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Lessons learned from the Cocoa Landscape Investment Facility (CLIF) development

Valorising natural capital

S Y S T E M I Q

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MAKE IT POSSIBLE

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1 Introduction

Ghana has lost more than 60% of its forest cover over the past few decades, with a key driver being the expansion of cocoa farming and other agricultural practices. Sustainable landscape management and coordinated efforts to protect Ghana's forests are needed to address this challenge.

Deforestation remains a significant problem in cocoa-forest landscapes in Ghana, typically occurring in areas experiencing low yields, low incomes, expansive agriculture and unfavourable market conditions. The absence of a coordinated system of engaging local stakeholders at the landscape level is a significant challenge. Smallholder farmers – accounting for over 70% of those employed in the agricultural sector and 80% of Ghana's total food production – are not currently incentivised to replant their farms and contribute to integrated landscape strategies that promote

sustainable land use practices. Implementing a landscape approach that involves these kinds of practices will protect nature, and can considerably improve the livelihoods of local communities.

This report funded by the Partnerships for Forests Program (P4F) provides insights from the development of the Cocoa Landscape Investment Facility (CLIF) and shares lessons learned on the development of natural capital in cocoa hotspots in Ghana. It presents the process followed for the assessment of the landscape carbon impact potential in Ghanaian landscapes Asutifi Asunafo and Bia Juabeso, and the pathways for valorisation.

It is intended for project developers, development practitioners, investors and other stakeholders involved in sustainable landscape management and smallholder farming ecosystems.



2 The Cocoa Landscape Investment Facility (CLIF)

The Cocoa Landscape Investment Facility (CLIF) is a sustainable finance mechanism that provides a structure at the landscape level to coordinate investment in cocoa-producing landscapes and secure additional funding. It aims to unlock the impact investment needed to deliver zero-deforestation, low-carbon, and sustainable landscape management in three priority landscapes in Western North Ghana: Asutifi Asunafo, Bia Juabeso and Sefwi Wiawso.

With support from Partnerships for Forests (P4F), South Pole designed CLIF, led its development, and is currently operationalising the initiative towards the implementation of a pilot phase.

The main objective of CLIF is to provide the financial architecture in cocoa landscapes in Ghana to collectively:

1. Strengthen landscape governance – supporting existing landscape institutions and mobilising public and private resources to improve cocoa landscape governance
2. Produce sustainable cocoa – empowering farmers to produce responsibly, and ensuring

that the companies operating in the landscape meet their sustainability targets

3. Enhance local livelihoods – providing smallholder farmers with access to finance, with the aim of developing additional livelihoods and increasing revenues from cocoa production
4. Protect and restore forested ecosystems – investing in conservation, restoration and reforestation projects, and reducing the drivers of deforestation

CLIF comprises three main components: i) a Technical Assistance Facility, providing pre-competitive support and capacity-building services for landscape governance, impact monitoring, and forest protection and monitoring; ii) a revolving Loan Facility, providing tailored loans to smallholder farmers for sustainable cocoa production and additional livelihoods, and; iii) a Carbon Facility, supporting conservation, reforestation and agroforestry projects in targeted landscapes.

CLIF expected impacts after full implementation (5 years)

133,000 beneficiaries

receiving training, access to finance and experiencing an increase in productivity from cocoa production or additional revenue from additional livelihoods activities

244,000 hectares

under sustainable community-based natural resource management – from improved landscape governance

8,300 hectares

under restoration and conservation

100,000 tonnes of carbon emissions

avoided, reduced or removed through low-carbon agriculture, forestry and ecosystem protection practices

USD 22 million

additional landscape finance mobilised for sustainable land management activities

3 Valorising natural capital

The development of the Carbon Facility involved assessing the natural capital impact potential in Asutifi-Asunafo and Bia-Juabeso landscapes, and how this impact can be valorised, with shared benefits for the landscape, communities, cocoa farmers and cocoa companies.

