

# SWISSCO technical paper on Climate & Nature Finance

High level exploration on how Climate & Nature Finance  
can help fund cocoa farms and landscapes regenerative programs,  
and assist alleviate cocoa communities from poverty



In collaboration with:



## Foreword

SWISSCO, in partnership with South Pole and Earthworm Foundation, would like to share with our membership this technical paper regarding the critical issue of Climate and Nature Finance for the cocoa origins. This paper, written by South Pole with input from Earthworm, SWISSCO Coordination Office and the SWISSCO Working Group on Climate Resilience and Biodiversity, is intended to be a high-level introduction to the vast topic of Climate and Nature Finance as it relates to the cocoa sector. It aims to highlight what is available, what is emerging and addresses the key mechanisms, challenges, and recommendations in accessing and directing such finance. It is hoped that it will stimulate further discourse among our membership at the upcoming learning event and beyond, and is intended to directly build upon the strategy as laid out in SWISSCO's 2030 Roadmap "Tackling Challenges Together" which aims, among others, at enabling a deforestation-free and climate-friendly cocoa supply chain.

This technical paper has been put together as part of SWISSCO's core commitment to fostering peer learning and collective action. This is a direct extension of SWISSCO's commitment to multi-stakeholder dialogue, which we believe is critical to delivering a pragmatic agenda that will be necessary to address at scale the myriad challenges faced by the invaluable cocoa origins in Africa, Latin America, and Asia. To this end, we are actively promoting the small grant facility, supported by the Swiss State Secretariat for Economic Affairs (SECO), with a view to stimulate innovation and collective action.

The intention then, is that this paper raises the interest of members of SWISSCO and hopefully of other ISCOs, and facilitates a discourse that is informed, constructed, and action-oriented. The learning event in October 2021 for which this technical paper was originally developed showed that bringing together stakeholders from five sectors related to the cocoa value chain into a room facilitates an environment conducive for peer learning and lesson-sharing. The overall aim is for this technical paper to contribute to empower members of SWISSCO, and hopefully of other ISCOs, and their supply chains to work collectively to tackle the climate emergency, regenerate ecosystems, alleviate poverty and build resilience in the cocoa value chain.

Yours Sincerely,



**Christian Robin, SWISSCO, Executive Director**



**Filippo Veglio, SWISSCO, President**



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,  
Education and Research EAER  
**State Secretariat for Economic Affairs SECO**

<b>1. Introduction</b>	<b>3</b>
<b>2. High level description of the Climate &amp; Nature Finance landscape</b>	<b>4</b>
<b>3. Deep dive: carbon finance</b>	<b>7</b>
<b>4. Deep dive: other emerging nature finance</b>	<b>15</b>
<b>5. Deep dive: emerging nature finance schemes</b>	<b>18</b>
<b>6. Relationship between Climate &amp; Nature Finance and poverty alleviation</b>	<b>22</b>
<b>7. Key challenges faced by the cocoa sector in climate and nature finance access and some recommendations to overcome them</b>	<b>22</b>
<b>8. Conclusions</b>	<b>27</b>
<b>References</b>	<b>31</b>
<b>Glossary</b>	<b>33</b>

# 1. Introduction

The modus operandi for cocoa production faces significant risks and is considered increasingly unsustainable for many stakeholders in its current state. Specifically, for private actors in the cocoa sector, reputational, regulatory, investor, and consumer scrutiny is heightening, as is the urgency to demonstrate a more sustainable business model to assuage such concerns.

In the context of the global climate & nature emergency we are experiencing, the continued reliance on extensive cultivation, full-sun-exposed and mono-crop cocoa farming practices across cocoa producing countries necessitates immediate actions to safeguard the long-term viability of the cocoa value chain and the livelihood of many farmers and their communities.

However, halting complex sustainability issues such as deforestation, or promoting the regeneration of cocoa farms and landscapes at scale, requires integrated approaches that tackle underlying drivers of both land use change and on-going management in cocoa origins; and requires providing the appropriate support and incentives for growers and their communities to adopt best practices on the ground for the long-term sustainability of their farms and landscapes.

Cocoa-driven deforestation is the result of a phenomenon known as the “poverty – environment trap” whereby low income smallholders cocoa farmers practicing “conventional” cocoa farming (e.g. full sun exposed monocrop plantations) are forced after one or two farming cycles to expand their cocoa farms into the nearby forests’ richer soils in order to increase their yield and revenue; thereby perpetuating forest and broader ecosystem degradation, as well as long-term poverty lock-in (Barbier, 2000).

