct purchase of cocoa

The flow from LBCs to farmers for the direct purchase of cocoa (CCFF1) had an overall impact score of –2. The flow was noticed to have a negative impact (–1) on four criteria. The quest for more fields and a reluctance to clear diseased and aged farms (as well as a fear of losing farms to local chiefs) contributes to deforestation and forest degradation. Biodiversity is negatively affected because of the excessive use of agro–chemicals. Poor reforestation and afforestation on cocoa farms and off reserves has a negative effect on emission reductions. Capacity to adapt to climate change scored –1 because of the lack of measures to face the recent long periods of droughts, pests and disease. Food and nutrition security, as well as enhanced livelihoods/improved local economy, are affected positively because this financial flow contributes to intercropping of food crops with cocoa. Eventually these finances are the main source of income for most smallholder farmers and other long chains of beneficiaries.⁷ It should be noted, however, that the effects on landscape objectives depend on the farmers' decisions to buy or not buy inappropriate fertilizers, or to expand their farms. It is impossible to control where and how farmers spend the money they earn, but their practices can be affected by conditions or incentives offered by financial flows. For example, some of the LBCs promote sustainable cocoa farming and pay premiums to farmers who comply with their sustainable production standards (CFF9).

4.2.4. Land–use and planning sector

Figure 9. Map of key financial flows in the land use and planning sector



Note: blue = negative impact; yellow = not assessed; orange = positive impact

LUFF9. From the District Assemblies Common Fund to MMDAs

Metropolitan, Municipal and District Assemblies (MMDAs) are governmental bodies that are supported mostly by the government of Ghana through the District Assemblies Common Fund (DACF). Participants in the LAFF process assessed finances flowing from the DACF to Sefwi–Wiawso, Juabeso and Bia West district assemblies (LUFF9). DACF is a consolidated fund; it used to be composed of 7% of internal revenue generated by the government, but this was recently reduced to 5%. This flow had an overall score of +7. In 2018 Sefwi–Wiawso received GH¢1.1 million/year; at the time of the interviews, Juabeso was expecting GH¢2.9 million for 2019; Bia East received GH¢1.6 million/year.

This financial flow has a positive effect on the deforestation reduction and forest cover enhancement because the agricultural departments of the MMDAs educate and enlighten farmers on the effects of deforestation and promote livelihood strategies that have a positive effect on biodiversity. The departments also educate people on afforestation practices, which have a positive impact on emission reductions. The flow contributes to improving capacity for climate change adaptation by encouraging farmers to adopt good farming practices. This flow has a very positive impact on the landscape's food and nutrition security since MMDAs use the money to support farmers by supplying food crop seedlings. MMDAs also support alternative livelihood programs (through the Agricultural Department) for farmers during off–season periods. Although people are involved in decision making, the flow is not perceived to contribute to inclusiveness since they are involved only indirectly, through their representatives or assembly members. DACF also provides workshops and training for the assembly department employees and traditional authorities.

MMDAs disburse the money from DACF to various projects across their departments. Each year, DACF provides guidelines for the proportion of funds to be spent on priority projects and other activities. Currently, for example, infrastructure development is the main focus of DACF. Development of the guidelines does not involve assemblies. In addition, DACF sets conditions for the use of the funds, such as strategic environmental assessment processes; following the Environmental Protection Agency (EPA) process in the utilization of the resources; procurement processes; ensuring public participation in the use and disbursement of the fund (through town–hall meetings, publishing reports etc.); and emphasis on adhering to the Sustainable Development Goals (SDGs). The government monitors districts' performances. Safeguards are barely addressed by the DACF guidelines, but they are covered by the assemblies' bylaws, and address issues such as deforestation, encroaching, forests, water bodies, health, etc.

MMDAs' operations are political; every government has its priority projects. Politicians determine where the projects go, and they have the power to change the plan and location for the project. The projects that are developed with the community can be changed by the politicians as well. One of the recent changes that took place due to political influence is the new government reducing the DACF fund from 7% to 5% of the money generated by Ghana.

During the LAFF workshops, participants looked in more depth into flows from MMDAs to their health departments (LUFF4) and education departments (LUFF5). Both flows scored quite positively: LUFF5 scored +6 and LUFF4 scored +4. Both flows have a slightly negative impact on criteria regarding forest cover, biodiversity and emissions, however. This is due to the need to clear vegetation for health and education infrastructure, which affects biodiversity and increases emissions. The education department proposes to improve climate change adaptation capacities through education, while the health departments positively affect this criteria because it is perceived that people need to be healthy to take care of forests. Money utilized by the education department might reduce food and nutrition security, due to the new structures taking up crop fields. Both flows are seen to improve local livelihoods and economy by creating jobs and they enhance inclusiveness through educating youths to be ready for decision making. Maintaining good health will allow for better land management.

After follow–up interviews with a few district assemblies it turned out that in the end some of the districts, despite the proposed and approved yearly budget, get less than 50% of the estimated funds. Other financial flows come to the MMDAs, however, two of which were identified during the workshop (LUFF1 and LUFF10).

LUFF1. From the Government of Ghana to the MMDAs

This flow scored +5. LUFF1, a grant from the government, has specific guidelines that require MMDAs to adhere to strategic environment policies; for example, EPA and Environment and Social Impact Assessment (ESIA) regulations. These guidelines seem to address the landscape objectives of reducing deforestation and enhancing forest cover, conserving biodiversity and reducing emissions, but the participants of the workshop scored the effects on these criteria as 0. Capacity to adapt to climate change seems to be strengthened, since part of the funds is used for climate awareness and promoting climate resilient construction and agricultural practices. This flow is also used to support agricultural production and vulnerable community members, enhancing food/nutrition security as well as livelihoods. MMDAs use these funds to promote inclusiveness through stakeholder engagement, popular participation and general assembly activities; therefore, inclusiveness scored +2.

LUFF10. From the Responsive Factor Grant to MMDAs

This flow scored +3. LUFF10 contributes positively to reducing deforestation and enhancing forest cover by sensitizing farmer–based organizations. This flow also positively contributes to strengthening capacity to adapt to climate change (through programs that educate people on climate change effects and prevention); food and nutrition security (through workshops for farmers where they are trained to adopt good practices to improve yields); enhanced livelihoods and local economy (achieved through education on alternative livelihoods by the Agriculture Department); and inclusiveness in the landscape (local people are involved in designing of programs and projects through their representatives to the assembly). The flow was noticed to have a negative impact on biodiversity, however, since there is little attention to environmental issues in the guidelines that dictate how the grant should be spent.

Other funds

MMDAs also utilize internally generated funds (IGFs) and district development funds (DDFs). The magnitude of the IGFs strongly depends on the district's resources and productivity, whereas DDFs are granted to the districts that show their capacity to utilize the funds for the district's development. DDFs were discontinued in 2018, but the assemblies expressed their wish for it to be renewed, as it really encouraged districts to step up and prove that they are capable of handling rural development. Between 2014 and 2018 this fund amounted to about US\$250 million, of which 20% came from the Government of Ghana and the remaining 80% came from donors in developed countries. Funds that MMDA use are not combined; each fund is used for different projects or programs.

Other flows of funds to MMDAs come from programs such as the Swedish International Development Agency (SIDA) and Modernizing Agriculture Ghana (MAG), which receives money from Canada. These funds go through the districts' accounts to designated departments for activities; for example, pick-up trucks were procured with MAG money to strengthen extension services.

LUFF11 MMDAs to farmers (PERD)

Another flow that is channeled through MMDA as an intermediary is from the national program of planting for export and rural development (PERD; see Box 1). PERD funding is used by the MMDAs to subsidize inputs (e.g., seedlings and fertilizers) for tree crops (cashew, coffee, coconut, citrus, cotton, mango, oil palm, rubber and shea). Program participants are taught climate-smart agriculture techniques. Focal group participants gave this flow an overall score of +1. It scored -2 for reducing deforestation and -2 for conserving biodiversity, because implementation of the program would require expansion of existing farms or establishment of new farms, which would negatively affect biodiversity and forest cover. The capacity to adapt to climate change criteria was scored +1, since new modern forms of smart farming practices would be adopted to strengthen these capacities. PERD is seen to have a very positive impact (+2) on food and nutrition security and on enhanced livelihoods and local economy (+2) through increasing productivity, which then improves local income levels.