Off-farm assessment

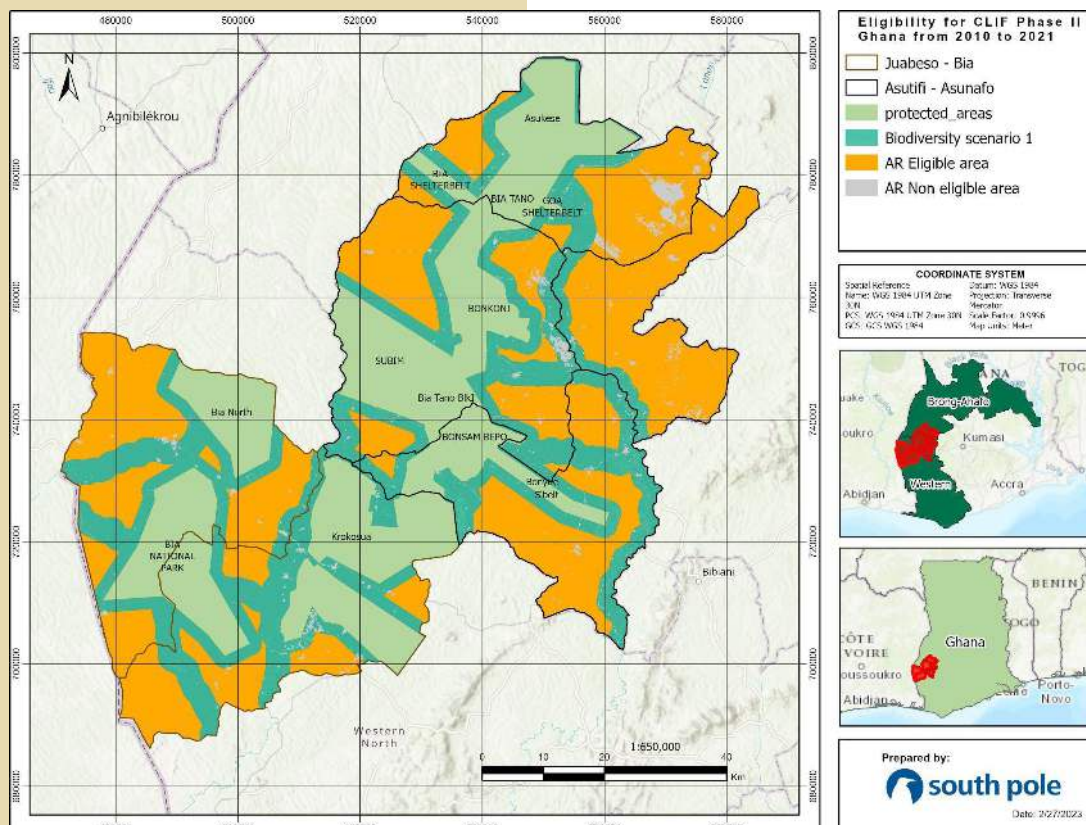
The off-farm landscape carbon impact assessment for CLIF focused on what potential carbon emission reductions and removals could be achieved in the landscapes through conservation, REDD (reducing emissions from deforestation and forest degradation) and ARR (afforestation, reforestation and revegetation) projects. Remote sensing analysis was conducted using publicly-available data, land cover change data provided by the Forestry

Commission, and satellite data to determine the land eligible for each type of project.

Data collection: the parameters of the study – the limits of the area for analysis – were defined, and the necessary data required was identified, including changes in land use over time.

Data processing: the data was processed, with a particular focus on the baseline and determination of the deforestation rate in the landscapes. The losses in forest cover and reforested areas were evaluated. After validating the accuracy of at least one year of the data used, the eligibility for REDD+ and ARR projects was determined.

Interpretation: the results of the areas analysed were compared and consolidated into a report including a description of the perimeter of the study. The figure below maps the eligible areas for the ARR projects.