The cocoa & chocolate sector are increasingly expected to further build resilience in their value chain to further strengthen the long-term viability of their business, whilst at the same time regenerate cocoa landscapes ecosystems and improve the livelihoods of cocoa communities on which they depend. Such long-term transformation requires significant investments and as we will see in more details in this research paper, Climate & Nature Finance can provide co-financing additionality if appropriately applied and scale up.

It is in this context that SWISSCO, South Pole, and Earthworm have set up this technical paper and convened a learning event in October 2021 to explore how Climate & Nature Finance can assist the Cocoa & Chocolate sector fund cocoa farm and landscape-level regenerative programs at scale and help further alleviate poverty.

The objective of this input paper is to provide an introduction to the spectrum of Climate & Nature Finance options, the means of access, and the key challenges in channeling funds to projects on the ground. We will explore in more detail the key climate finance instruments as well as provide an overview on existing and emerging forms of water and biodiversity (nature) finance. Leveraging the experience of South Pole and Earthworm, we will also highlight some of the common challenges that are impeding the scaling and streamlining of Climate & Nature Finance within the context of real-world examples, concluding with lessons that can be learnt and recommendations for SWISSCO and its members to further explore and take forward.

***This document is not intended to cover all elements of Climate & Nature Finance in all details. It is a high level research document to further assist SWISSCO members in understanding this field and reflecting on how to leverage these initiatives as part of their sustainability initiatives.***

## 2. High level description of the Climate & Nature Finance landscape

Climate & Nature Finance simply refers to money that is invested into attempting to resolve challenges associated with climate change, water, biodiversity, soils and other aspects of natural systems.

The global Climate Finance landscape is broad across compliance and voluntary regimes, well developed globally and continuing to grow and evolve at pace. Conversely, the global Nature Finance landscape is more nascent and has historically been more associated with countries' and jurisdictions' regulatory regimes, but it is now rapidly evolving on a similar path as Climate Finance.

This paper will focus on a selected number of financing schemes across this landscape, however **Figure 1** (below) is attempting to summarise at a high level the range of Climate & Nature Finance options available, with an indication of their respective maturity within each domain.

*For further explanation of each financial instrument, please refer back to the glossary at the bottom of this document.*