Box 1. Planting for export and rural development (PERD)

The Planting for Export and Rural Development (PERD) project is part of the government's one district-one factory program, which supports the establishment of processing factories in the districts where seedlings are supplied so that the factories can continue to operate after the project ends. The main idea behind PERD is to ensure a continuous flow of raw materials to factories. The PERD budget for five years (until 2024) is GH¢ 152 million. Farmer-based organizations are encouraged to participate. The farmers register for PERD in their district and are supplied with free seedlings based on their choice of tree crop within the range of commodities the district is promoting. In the case of JBSW landscape the main commodity is cocoa, so the farmers are given cocoa seedlings. During harvest and export, all proceeds go to the farmer with no benefits to the government, encouraging more farmers to go into the program.

Climate smart agriculture is not a requirement for PERD, but the Ministry for Food and Agriculture promotes these practices, and restricts the farmers from engaging in certain practices or activities.

Participants in the focal group discussions indicated that the two most significant financial flows to farmers come from LBCs (LUFF3) and local banks (LUFF12).

LUFF3. From licensed buying companies to farmers

The flow from licensed buying companies to farmers (LUFF3) received an overall score of +2, even though the objectives of deforestation reduction (-1) and biodiversity conservation (-1) are both negatively affected due to farmers expanding their fields. LUFF3 improves farmers' income and is therefore perceived to have a positive impact on food and nutrition security (+2) and on enhancing livelihoods and improving local economy (+2).

LUFF12. From local banks to farmers

The loans that farmers obtain from local banks (LUFF12) have an overall positive effect on landscape objectives (+1). Although the loans are used for farm expansion, which reduces forest cover (-2), and contributes to loss of

biodiversity, this flow scored **+2** for improving food and nutrition security and for enhancing livelihoods, because loans increase farm productivity and farmers' income.

The remaining two financial flows — **LUFF7** and **LUFF8** — are related to the timber sector.

LUFF7. Concessions and sales of confiscated lumber that FC pays to the Government of Ghana

This flow has very negative impact (**-2**) on reducing deforestation and on inclusiveness due to prioritizing revenue over forest enhancement and local people being excluded from the decisions related to their lands. The biodiversity that is affected by these negative activities is partly compensated for by GoG. The government uses some of the money to strengthen the agriculture sector; for example, by providing extension services to farmers. Emissions keep increasing, however, since logging activities outperform afforestation (**-1**). Capacity to adapt to climate change is affected positively because GoG also uses these funds for mitigation strategies such as REDD+ and advocacy/enrichment planting. Food and nutrition security benefit from this flow since it allows the GoG to restore degraded areas through a taungya system, where crops are planted together with tree species until the canopy is closed. This increased food crop production and consumption contributes to livelihood enhancement.

LUFF8. From wood marketing companies to illegal loggers

This flow scored **-11**. It very negatively (**-2**) affects the reduction of deforestation and forest cover because of rampant and uncontrolled tree cutting, which is also carried out in the forest reserves. The same activities inhibit biodiversity conservation (**-2**) and emission reduction (**-2**), which is also affected by chainsaw exhaust gases. Payments to illegal loggers do not strengthen capacity to adapt to climate change. Food and nutrition security is harmed since loggers' activities lead to the destruction of crops and farmland due to excessive use of trucks. These activities, however, seem to enhance livelihoods and improve local economy (**+1**), since they generate income that is used for buildings and other businesses.



5. Discussion

5.1. The financial flows and their perceived impacts

The LAFF methodology was designed as a tool for multi-stakeholder platforms (MSPs) to use to reflect on the role that finance plays in their landscape, particularly in terms of its contribution to the landscape objectives that the MSPs have defined. As such, the methodology is not exhaustive: not all sectors or financial flows are dealt with. Nor does the LAFF process provide precise and comparable data on the flow sizes, or measure actual impacts using quantitative data. It does give, however, an overview of the main actors and main flows that affect the objectives of the MSP. This information can be used to identify flows that need to reduce their impacts and those that should be studied in more detail.

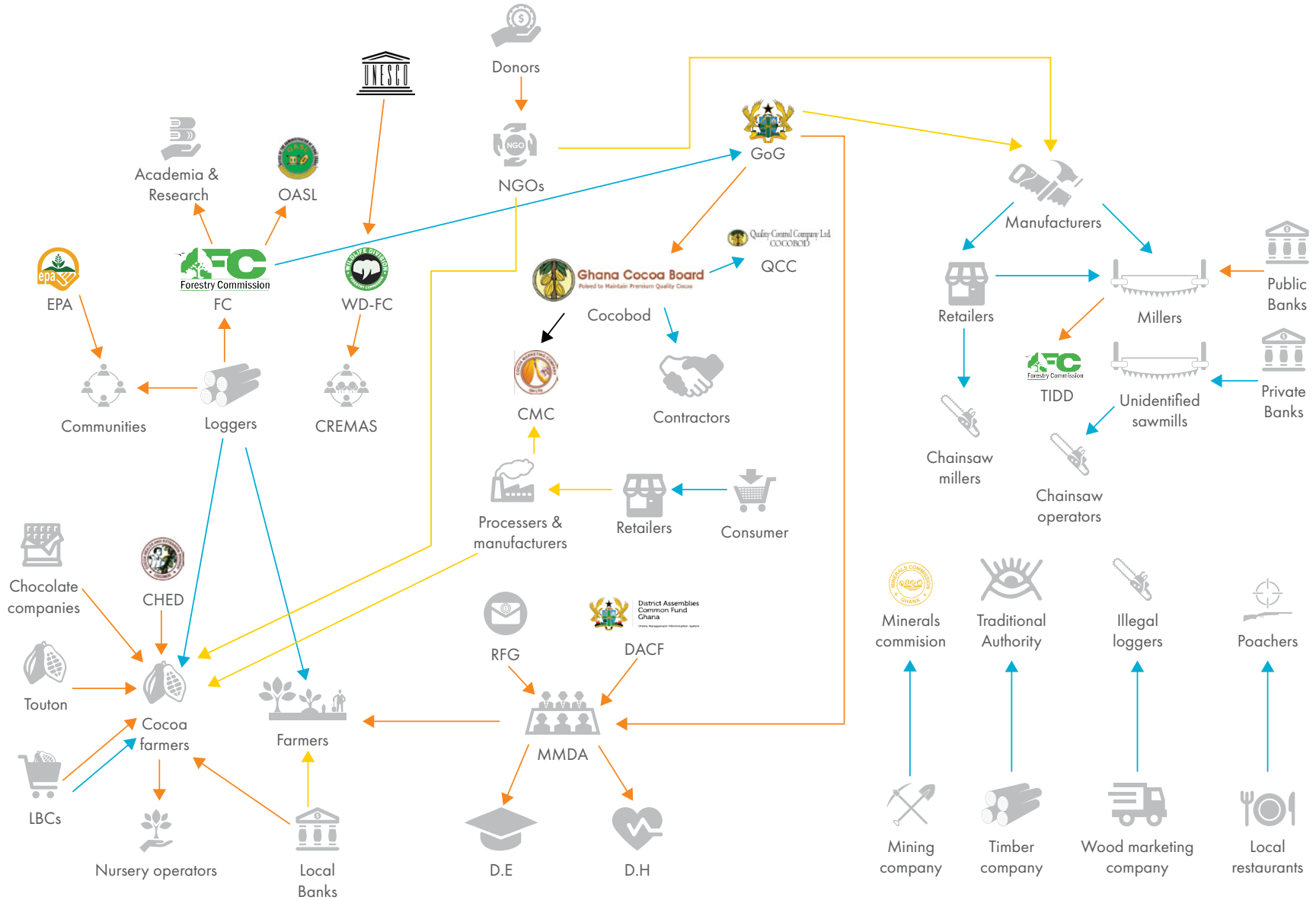
In the case of the JBSW landscape, the importance of cocoa and natural resources jumps out (Figure 10). This is partly due to the fact that most actors involved in the analysis are directly or indirectly involved in the cacao-forest initiative, for which the landscape comprises one of the national hotspots. Most participants had little contact with or knowledge of other sectors; for example, mining. However, the overall overview of the landscape's economy pointed to these sectors as being of prime importance.