Eligibility to develop afforestation and reforestation projects in Asutifi-Asunafo and Bia-Juabeso landscapes, in combination with Biodiversity scheme (buffer 2 km) (South Pole, 2023)

On-farm assessment

The on-farm landscape carbon impact assessment focused on what potential carbon emission reductions and removals could be achieved in the landscapes through agroforestry practices and climate-smart cocoa practices. A team, including Ghana Forestry Commission staff, collected raw data on the ground.

Data collection: to assess the GHG reduction and removals on the agroforestry plots, all key stakeholders were defined, as well as defining the perimeters of the study (e.g. area under assessment, number and type of farms involved) were defined. Key parameters and activity data to be collected included land management (such as type and amount of fertilisers and pesticides used, diesel consumption by agricultural machinery, irrigation); land-use change; removals (such as number and species of shade trees planted) and any potential impact on Soil Organic Carbon (SOC) due to planting of leguminous trees).

Data elaboration and cleaning: All data received and collected from farmers was cleaned by aligning the units of measures, identifying data gaps and missing information and tracking potential outliers by validating the robustness of the data by comparing values among different respondents and benchmarking them with literature data.

Greenhouse gas (GHG) quantification: using relevant emission factors (EF), the activity data was converted into GHG emissions. The GHG inventory displays calculations, activity data, emission factors, sources and results.

Interpretation and reporting: the results of the farms were analysed and compared, with possible levers for improvements (e.g. optimisation of fertilisers application, etc.) identified. The report prepared includes: GHG emissions; diagrams and tables illustrating emissions hotspots and providing a comparison between GHG emissions sources; a list of EF sources used in the GHG inventory; an explanation concerning boundary settings,

assumptions, and extrapolations; key performance indicators relevant to the MRV system and NDC reporting; and climate change mitigation strategies enabling to further optimise the carbon impact of the project based on GHG inventory results.

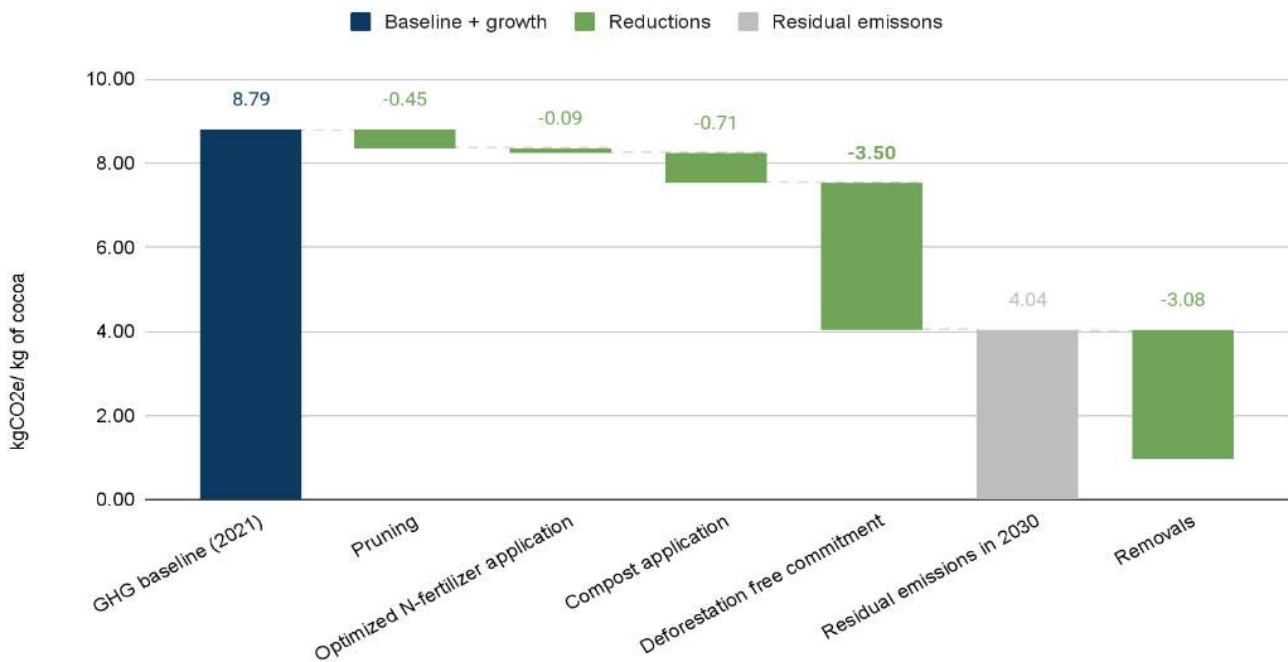
Carbon valorisation potential

Based on the carbon impact potential, a carbon valorisation potential study was started, to evaluate how the carbon benefits of CLIF interventions could be monetised, for shared benefits between stakeholders. This is a key component to demonstrate the viability of the CLIF Carbon Facility and to generate buy-in for this component. The approach consisted of: i) a literature review to identify initiatives in the country related to carbon payments, payments for ecosystem services and similar initiatives; ii) the identification of valorisation pathways for CLIF and estimations of potential payments, and; iii) an assessment of the value of the payment, which includes assessing the willingness to pay and willingness to accept of stakeholders (this step is yet to be completed).

Based on the first two elements of the study, two valorisation pathways for CLIF interventions were proposed.

Low-carbon commodity: referring to carbon reductions and/or removals within a company's value chain that may contribute to achieving their Scope 3 emission reduction targets. This is an innovative new concept, which takes the approach to valorise reduction efforts outside of carbon credit schemes. It allows for space for collaboration among companies around the concept of 'co-claiming' of EFs and promotes the emerging concept of a low-carbon cocoa premium.

Verified carbon claims: referring to carbon that has been audited by a third party, and that can be used for voluntary carbon compensation or neutralisation pathways (insetting and offsetting) to deliver carbon-neutral or net-zero performance.



Note: This intervention roadmap derives from the primary data collected from a representative sample of cocoa farmers on the ground. Results from the on-farm intervention modelling suggest a potential reduction of 53.3% per year from 8.9 to 4.15 of kgCO₂/kg cocoa

Proposed on-farm valorisation scheme: Interventions roadmap for Asutifi-Asunafo (South Pole, 2023)

Impact of on-farm climate smart cocoa on farmers' income

Results from the financial analysis using data from the farmers survey suggested that the carbon impact generated by CLIF interventions on-farm was not enough to significantly impact beneficiary farmers' household income. The implementation of on-farm Climate Smart Cocoa practices will bring about an additional annual income for the household of 8%, which is currently well short of what is needed to bridge the living income gap for cocoa farmers in Ghana. The living income is around USD 3500 per year, compared to a baseline

of USD 1987 assessed in the landscape, and USD 2150 estimated after the Climate Smart Cocoa intervention.

To bridge the living income gap, a more ambitious Climate Smart Cocoa package featuring a higher shade tree densities, combined with advanced regenerative agriculture practices, may be needed to optimise the carbon impact, productivity, and revenue for farmers. Efforts can be made to also valorize other revenue streams such as Non-Timber Forest Products (NTFPs) that can come as a co-benefit for the implementation of CSC practices on-farm, though these have not yet been conducted under the CLIF.