5.1.1. Financial flows in the timber sector

Within this sector, investment in timber harvesting was perceived to have negative consequences; in the case of legal harvesting, these effects are at least partially compensated for by communities and the Forestry Commission through the use of funds from harvesting for restoration and afforestation. Processors and manufacturers in this sector could improve its performance if they adhered to standards for both environmental and social well-being.

Manufacturers are the tertiary users of wood such as carvers and carpenters who purchase wood from millers or retailers, make wooden products and then sell them on either local or international market. To sell on the international market a manufacturer has to perform thorough due diligence on the origins of products' materials and document their legality. With the international market showing an increase in demand for legal wooden goods, it was expected that the scores of the financial flows from manufacturers to millers and retailers would be more positive.

Figure 10. Financial flows identified during the focal discussion groups



Note: Blue indicates net negative impacts on landscape objectives; Orange indicates positive impacts; Black indicates no impacts; and Yellow indicates financial flows that were identified but not assessed.

Apparently, the use of legal materials is not sufficient to have an overall positive influence on achieving the MSP's landscape objectives. There are several possible explanations for this.

- The financial flows were assessed and scored by several participants who might have provided their subjective opinions about the impacts, without considering that the legal activities are perhaps not as harmful as the scoring suggests.
- Another possible explanation is that local perceptions of any type of logging are very negative and people are not aware of differences between the effects of legal and illegal logging.
- A third explanation could be that even if legal and official logging activities comply with VPA criteria they may still not comply with all the safeguards and criteria that lead to sustainable forest management.
- Foreign buyers recognize the "extra mile" that manufacturers go in getting legal wood and paying more for it. But retailers and millers do not receive the same incentives (they are paid the same price for the legal wood now as before).

Most manufacturers are keen for retailers to learn more about wood legality and its effects. Some even suggest that monetary incentives and the VPA licensing system should also apply to the retailers. Changes to the incentive and licensing systems should take place soon, since later it will be more difficult to convince manufacturers to give part of their profit/incentive to the retailers. It seems that now there is momentum for expanding these structures to also include incentives for retailers and for millers and loggers who work with legal timber.

Another interesting aspect of the relationship between manufacturers and wood suppliers is the bank loan guarantee. Retailers and small-scale millers often do not have enough capital to harvest and deliver their orders, so they need to take out a loan. Banks, however, are often hesitant to lend to these actors without guarantors. That is when manufacturers step in to guarantee for retailers or millers. This significant relationship/interaction is seen as innovative and it can play an important role in promoting legal timber harvesting. Manufacturers choose which retailers or millers to guarantee for. Therefore, manufacturers that aim to sell VPA timber or timber from sustainably managed sources could choose to support those retailers or millers who they know handle only legal and/or sustainably sourced timber.

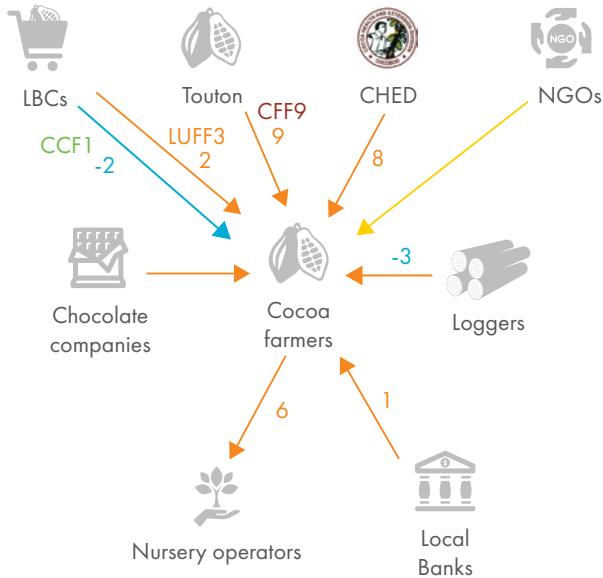
It is clear, however, that illegal harvesting causes even more negative effects on environment and people than failure to handle only legal timber. Consumers, retailers and private banks channel money to illegal actors, causing negative impacts. By linking their payments or transfers to responsibility or sustainability criteria, they could improve the impact of the forest sector (see Figure 10).

5.1.2. Financial flows in the cocoa sector

Surprisingly, financial flows from Cocobod were not perceived to have major importance for MSP objectives. Some of the more important flows from Cocobod were even assessed as having a negative impact. In general, flows in this sector are perceived to be more sustainable than the ones in the timber sector. This is mainly due to the major efforts by public and private sources to make cocoa production more sustainable. Sustainability is pursued in both sectors by the public sector (donor contributions to NGOs that assist farmers; MMDA; CHED; FC and EPA that support communities, CREMAs, OASL and research and academia). In the cocoa sector private entities, including Touton, local banks and some chocolate companies, also seek more sustainable production, thus supporting the Cocoa and Forest Initiative objective of less deforestation while also contributing to local income. However, more could be done, judging from the negative flows linked to farmers and to Cocobod (see the blue lines in Figure 11). The discussion of the flows also indicate that there may be a risk of focusing on one crop only; this could replace food crops and increase vulnerability to the effects of markets and climate change.

In the cocoa sector, decisions on whether environmental impacts occur are made in the end by farmers (Figure 11). They are influenced in their decisions by a series of actors that either impose regulations (such as Cocobod or the Government of Ghana) or provide finance or inputs, either with or without conditions (such as Touton, LBCs, loggers).

Figure 11. Map of financial flows affecting cocoa farmers' practices



Money flowing from LBCs to farmers has been assessed to have different impacts on landscapes objectives by different focal groups. For example, **CCF1** and **LUFF3** are the same transaction: LBCs purchasing cocoa from farmers. However, **CCF1** received a score of -2 from the cocoa focal group and **LUFF3** scored $+2$ by the land use focal group. This shows a need for greater communication between the planners and the farmers so that they can harmonize their criteria, not just for this assessment, but also for the process of land-use planning.

CFF9 occurs between the same actors as **CCF1** and **LUFF3**, except it involves a particular LBC and the payment is a premium that is added to regular payments for the cocoa beans. This shows the potential for LBCs to improve their contribution to MSP objectives if they apply sustainability criteria when purchasing. In fact, some LBCs are already piloting the implementation of a premium system that rewards those cocoa farmers who comply with the LBC's sustainability standards. Although the higher payment does not have a direct impact on landscape objectives it contributes significantly to the way farmers undertake their farming activities, which then affects landscape objectives. Some of the cocoa-growing practices that are encouraged by the premiums are maintenance of existing farm area, planting trees (other than cocoa) on farms and leaving existing trees in place. Cocoa farmers also receive training in sustainable farming, which makes it more likely that they will adapt their activities, practise them for a longer time and understand the benefits of doing so.

CHED's payments to farmers (**CCF2**) also influence the way cocoa farms are managed. The payments compensate farmers for costs if they clear-fell and rehabilitate plantations infected by disease. This helps reduce the spread of the disease. The NGO Netherlands Development Organisation (SNV) also supports farmers in rehabilitation, but instead of providing money they provide seedlings and technical assistance. Since this is not linked to political decisions and their program seems to have been more effective than the CHED initiative, it is seen as a good alternative by farmers.

Loans from banks are usually used to expand cocoa farms. According to this brief assessment there are no banks that offer subsidies or loans with specific terms for organic or sustainable activities. Advans Ghana bank and a Yankupa cocoa-purchasing company do, however, use a rather innovative loan system. Yankupa provides a list of purchasing clerks (who represent cocoa farmers) to the bank, which then meets the purchasing clerks in the field. Clerks sign the loan contracts and then the bank gives the loan to Yankupa, which buys inputs for the purchasing clerks. Through this system, banks lend money to the farmers so that they can afford inputs for their farming activities, but it is done via Yankupa, which is the guarantor for these loans. As a guarantor, Yankupa has to compensate the bank if any of the farmers represented by them fail to repay their loan.