On-farm cost-benefit analysis per hectare (Source: South Pole, 2023)

	Intervention name	USD/ha/yr	Description
Additional labour and opportunity cost	Mulching	-16.33	10 hours additional labour
	Pruning	-40.83	25 hours additional labour
	Compost management	-8.17	5 hours additional labour
	Compost application	-16.33	10 hours additional labour
	No-deforestation	-25.02	Potential costs from lost volumes assumed at 20 kg/year
	Agroforestry	-6.03	Cost of establishment and maintenance (labour cost) for 20 agroforestry trees
	Total gross costs per hectare (USD)	-112.72	
Additional benefit	Incentive based on the carbon market value	73.09	Incentive based carbon market value
	Increase in yields (USD)	111.09	Assuming 15% increase in yield - i.e 88 extra kilograms of cocoa per hectare
	Other revenue streams?		
	Total benefits per hectare (USD)	184.18	
	Net benefit for program implementation per hectare	71.46	
	Net benefit per household	162.94	Assuming an average farm size of 2.28 hectares
	Baseline income per household in USD	1987	
	Additional revenue per household (in %)	8%	

Beyond carbon: biodiversity and water

Beyond the carbon impact potential and valorisation assessment, a supplementary study was conducted to assess the biodiversity potential in the CLIF landscapes, with the aim of potentially valorising these benefits.

High-level prioritisation: three assessments were used to obtain a high-level prioritisation for biodiversity-related projects: Key Biodiversity Areas (KBA), Biodiversity Hotspots, and Endemic Bird Areas (EBA). The overlapping between the selected three biodiversity criteria provides an overview of the landscape, and evidence for prioritising certain activities that aim to avoid biodiversity loss and/or generate biodiversity gains. In the Asutifi-Asunafo and Bia-Juabeso landscapes, the prioritisation shows 100% of the area required a level of biodiversity prioritisation.

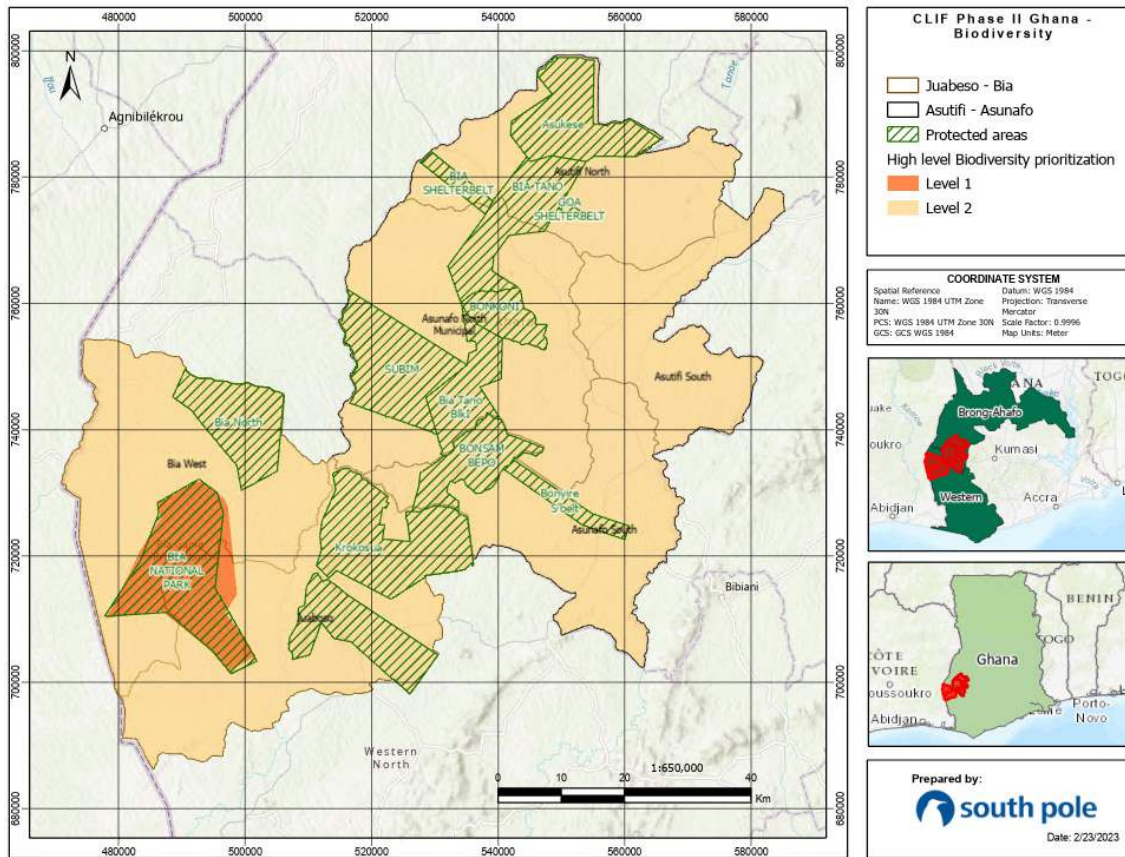
Fauna and flora under a threat category: the Ahafo and Western North regions of Ghana are biodiversity rich areas with different flora and fauna species that can benefit from biodiversity