A potential intervention is to link such loans to the Cocoa and Forest Initiative (CFI), which represents the commitment of the Government of Ghana (among other countries) and leading cocoa and chocolate production com-

panies to eradicate deforestation and forest degradation from the cocoa supply chain.⁸ The donors, however, do not fund the transition that the private companies have to undergo, so companies have to mobilize funds for these activities themselves.

Cocoa companies, especially signatories of the CFI agreement, are supposedly interested in their suppliers producing cocoa in a sustainable way. Perhaps there is an opportunity for CFI companies to make arrangements with the banks. Together, they could develop innovative lending structures such as aggregating farmers, or simply create systems that encourage farmers to borrow money for sustainable farming (e.g., incentives, more favourable terms of lending).

5.1.3. Financial flows in the other sectors

Surprisingly, few of the financial flows assessed directly address forest conservation. Although the FC, OASL and CREMAs do have a role to play, and several NGOs promote restoration and afforestation activities and aim to reduce deforestation, focal group discussion participants did not mention any private initiatives that work to conserve and protect existing local natural resources. This may be an indication that there is a need for investments that directly support conserving forests or using them sustainably for products and services other than timber.

Mining is becoming increasingly important in the landscape, but focal group discussion participants appear to have little knowledge about this sector, and few financial flows seem to link the cocoa and timber sectors with mining. Mining is of concern for the conservation and land–use planning sectors, but they seem to have little influence on its financial flows or its impacts.

An interesting group of actors are the Metropolitan, Municipal and District Assemblies (MMDAs). They cannot be assigned to any one sector, since they invest in several sectors: they combine development, infrastructure, education, forestry, etc. in their projects. As the implementers of the development projects that stretch across multiple sectors MMDAs struggle to match their areas's development needs with the money provided by the District Assemblies Common Fund (DACF). DACF dictates the priorities for and strategy of the fund through its guidelines. Although the guidelines make reference to the Sustainable Development Goals (SDGs), it remains unclear to what extent MMDAs have to comply with the SDGs. They received brief training on the SDGs, but they desire more in–depth training on the SDGs and their application so that these goals can be integrated into the MMDA's development projects. Figure 12 depicts the impacts of financial flows involving MMDAs. It shows that there is room for improvement; SDGs could be one of the tools to make these flows more positive.

Districts also expressed their interest in training on applying for external funds, especially now that DACF support has been reduced.

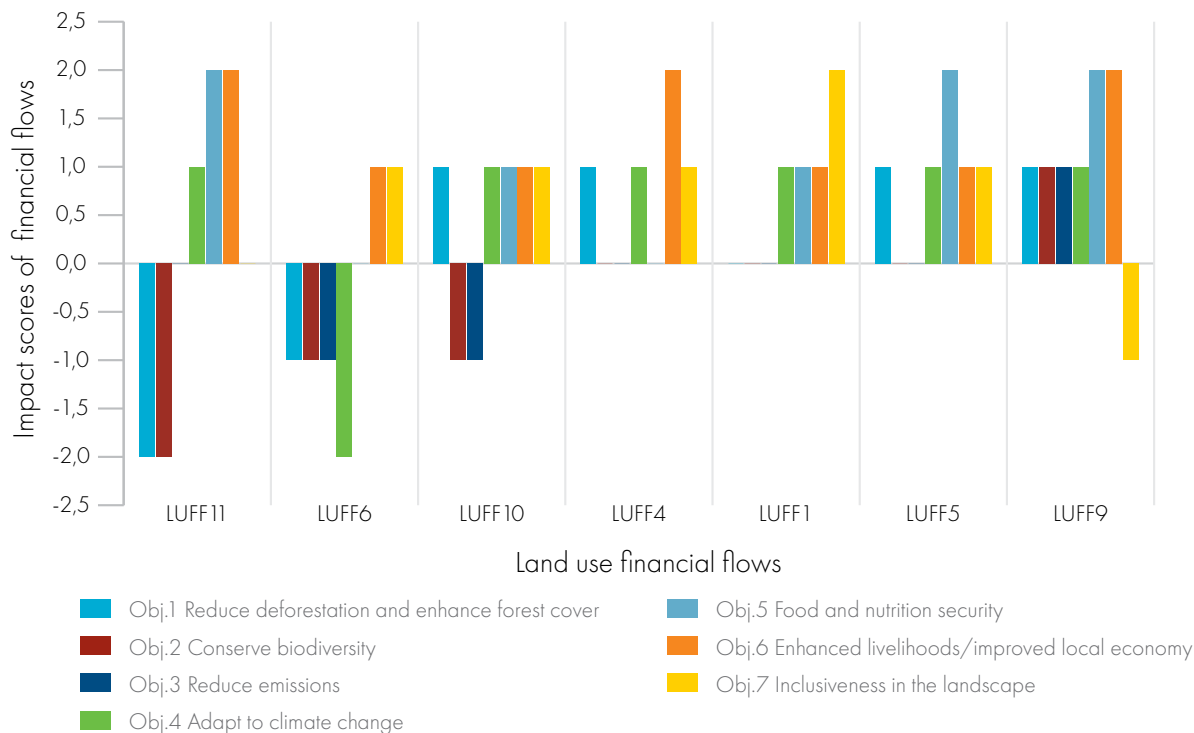
Another innovation with potential is the PERD program implemented by the Ministry of Food and Agriculture (see Box 1). The program is relatively new and there is a lot of money invested in it. In an effort to diversify farming systems, farmers are encouraged to plant tree crops and sell their produce. Farmers are free to choose the tree crop they want to grow for PERD, but the seedling options seem to be pre–selected based on the commodities that the district is promoting. In the districts in the JBSW landscape, the most commonly promoted commodity is cocoa. This means that most of the farmers joining PERD in this landscape receive cocoa seedlings, which does not contribute much to diversification.

While PERD seems promising, it raises some concerns; for example, its correlation with the one–district one–factory program. Does this mean that the farmers in a district must sell their products only to the factory in that district? Is the price predetermined by the government, similarly to how the cocoa industry works in Ghana?

If farmers do have freedom to choose the seedlings and where to sell their products, this could provide a potential niche for bankable projects, since farmers might start developing small enterprises, perhaps jointly with other farmers or organizations. With sufficient guidance, such enterprises could be developed into attractive investment opportunities.

⁸ See www.idhsustainabletrade.com/initiative/cocoa-and-forests. CFI is funded by the World Cocoa Foundation and IDH.

Figure 12. Land use financial flows (LUFFs) with MMDAs as a source or a recipient



5.2. The assessment methodology

The methodology is useful for communicating the importance of financial flows to the landscape, and for achieving a general overview of who finances what within the landscape. It provides some details on the financial flows, but clearly more attention should be paid during the assessment to obtaining data on the size of the flows. Also, from the focal group narratives of the flows it seems that in some cases impacts were measured at the source of the flow, and in others at the recipient.

For example, when assessing **TFF11** (compensation by loggers to farmers) for damage incurred due to logging activities on farms, the impacts that should be evaluated are those resulting from the compensation; in other words, the activities/actions carried out by the farmers as a result of the compensation. But for this financial flow, participants in the LUFF process assessed the impacts of the logging (which triggered the compensation). These impacts are the result of payments for the timber by manufacturers and millers who buy the timber from the loggers.

To better assess the impacts of such payments, the methodology requires more detailed descriptions of each of the flows. It may be necessary to do additional work on these monetary payments to determine their impacts on the objectives. How is this compensation used to reimburse the damage caused by logging? What is the basis for defining the amount of the royalties and compensation? While logging damage is not the result of the farmers receiving payments, it would also be interesting to investigate whether farmers can influence the impact of logging by refusing the payments or by for example requesting loggers to apply reduced impact standards.

Looking for answers to such questions might empower the recipients of these financial flows and provide ideas of how to make this compensation create positive effects on the landscape objectives. Although the original design of the methodology included such questions, resource limitations (time and money) — together with the fact that the methodology is intended for use by people with little experience in economic research — make it necessary to follow up with more in-depth research into those flows that are of interest to the multi-stakeholder platform.