projects, encompassing actions like forest conservation, restoration of degraded land and sustainable practices (e.g. agroforestry systems, silvopastoral systems). Specifically, the fauna and flora under a threat category (Critically Endangered, Endangered and Vulnerable) are important factors to be considered when designing a project. Such species were included in the prepared report.

Landscape scenarios: actions that promote biodiversity, can deliver positive impacts such as improved ecological connectivity, secured ecosystem services, and the generation of biodiversity credits that can be traded on the voluntary market. Biodiversity credits are a market-based mechanism that provides economic incentives for implementing conservation activities. These activities are backed by a solid monitoring, verification and reporting system that allows for the demonstration of biodiversity gains and the generation of reliable and robust reports. The biodiversity credit is the financial mechanism that allows capitalisation on these environmental investments. The biodiversity credit price is made up of the cost of meeting conservation objectives,

and the cost of project activities such as the design, management, baseline, monitoring and risk management, and the share of the biodiversity credit to be paid as landowner incentives.

Additional assessments could be conducted to evaluate the potential landscape water impact potential, similar to biodiversity, and explored as an additional pathway to valorising natural capital.



High-level biodiversity areas prioritisation at landscape level (South Pole, 2023)



4 Key lessons from the CLIF project

Ensuring the use of high-quality data

The need for reliable data

Assessing the landscape carbon impact potential requires high-quality data to ensure accurate and informed decision-making. High-quality data, such as precise land-use mapping, detailed carbon sequestration rates, and accurate emissions estimates, is essential to provide a comprehensive picture of the landscape’s carbon footprint – particularly when using remote sensing solutions. Only with reliable data can stakeholders effectively identify carbon hotspots, prioritise conservation efforts, and implement targeted mitigation strategies. Additionally, sound data is crucial for assessing the effectiveness of carbon offset projects, and for guiding future initiatives aimed at reducing the carbon footprint associated with cocoa production.

The need to use appropriate methodologies

Employing appropriate methodologies, including robust sampling techniques, is of paramount importance to minimise bias and ensure a good representation of the data. Proper sampling techniques enable stakeholders to understand the carbon sequestration capacity, emissions sources, and overall carbon balance, supporting informed decision-making and targeted interventions to mitigate the carbon impact and foster sustainable land management practices.

The need for ground-truthing

Ground-truthing – or observing direct evidence – is indispensable when assessing landscape carbon impact potential and carbon valorisation potential, as it bridges the gap between remote sensing data and on-the-ground reality. While remote sensing provides valuable insights into landscape-





level carbon dynamics, ground-truthing involves direct field measurements and observations to validate and calibrate these remote sensing data. Additionally, ground-truthing helps identify specific land-use practices, vegetation types, and soil characteristics that significantly influence carbon sequestration or emissions, contributing to a more comprehensive understanding of carbon dynamics. This reliable and detailed information is crucial for guiding carbon valorisation efforts, such as implementing carbon offset projects or promoting sustainable practices to maximise carbon sequestration potential.