Based on the experience in Ghana it would be useful to make the local teams more acquainted with the methodology before beginning the process. This should include financial details that may help interpret the flows, as well as techniques for facilitating and recording the discussions and interviews. Preparation for the field work should also include a definition of who the actors are (in Ghana, for example, different names were used for the same or similar actors, making interpretation of the results more difficult) and how to assess the impacts.



6. Conclusion

The Juabeso–Bia Sefwi–Wiawso landscape, a vast area, hosts multiple economic activities. Timber and cocoa industries are active in the landscape and both provide financial flows with positive and negative impacts on the MSP objectives. Therefore, they are an obvious choice for further in–depth assessment to learn how their impacts can be made more positive. In the conservation sector numerous initiatives and projects by NGOs and other actors were identified during the LAFF process that aim at reducing the outside pressure on the forest and restoring lost tree cover. However, few organizations actually focus on better conservation and sustainable use of the existing forests. The land–use and planning sector, the last key sector selected for the assessment, covers multiple economic sectors and promotes sustainable land use, but representatives of the sector seem to have a different perception of impacts of specific activities than some of the local actors do.

LAFF results are twofold. First, participants of the interactive process gain more knowledge and awareness of the financial make–up of the sectors that they are part of. This is indeed a desired outcome, since more finance–inclusive initiatives and programs are planned. Stakeholder awareness of the topic improves potential collaboration and program success.

Second, several cross–cutting trends came up during the assessment. To begin with, every financial flow assessed was seen to improve local livelihoods and economy, but environment–related objectives were often affected negatively, even by legal financial flows. Moreover, privately sourced financial flows have an overall negative impact on conservation–related landscape objectives. The opposite trend was noticed with financial flows from public sources.

When focusing on the results for each sector or specific actor, unexpected information and potential opportunities come up. Actors at the extraction/production end of the supply chain are responsive to a certain extent to the financial flows that reach them. These actors often exhibit changes in their practices, depending on the financial flow’s terms and availability. Communities or farmers who receive compensation for disturbances and damage done while extracting wood in their area potentially hold the power to dictate the terms of this compensation, since their consent is mandatory for the logging activities to take place.

Another important and influential actor group seems to be wood manufacturers, especially those that produce for export. These actors must comply with wood legality policies and provide documentation proving the legality of the goods they produce. In the cocoa sector a similar role is played by the licensed buying companies, who are working on improving their cocoa supplier/producer practices in order to comply with the international demand for sustainably produced cocoa products. In the cocoa sector some of these companies are already applying sustainability criteria when purchasing products, in addition to seek legality. This does not yet seem to be the case in the forest sector.

Banks show potential for developing customized loans for the cocoa farmers, which could also be designed to incentivize cocoa farmers to make the transition to sustainable production that meets CFI standards. Private banks could also do this when lending money in the forest sector.

From these few examples of LAFF results in the JBSW landscape potential action points for improving sustainability and climate smartness can be identified. This is exactly what LAFF aims to do, to inform and inspire strategies for future developments of the landscape.

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Annex 1: Scores and estimated flow sizes per sector

Conservation sector

Financial flow	Impact score	Estimated magnitude (GH¢)
CFF1 WD→CREMA	+13	3,645,864 for 8 CREMAs in Bia reserve OR <1,079,447.50 for 7 CREMAs/year
CFF3 UNESCO→WD	+12	7,856,462.50 for three years
CFF2 EPA →communities	+9	<200,000 (per community)
CFF9 Touton → cocoa farmers	+9	5–6 GH¢ per bag.
CFF4 Restaurants→poachers	-2	1,079,447.50 average for 10 poachers/year
CFF6 Timber company →Traditional Authorities	-4	>1,079,447.50
CFF5 Mining company→Minerals Commission	-5	>5,390,012.07/year
CFF8 Banks→Sawmills	-7	Not known
CFF7 Sawmills →Chainsaw operators	-7	>1,079,447.50/year

Timber sector

Financial flow	Impact score	Estimated magnitude (GH¢)
TFF10 Donors → CSOs/NGOs	+12	6 million+
TFF9 FC → Academia and Research	+8	6 million+
TFF3 Loggers → Communities	+7	<1.2 million
TFF7 Millers → TIDD	+6	1.2–6 million/year
TFF1 Loggers → FC	+5	1.2–6 million/year
TFF12 Public banks → millers	+3	>6 million
TFF2 FC → OASL	+3	<0.2 million
TFF4 Retailers → chainsaw millers	-2	1.2m–6 million/year
TFF5 Retailers → millers	-2	Not known
TFF6 Manufacturers → millers	-3	<1.2 million/year
TFF11 Loggers → farmers	-3	<1.2 million/year
TFF8 manufacturers → retailers	-5	1.8 million/year

Cocoa sector

Financial flow	Impact score	Estimated magnitude (GH¢)
CCFF9 Donors → NGOs	+9	1.2–6m
CCFF2 GOG → farmers via CHED	+8	<1.2 million OR CHED to cocoa farmers is about 24million/year
CCFF10 Farmers → nursery operators	+7	~GH¢ 6,000,000 per farmer
CCFF3 Chocolate companies → farmers	+5	<1.2 M
CCFF7 GoG → Cocobod	+1	< 6B/year
CCFF6 Cocobod → CMC	0	< 6M/year
CCFF8 Consumers → retailers	-1	1,000
CCFF5 Cocobod → QCC	-1	1 million
CCFF1 LBCs → farmers	-2	1.2–6 million

Land use and planning

Financial flow	Impact score	Estimated magnitude (GH¢)
LUFF9 DACF → MMDAs	+7	400,000.00/year/MMDA
LUFF5 MMDAs → D.H.	+5	100,000–300,000/year/MMDA
LUFF1 GOG → MMDAs	+5	1,200,000
LUFF4 MMDAs → D.E.	+3	50,000–200,000/year/MMDA
LUFF10 RFG → MMDAs	+3	300,000/year/MMDA
LUFF3 LBCs → farmers	+2	6,840,000/season
LUFF11 MMDAs → farmers (PERD)	+1	300,000/year
LUFF12 Local banks → farmers	+1	1,000
LUFF7 FC → GoG	–2	1,200,000/year
LUFF2 Cocobod → contractors	–3	250,000,000
LUFF8 Wood marketing company → illegal loggers	–11	1,500,000

Annex 2. Scores per flow per objective

Conservation sector	Landscape objective							total
	1	2	3	4	5	6	7	
CFF1 WD→CREMA	+2	+1	+2	+2	+2	+2	+2	+13
CFF3 UNESCO→WD	+2	+2	+2	+2	+1	+2	+1	+12
CFF2 EPA →communities	+1	+1	0	+2	+1	+2	+2	+9
CFF9 Touton →cocoa farmers	+2	+1	+1	+2	0	+2	+1	+9
CFF4 Restaurants→poachers	0	–1	0	–1	0	+1	–1	–2
CFF6 Timber company →TA	–1	–1	–2	0	0	0	0	–4
CFF5 Mining company→Minerals Commission	–1	–2	–1	–1	–2	+2	0	–5
CFF8 Banks→unidentified Sawmills	–2	–2	–2	–1	–1	+1	0	–7
CFF7 Sawmills → Chainsaw Operators	–2	–1	–2	–1	–1	+2	–2	–7

Timber sector	Landscape objectives							total
	1	2	3	4	5	6	7	
TFF10 Donors → CSOs/NGOs	+2	+2	+2	+2	+1	+1	+2	+12
TFF9 FC → academia and research	+1	+1	+1	+2	+1	+1	+1	+8
TFF3 Loggers → communities	+2	+1	0	0	0	+2	+2	+7
TFF7 Millers → TIDD	0	+1	+1	+1	+1	+1	+1	+6
TFF1 Loggers → FC	+2	+1	0	0	0	+1	+1	+5
TFF12 Public bank → millers	+1	+1	0	0	0	+1	0	+3
TFF2 FC → OASL	+1	+1	0	0	0	+1	0	+3
TFF4 Retailers → chainsaw millers	–2	–1	–1	0	–1	+2	+1	–2
TFF5 Retailers → millers	–2	–2	–1	0	–1	+1	+2	–3
TFF6 manufacturers → millers	–1	–1	–1	–1	–1	+2	0	–3
TFF11 Loggers → farmers	–1	–1	–1	0	–1	+1	0	–3
TFF8 manufacturers → retailers	–2	–2	–1	–1	–1	+2	0	–5