Navigating national and landscape governance frameworks

Mapping national regulations to align CLIF development

When assessing natural capital for landscape valorisation, it is essential to navigate the Ghana Cocoa Forest REDD+ Programme (GCFRP), and more generally the Forest Carbon Partnership Facility (FCPF). This programme plays a crucial role in promoting sustainable forest management, conservation, and climate change mitigation

efforts in the country. The FCPF provides financial and technical support to participant countries to enhance their REDD+ readiness and implementation, fostering carbon sequestration and emissions reduction projects in forests. Under the FCPF, the Ghana-specific GCFRP focuses on integrating climate-smart cocoa production practices with forest conservation, aiming to reduce carbon emissions while supporting cocoa farmers' livelihoods. Engaging with the Ghana Forestry Commission on the GCFRP is important to ensure alignment with national strategies and policies, maximising the potential for success and impact in mitigating climate change and promoting sustainable land use practices in Ghana. Additionally, navigating the GCFRP framework accesses valuable resources, funding opportunities, and expertise to design and implement effective carbon valorisation projects in cocoa-producing landscapes.

Working with public bodies to ensure legitimacy

Collaborating with a range of public bodies is necessary for establishing a solid foundation, ensuring compliance, gaining access to resources, and creating a positive impact on the landscapes

in question. Local governments play a significant role in regulating financial mechanisms and sustainability initiatives in the region, and as such, CLIF can ensure its legal and perceived legitimacy. Further, it enhances its reputation and credibility, thereby making it more attractive to investors and partners. Collaborations with public bodies can also enable CLIF to benefit from existing institutional structures, expertise and resources. For example, public bodies such as the Forestry Commission have valuable insights into local landscapes and existing relationships with key local actors. This is all the more important as the current GCFRP term runs out in 2025, after which the pathway to carbon valorisation is unclear.

Balancing differing interests and priorities from public, civil society and private stakeholders

CLIF involves a wide range of stakeholders with different interests and priorities. Balancing these competing interests can be challenging, particularly when it comes to issues such as land tenure, resource allocation, and benefit-sharing. It is important to engage all stakeholders in the decision-making process and work towards a shared vision and objectives for CLIF. This can involve building trust and consensus through regular consultations, transparent communication, and effective stakeholder engagement.

Building strong stakeholder engagement and securing local buy-in

The need for broader stakeholder consultations

Engaging a broad range of stakeholders is crucial for securing buy-in and support for CLIF. Involving local communities, farmers, civil society organisations, government agencies, private sector actors and other relevant stakeholders early in the planning process can help to build trust and ensure that all perspectives and needs are considered. This can be done through regular consultations, community meetings, and other forms of outreach. Involving stakeholders in the design and implementation

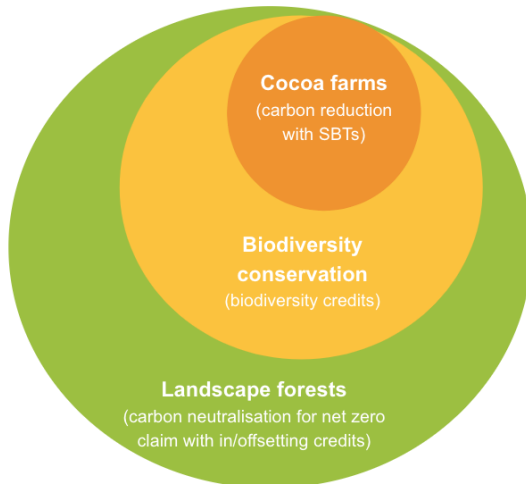
of CLIF ensures buy-in and essential support. This includes ensuring that the benefits and objectives of the mechanism are clearly communicated, and that stakeholders understand how it will work and how it can benefit them.

The need to leverage partner capabilities

Effectively collaborating with partners is vital to leverage each other's capabilities. Working together, stakeholders can combine their expertise, resources, and knowledge to create a more comprehensive and impactful approach. Civil society organisations can bring scientific expertise and best practices in ecological restoration, while local communities offer valuable insights into land use practices and traditional knowledge. Cocoa producers and the private sector can contribute financial support, technical know-how, and market access for sustainably sourced cocoa. Government agencies can provide regulatory support and facilitate the integration of conservation efforts into broader policies. Roles and responsibilities need to be co-defined and broadly socialised to ensure alignment between all parties.

Ensuring a positive business case and positive impact

For CLIF activities to be truly effective, it is vital to ensure a positive business case and positive impact. A positive business case involves assessing the financial viability and potential economic benefits of the project, such as from carbon offset sales, ecotourism revenues or sustainable resource management. Securing this business case will attract further investors and stakeholders, increasing the likelihood of long-term funding and implementation. Concurrently, a focus on positive impact ensures that the project delivers tangible environmental benefits, including carbon sequestration, biodiversity conservation and other ecosystem services. This should also contribute to fostering social and community engagement and empowerment, and to creating job opportunities.



1. Measure your scope 1, 2 and 3 (S 1/2/3) carbon footprint
(and understand your climate risks and business case)

2. Commit to SBTs and decarbonise by 80% by 2050 latest (for agriculture sectors)

3. Neutralise your residual emissions by investing in high-quality carbon removal projects in the landscape forests

4. Generate value for your organisation and your stakeholders e.g. through marketing and climate neutral products, investors relations and ESG ratings

5. In addition, leverage natural capital finance through biodiversity credits to improve farmers income

Business case for companies: Following a credible net zero claim pathway (South Pole, 2023)

The need for demonstration projects

A demonstration project can effectively ensure the business case and positive impact of a reforestation or conservation project in various ways. By starting small, the project can carefully assess and refine its strategies, ensuring cost-effectiveness and maximising returns. Demonstrating successful outcomes and tangible environmental benefits

in a controlled setting builds confidence among potential investors and stakeholders, encouraging further financial support for expansion.

Moreover, CLIF can use a demonstration phase to engage local communities. This social buy-in can lead to long-term support and commitment from community members, enhancing the project's sustainability. By showcasing the positive impact on carbon sequestration, biodiversity, and ecosystem services, a demonstration project can serve as a



compelling case study, attracting broader attention, public interest, and potentially drawing in additional funding and partnerships. Ultimately, it can act as a stepping stone, laying the foundation for scalable and impactful reforestation or conservation initiatives .

Looking beyond carbon

When assessing the natural capital valorisation potential of landscapes, it is important to not only focus on carbon, but to also consider the broader range of ecosystem services available. While carbon sequestration is undeniably significant in mitigating climate change, a comprehensive evaluation should encompass other vital aspects such as biodiversity conservation, water resources, soil

health and socioeconomic factors. For example, CLIF interventions may offer benefits in the provision of essential habitats for various plant and animal species, contribution to local water regulation and purification, and support to the livelihoods of farming communities.

Looking beyond carbon also offers the possibility of exploring additional valorisation pathways. The landscape biodiversity impact assessment conducted demonstrates the potential to monetise these additional benefits. By protecting native species of plants or endemic and endangered birds, CLIF interventions could generate biodiversity credits to be sold on the voluntary market. Similar assessments – on water, for example, could be conducted.



5 Going forward

The Cocoa Landscape Investment Facility (CLIF) emerges as a promising initiative to address deforestation in Ghana's cocoa landscapes. With a focus on sustainable governance, cocoa production, and livelihood improvement, CLIF aims to make a significant impact over the next five years and beyond. The report underscores the importance of data quality, stakeholder engagement, and

considering broader ecosystem services beyond carbon. Lessons learned emphasise the need for navigating governance frameworks, collaborating with diverse stakeholders, ensuring a positive business case, and exploring multiple impact pathways. As CLIF progresses, it holds the potential to drive positive change in Ghana's cocoa-producing regions.

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