Cocoa sector	Landscape objective							total
	1	2	3	4	5	6	7	
CCFF9 Donors -> NGOs	+2	+1	+1	+2	+1	+1	+1	+9
CCFF2 CHED -> farmers	+1	+1	+1	+1	+2	+1	+1	+8
CCFF10 Farmers -> nursery operators	+1	+1	+1	+2	0	+1	+1	+7
CCFF3 Chocolate companies -> farmers	+1	+1	0	+1	+1	+1	0	+5
CCFF7 GoG -> Cocobod	0	0	0	0	0	+1	0	+1
CCFF6 Cocobod -> CMC	0	0	0	0	0	0	0	0
CCFF8 Consumers -> retailers	0	-1	-2	-1	+2	+1	0	-1
CCFF5 Cocobod -> QCC	0	-1	-1	0	0	+1	0	-1
CCFF1 LBCs -> farmers	-1	-1	-1	-1	+1	+1	0	-2

Land use and planning	Landscape objective							total
	1	2	3	4	5	6	7	
LUFF9 DACF -> MMDAs	+1	+1	+1	+1	+2	+2	-1	+7
LUFF5 MMDAs -> D.H.	+1	0	-1	+1	+2	+1	+1	+5
LUFF1 GOG -> MMDAs	0	0	0	+1	+1	+1	+2	+5
LUFF4 MMDAs -> D.E.	+1	0	-1	+1	-1	+2	+1	+3
LUFF10 RFG -> MMDAs	+1	-1	-1	+1	+1	+1	+1	+3
LUFF3 LBCs -> farmers	-1	-1	0	0	+2	+2	0	+2
LUFF11 MMDAs -> farmers (PERD)	-2	-2	0	+1	+2	+2	0	+1
LUFF12 Local banks -> farmers	-2	-1	0	0	+2	+2	0	+1
LUFF7 FC -> GoG	-2	0	-1	+1	+1	+1	-2	-2
LUFF2 Cocobod -> contractors	0	-1	-1	-1	-2	+2	0	-3
LUFF8 Wood marketing company -> illegal loggers	-2	-2	-2	-2	-2	+1	-2	-11

Annex 3. Scores per flow per objective, with justifications.

a. Conservation sector focal groups discussion scores and justifications

Flow number Type of mechanism Flow magnitude	1. Reduce deforestation and enhance forest cover	2. Conserve biodiversity	3. Reduce emissions	4. Strengthen capacity to adapt to climate change	5. Food and nutrition security	6. Enhanced livelihoods/ improved local economy	7. Inclusiveness in the landscape	Total score
CFF1 WD→CREMA grant <GH¢+1,079,447.50 per year to 7 CREMAS	+2 reducing forest degradation increasing forest cover	+1 conserving biodiversity but they can do more	+2 reducing deforestation and planting trees	+2 technical training and transfer of climate smart technologies and knowledge	+2 diversified farming, favourable micro-climate for all-year round farming	+2 increased and diversified income	+2 power devolved to local people, participatory decision making	+13
CFF3 UNESCO→WD-FC Grant	+2 it is not a production area, purely conservative	+2 total conservation of biodiversity	+2 existence of more trees which reduces emission. Past emission activities are prohibited due its status now as a biosphere reserve	+2 Yes. WD staff received training on climate change adaptation including. WD perhaps carries out training with the communities as well	+1 WD trains people on improving crop productivity/ intensification so that people get more yield per ha.	+2 WD trains people on alternative livelihoods, increasing crop yields that leads to enhanced living conditions and local economy	+1 before teaching alternative livelihoods WD consults with the local people what they would like to work on	+12
CFF2 EPA → Communities Grant FIP (Plant and manage trees on farm) <GH¢ 200,000 Communities get this figure per period (3 years)	+1 will enable the farmers to plant and manage trees on their farm but not in the forest	+1 will enable farmers to conserve BD on their farmlands but not in the forest. Also with resemblance of forest it will serve as a resemblance for fauna	0 the extent of to which farmers plant trees is not much – few farmers planting few trees on a small land holding	+2 planting trees modifies the micro climate for cocoa farms; improve knowledge and technology on forest preservation. grant might also used for alternative livelihoods (e.g., Palm Oil extraction, beekeeping) to keep the people from exploiting the biosphere reserve	+1 trees serve as wind breaks and some are food trees	+2 the program gives money to farmers to plant trees. Farmers can sell grown trees as a source of income	+2 the community meets to decide, not necessarily only men or women or youth	+9

CFF9 Tuto →Cocoa farmers premium (similar to certification)	+2 one of the criteria: maintain existing farm area with intensified yield. Also, farmers should plant trees in their farmland, also leave the existing trees	+1 maintain existing farm, don't encroach on forest reserves. Not necessarily enriching BD, and the farm is there still, which contributes to some loss of BD	+1 reducing emissions through tree planting as one of the criteria for the premium	+2 train farmers in capacity to adapt to climate change, by teaching farmers the reasons for complying to the criteria	0 no direct impact	+2 More yield, the premium for complying with the criteria	+1 discuss with the farmers. They discuss the criteria and standards. Voluntary participation	+9
CFF4 Restaurants → Poachers Direct Purchase GH¢1,079,447.50 Average for 10 poachers/year	0	-1 Weakly monitored hunting	0	-1 disincentive to others in the landscape	0 in the interim, its + but not sustainable	+1 increased and diversified income but not sustainable	-1 disincentive to others in the landscape	-2
CFF6 Timber company →TA Royalties >GH¢1,079,447.50 – Biannual	-1 Royalties for logging	-1 Reduced tree and plant species and numbers	-2 Reduced capacity to sequester carbon	0 No effect on climate adaptation and livelihood diversification	0 No influence	0 No influence	0 Does not involve local communities but only beneficiary TAs	-4
CFF5 Mining company –>Minerals Commission Royalties >GH¢5,390,012.07 per year	-1 reducing forest cover	-2 Destruction of trees and animal habitat	-1 Removal of trees and topsoil	-1 Mining activities, e.g., tree and topsoil removal reduces landscape capacity to adapt	-2 loss of wild fruits, animals and farmlands	+2 job creation, improved household incomes	0 Only community leaders are involved	-5
CFF8 Banks →small–medium sawmills loans	-2 the loan is used for logging. Some of the logging activities are illegal	-2 no attempt to minimize the destruction	-2 unsustainable cutting of trees increases emissions	-1 reduces forest covers, water catchment area, intrudes with the hydrological system	-1 most of them destroy farmers' crops by falling and transporting the trees through farms. And rarely compensate it	+1 employ people from the area. Sell lumber at the local market (offer employment there as well)	0 no relation	-7
CFF7 Sawmills → Chainsaw operators Direct Purchase >GH¢1,079,447.50/year	-2 Reduces carbon sequestration and forest cover	-1 Reduced diversity and destroys habitats	-2 Loss of carbon sinks and no restoration efforts	-1 Makes landscape more vulnerable to climate change effects	-1 Excessive tree losses influence microclimates that support local farms	+2 improved income, jobs	-2 Local people not involved	-7

b. Timber sector focal groups discussion scores and justifications

Flow number Type of mechanism Flow magnitude	1. Reduce deforestation and enhance forest cover	2. Conserve biodiversity	3. Reduce emissions	4. Strengthen capacity to adapt to climate change	5. Food and nutrition security	6. Enhanced livelihoods/ improved local economy	7. Inclusiveness in the landscape	Total score
TFF10 Donors → CSOs/ NGOs Grants GH¢6 million+	+2 Sensitization and education of stakeholders in the forest sector. Monitoring of forestry activities.	+2 Sensitization and education of stakeholders in the forest sector	+2 Undertake education and tree planting projects.	+2 Undertake sensitization and education of stakeholders on climate change mitigation, food and nutrition.	+1 Undertake sensitization and education of stakeholders on climate change mitigation, food and nutrition.	+1 Communities and other stakeholders	+2 Enhances participation in forest governance	+12
TFF9 FC → academia and research Grants GH¢6 million+	+1 Research work is passed on to policy makers, natural resource managers and industry.	+1 Research work is passed on to policy makers, natural resource managers and industry.	+1 Research work is passed on to policy makers, natural resource managers and industry.	+2 Stakeholders are informed about climate change adaptation and mitigation.	+1 Research work is passed on to policy makers, natural resource managers and industry.	+1 Improves possibility for income.	+1 Research work improves participation in forest governance.	+8
TFF3 Loggers → communities Grant <GH¢1.2 million	+2 The money received by communities in the form of SRA motivates them to conserve the forest	+1 Reducing deforestation means conserving biodiversity	0 No direct effect	0 No direct effect on climate change	0 No direct effect on food production	+2 SRAs are directed towards building infrastructures for communities	+2 Community forum to discuss SRA	+7
TFF7 Millers → TIDD levies and fees GH¢1.2–6 million/year	0 we log and replant	+1 % of levies and fees channel to afforestation	+1 the planting increases forest cover	+1 capacity built for staff and other SHs	+1 practice of agroforestry in afforestation programs and livelihood diversification	+1 employment (formal and informal)	+1 improve participation in decision making	+6
TFF1 Loggers → FC Direct purchase GH¢1.2–6 million/year	+2 The money is directed towards sustainable management of the f	+1 The fees also enable the FC to maintain the forest cover and therefore maintaining biodiversity.	0 The monies do not go to reducing emissions	0 It has no negative or positive effect on climate change	0 It has no negative or positive effect on food production	+1 Part of the money is directed towards the stool, District Assembly and Traditional Council,	+1 Rates are determined by the FC in consultation with the local community	+5

	orest e.g., youth in afforestation are partly financed by the fees.					e.g., the DA uses part of the money to build schools, hospitals and construct markets		
TFF12 Public banks → millers short- and long-term loans >GH¢6 million	+1 Sufficient loans makes millers more efficient through acquisition of new machinery and training of personnel	+1 Efficient work force leads to good operational practices	0 No direct effect on emission	0 No direct effect on climate change	0 No direct effect on food production	+1 Improves local economy through employment of more workers	0 No direct effect	+3
TFF2 FC → OASL Direct purchase <GH¢1.2 million	+1 Incentive for recipients to help conserve the forest	+1 Protecting the forest leads to biodiversity conservation	0 No direct effect on emission	0 No direct activity on climate change	0 No direct effect on food production	+1 Monies that go to the District Assembly are used for infrastructure	0 No direct effect	+3
TFF4 Retailers → chainsaw millers Advance payment GH¢1.2–6 million/year	-2 Chainsaw operations increase deforestation and reduces forest cover within and outside forest reserves (including secondary forest).	-1 Deforestation leads to the disappearance of both plant and animal species	-1 Tree cutting leads to carbon emission	0 N/A	-1 Activities lead to crop damage	+2 Source of income to local communities	+1 Negotiation exists between chainsaw operators, farmers and landowners at the community level	-2
TFF5 Retailers → millers Advance payment GH¢6 million+	-2 It increases deforestation and reduce forest cover	-2 Animal and plant species are lost to deforestation	-1 It increases carbon emission	0 N/A	-1 Destroys food crops and farmlands	+1 Source of income to the workers	+2 It enhances inclusiveness	-3
TFF6 Manufacturers → millers purchase <GH¢1.2 million/year	-1 reduction in forest cover	-1 destruction of flora fauna	-1 activity increases emission	-1 there are no conditions attached to the flow	-1 activity might destroy farms	+2 create jobs and generate revenue	0 has no effect	-3
TFF11 Loggers → farmers compensation payment <GH¢1.2 million/year	-1 reduction in forest cover	-1 destruction of flora fauna	-1 activity increases emission	0	-1	+1 short-term income	0 has no effect	-3
TFF8 Manufacturers → retailers purchase GH¢1.2–6 million/year	-2 reduction in forest cover	-2 destruction of flora fauna	-1 activity increases emission	-1 there are no conditions attached to the flow	-1 activity might destroy farms	+2 creates jobs and generates revenue	0 has no effect	-5

c. Cocoa sector focal groups discussion scores and justifications

Flow number Type of mechanism Flow magnitude	1. Reduce deforestation and enhance forest cover	2. Conserve biodiversity	3. Reduce emissions	4. Strengthen capacity to adapt to climate change	5. Food and nutrition security	6. Enhanced livelihoods/ improved local economy	7. Inclusiveness in the landscape	Total score
CCFF9 Donors → NGOs Impact Equity Investment GH¢ 1.2–6 million	+2 Provides funds to help in Afforestation within and outside forest reserves	+1 Provides funds to help in educating farmers on how to maintain and restoring habitat	+1 They support different sectors like the Agric, FSD and Cocobod in running programs that will reduce emission of gases.	+2 Provides training on Climate change and its effects and also support adaptation.	+1 Provides capacity building on GAPS for extension officers	+1 Provide training and support on additional livelihoods for farmers to reduce reliance on only one crop	+1 local people are involved in making decisions during an implementation stage through representatives at meetings.	+9
CCFF2 CHED → farmers GRANT <GH¢1.2 million	+1 Farmers are incentivized to rehabilitate and intensify farming without expanding into forest reserves	+1 Farmers have eschewed burning and practise zero tillage	+1 Farmers are incentivized to intercrop cocoa with forest trees	+1 Farmers are able to enhance resilience through the planting of trees on their farms	+2 Farmers are supported to intercrop crops e.g., cassava, maize and plantain, etc. with cocoa	+1 Farmers produce enough food crops to sell long side cocoa	+1 Many farmers are benefit from CHED support	+8
CCFF10 Farmers → nursery operators direct purchase (unknown amount)	+1 they plant trees to restore the forest	+1 their activities thus nursing cocoa and economic tree seedlings and supplying to farmers help conserving of biodiversity.	+1 supplying economic tree seedlings to farmers help reduce emission	+2 frequent supply of seedlings to farmers encourage their capacity to adapt to climate change	0 because their activities bears no influence on food security.	+1 because nursing trees has become an additional source of livelihoods to them which improve their local economy	+1 both parties share opinion in the nursery establishment	+7
CCFF3 Chocolate companies → farmers Grant < GH¢1.2 million	+1 Farmers are incentivized to conform to certification standards that encourage reducing deforestation activities	+1 farmers receive premium as an incentive to adopt to certification standards that support biodiversity conservation through agro-forestry practices	0 Although farmers receive premium for conforming to certification standards the premium money does not incentivize farmers to shy away from activities that do not reduce emissions	+1 Farmers receive regular training to enhance farming	+1 farmers are trained and supported to diversify their food crops	+1 Farmers are trained and supported to diversify their food income through additional livelihood programs	0 All certified farmers are receive pre-premium payment paid to them by the chocolate companies through the various LPS	+5

CCFF7 GOG → Cocobod Public budget allocation approx. GH¢6 billion (>100% of total syndicated loan to Cocobod)	0 No relation	0 No relation	0 No relation	0 No relation	0 No relation	+1 No relation	0 No relation	+1
CCFF6 Cocobod → CMC Public budget allocation approx. GH¢6 million (<70% of total syndicated loan to Cocobod)	0 No relation	0 No relation	0 No relation	0 No relation	0 No relation	0 No relation because the CMC are harbour based and has no direct impact on the landscape (Juabeso – Bia and Wiawso)	0 No relation	0
CCFF8 Consumers → retailers direct purchase about GH¢1, 000	0 this is not affected since the farmer don't have funds to expand his/her farm	-1 farming needs the clearing of land which also displaces the natural habitats of plants and animals	-2 the clearing and burning of lands for farm activities emit GHS into the atmosphere	-1 Farmer may want to increase yield so wont adhere to any capacity building that will positively affect climate change	+2 availability of funds to farmer may increase his purchase of farm inputs to increase productivity.	+1 improved local economy since there is a rapid financial flow between farmer and retailer	0 decision making is between consumers and retailers only	-1
CCFF5 Cocobod → QCC Public budget allocation approx. GH¢1m (0.5% of total syndicated loan to Cocobod)	0 No relation	-1 Fumigation in the warehouse kills pests.	-1 Fumigation results to the expelling of chemicals to the environment	0 No relation	0 No relation	+1 It provides income, through direct employment. To check cocoa quality and to assess the moisture content before the expert examine them.	0 No relation	-1
CCFF1 LBCs → farmers Direct purchase 1.2–6 million	-1 The quest for more yields. Farmers are reluctant to clear diseased and aged farms due to fear of losing farms to local chiefs	-1 Excessive use of agro-chemical Wrong application of agro-chemicals Use of unapproved chemicals	-1 poor reforestation/afforestation on farms and off reserves	-1 Long period of droughts. Pest and disease manifestations	+1 Intercropping of food crops with cocoa	+1 Monies from cocoa is the main source of income for many small-holder farmers and other long chain of beneficiaries	0 Inclusion was not prioritized in the past but is now being encouraged by cocoa stakeholders	-2

d. Land use sector focal groups discussion scores and justifications

Flow number Type of mechanism Flow magnitude	1. Reduce deforestation and enhance forest cover	2. Conserve biodiversity	3. Reduce emissions	4. Strengthen capacity to adapt to climate change	5. Food and nutrition security	6. Enhanced livelihoods/ improved local economy	7. Inclusiveness in the landscape	Total score
LUFF9 DACF → MMDA grant GH¢400,000	+1 the Agric dept through education enlighten farmers on the effects of deforestation	+1 the Agric Dept through BAC educate the local people whose livelihood affects biodiversity negatively	+1 educating the local people to practice afforestation	+1 The Agric Dept. sensitize farmers on good farming practices.	+2 support to farmers through the supply of food crop seedlings	+2 organization alternative livelihood programs by the Agric Department to cater for farmers during off season period	-1 local people are involved in decision making through their representatives (Assembly Members etc.)	+7
LUFF5 MMDA → D.H. Public Budget allocation GH¢100,000–300,000	+1 Some vegetation will be cleared, Sourcing illegal lumber for roofing and furniture	0 Vegetation is destroyed, however flowers and trees will be planted to serve as windbreaks	-1 Since vegetation is destroyed emission will increase	+1 You need to be healthy to take care of the forest	+2 Education on nutrition will be enhance positively	+1 Jobs will be created and livelihood will be enhanced	+1 people will be healthy to manage the landscape	+6
LUFF4 MMDA → D.E. Public Budget allocation 50,000–200,000	+1 Some vegetation will be cleared, Sourcing lumber for roofing and furniture	0 Vegetation is destroyed, however flowers and trees will be planted to serve as windbreaks	-1 Since vegetation is destroyed emission will increase	+1 There will be education on climate change and people will ne enlightened on climate change implications in the community	-1 Farm lands will be used for the educational infrastructures hence will affect food and nutrition security, Productivity is reduced	+2 Knowledge is built and development is assured in the community, Contractors will get paid Employment will be generated	+1 Once the school is build decision making will be enhanced because most of the youth in the community will go through formal education	+4
LUFF1 GOG → MMDA GRANT GH¢1,200,000	0 The guidelines of the utilization of the fund instruct the assembly to adhere to strategic environment policies, e.g., EPA and ESIA regulations	0 The guidelines of the utilization of the fund instruct the assembly to adhere to strategic environment policies, e.g., EPA and ESIA regulations	0 The guidelines of the utilization of the fund instruct the assembly to adhere to strategic environment policies, e.g., EPA and ESIA regulations	+1 Part of the funds is used for climate awareness and promote the used of climate resilient, construction and agricultural strategies	+1 part of the funds is used to support agricultural production.	+1 the fund is used to support vulnerable, widows an others	+2 One of the core functions of the Assembly is to promote inclusiveness, e.g., stakeholders engagement, popular participation and general assembly activities	+5

LUFF10 RFC → MMDA grant GH¢300,000	+1 creating awareness for FBOs	-1 less attention is paid to environmental issues based on the conditions attached to the grant	-1 less attention on the Environment rather putting much priority on physical projects	+1 education of people on climate change effects and prevention through the programs	+1 through the workshops farmers are trained to adopt good practices to improve yield	+1 education through Agric Dept on alternative livelihood	+1 involvement of local people through their representatives to the Assembly to on designing of programs/projects	+3
LUFF3 LBCs → farmers Direct Purchase GH¢6,840,000/season Purchasing of partial or full stake	-1 Farmers will expand their farmlands, which will increase deforestation	-1 There would be biodiversity loss as a result of increased farm lands	0 There is no relationship between the flow and emission reduction	0 There is no relationship between the flow and strengthen capacity to adapt to climate change	+2 The flow would increase food and nutrition security	+2 The flow would maintain and creates conditions for improved people's income	0 There is no relationship between the flow and the inclusiveness in the landscape	+2
FLUF11 MMDAs → farmers (PERD) Not for Profit GH¢300,000/year	-2 More farmlands would be needed for this flow	-2 This would increase loss in biodiversity within the landscape	0 There is no relationship between the flow and emission reduction	+1 New modern form of smart farming practices would be adopted to strengthen capacity to adapt to climate change	+2 This would increase productive and food security	+2 This would improve income levels of farmers and improve the local economy	0 There is no relationship between the flow and the inclusiveness in the landscape	+1
LUFF12 Local banks → farmers Short-term loans GH¢1,000/farmer/season	-2 Farmers would increase their farmlands through loan acquisition	-1 This would increase farmland and leads biodiversity loss	0 There is no relationship between the flow and emission reduction	0 There is no relationship between the flow and strengthen capacity to adapt to climate change	+2 This would increase productive and food security	+2 This would improve income levels of farmers and improve the local economy	0 There is no relationship between the flow and the inclusiveness in the landscape	+1
LUFF7 FC → GoG concession/sale of confiscated lumber about GH¢30,000/ quarter	-2 prioritization of revenue over forest enhancement	0 part of funds to GoG is used to strengthen the Agric Sector for instance provision of Extension services to farmers	-1 rate of deforestation is higher than afforestation	+1 mitigation strategies such as REDD+ through advocacy/enrichment planting	+1 degraded areas are given out as TAUNGYA. (crops are planted together with tree species till canopy is covered)	+1 1. increase food productivity for consumption and commercial purposes.	-2 local people are not involved in decisions regarding their lands	-2

<p>LUFF2 Cocobod -> contractors Various GH¢250,000,000</p>	<p>0 Conditions attached to the grant disallows destruction of the ecosystem</p>	<p>-1 The purpose of this funds are used for infrastructure development and has no direct impact on conservation of biodiversity</p>	<p>-1 construction activities normally lead to increase pollution</p>	<p>-1 the fund is purposely for construction activities</p>	<p>-2 the fund is purposely for construction activities</p>	<p>+2 it creates jobs for both contractors and local workers. Also facilitate the movement of Agric product from hinterland</p>	<p>0 some consultations are done</p>	<p>-3</p>
<p>LUFF8 Wood marketing company -> illegal loggers Equity GH¢1,500,000</p>	<p>-2 Rampant and uncontrolled cutting down of trees leads to deforestation of the forest reserves</p>	<p>-2 Rampant and uncontrolled cutting down of trees leads to deforestation of the forest reserves</p>	<p>-2 cutting down of trees and fumes from the chainsaw machine lead to release of carbon dioxide</p>	<p>-2 their activities are illegal</p>	<p>-2 their activities lead to the destruction of crop and farm land due to excessive due of aboboya and kia truck. Most of the youth are engaged in the illegal logging instead of farming.</p>	<p>+1 A lot of income is generated from the activities which they used for building and other businesses. Hence their livelihood is improved</p>	<p>-2 their activities are illegal</p>	<p>-11</p>



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