### Landscape of Climate & Nature finance

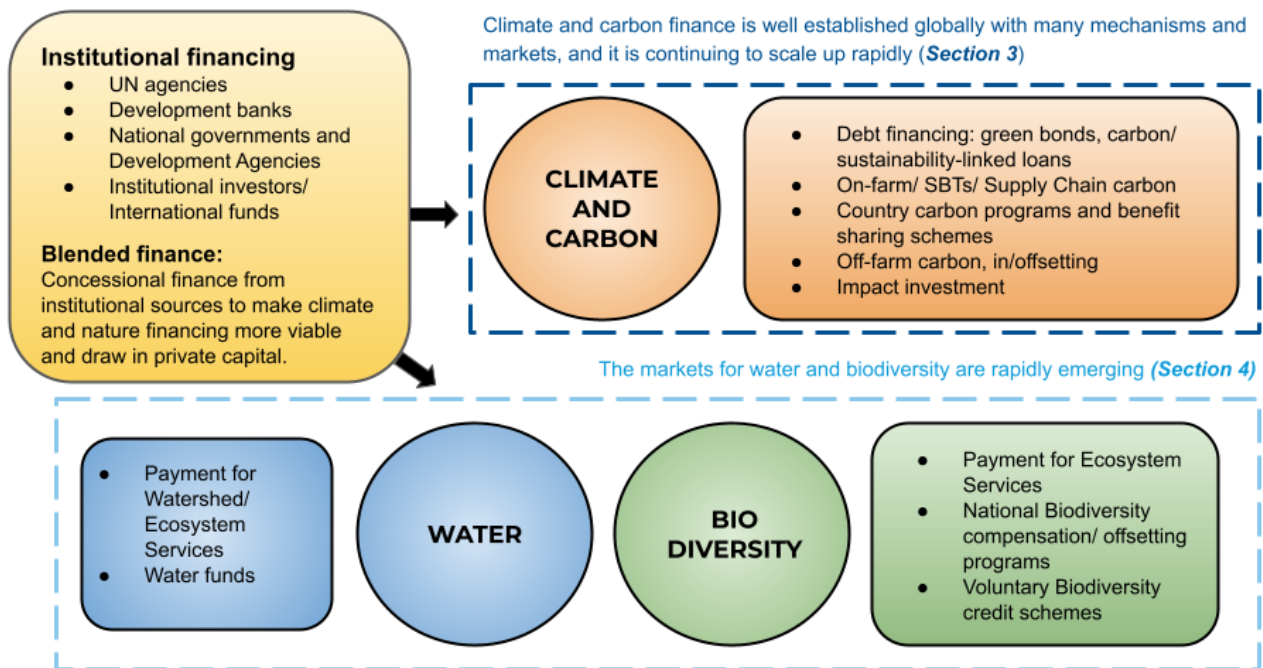


Figure 1: Overview of existing Climate & Nature Finance

## **2.1 Climate Finance**

Climate Finance refers to local, national or transnational financing drawn from public, private and other sources that seeks to support mitigation and adaptation actions that will address climate change.

Beyond the traditional development finance and public-private partnerships, it is important to recognise that over the past 5+ years many conventional methods of capital raising have been co-opted for climate finance purposes such as 'green bonds' and 'climate/ sustainability-linked loans'. Both of these function in the same way as their conventional namesakes, with the difference that the proceeds have specific climate/ sustainability-related performance conditions attached to them, with incentives if these are satisfied e.g. favourable interest rates.

As an example to showcase the strong dynamism in these new climate/ sustainability finance markets, in December 2020, the market for green bonds reached the threshold of USD 1 trillion of total issuance, with the majority occurring since 2017. In Q1 and Q2 of 2021 alone, this figure reached USD 227.8bn, and annual issuance is expected to reach 1 trillion USD by 2023 ([ClimateBonds.net](https://www.climatebonds.net)). Such climate/ sustainability-linked debt financing is just a means of capital raising. It is not restrictive to one form and can be used to fund any interventions that address climate, water, and biodiversity.

## **2.2 Carbon Finance**

Carbon Finance is a branch of Climate Finance and is a general term applied to resources that are directed to projects that are generating or are expected to generate greenhouse gases (GHG)/ carbon<sup>1</sup> emission avoidance, reductions or removals in the form of the purchase of such performance - for example, certain carbon-reducing interventions can generate carbon in/ offset credits which are tradable on the voluntary carbon market, or specific carbon emission permits for a given carbon compliance market. These can then be bought by other market actors to help them offset their own emissions.

Voluntary carbon markets have for example been providing for the past 20+ years an additional source of revenue for thousands of sustainable projects around the world by creating a commercial value for avoiding/ reducing/ removing carbon emissions. REDD+ (Reduced Emissions from Deforestation and forest Degradation, see more details in subsection 3.6) projects are a key type of carbon credit generating project, among many others. This strategy was conceived when it became clear that many communities that have traditionally conserved forests were no longer able to do so because of the rising opportunity costs: exploitation of the environment was more valuable than conservation. These communities needed additional resources to counterbalance rapidly rising deforestation rates. The revenue from the carbon credits, as verified by specific carbon standard requirements and the inclusion of a just benefit-sharing system, explicitly seek to create the necessary incentives to lower the opportunity cost and minimise the need for land use change.

Further details on the compliance and voluntary carbon markets are presented in the next section.

---

<sup>1</sup> Carbon' here, relates to all forms of greenhouse gas, all of which warm the planet to varying extents: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), carbon monoxide (CO), chlorofluorocarbons (CFCs), and ozone (O<sub>3</sub>). CO<sub>2</sub> equivalent therefore refers to the collective level of global warming potential expressed as its equivalent in CO<sub>2</sub>, since the same quantity of methane will correspond to a high quantity of CO<sub>2</sub> equivalent, due to the higher potency (c.27x) of methane."

## 2.3 Nature Finance

Nature Finance refers to the financing of projects that improve for example biodiversity, water stewardship and any other aspects of nature/ ecosystem services. Unlocking private capital for nature finance is viewed as the critical next step for scaling up climate action globally (Dechezlepretre, 2020). Approximately half of the world's GDP depends on nature and its services (WEF, 2020), making the connection between thriving ecosystems and economic success abundantly clear. However, a [recent report](#) estimated that the current "nature financing" gap stands at USD 700bn annually (Deutz et al., 2020).

Historically, most successful nature conservation compensation programs have been nearly entirely financed by the government (see Costa Rica, Bernard et al., 2009). However in recent years, market mechanisms for nature finance have further developed. Below offers overviews of the current state of nature finance for water and biodiversity.

### 2.3.1 Water

A 2016 Forest Trend and Ecosystem Marketplace report on the "[State of Watershed Investment](#)" presented that in 2015, governments, water utilities, companies, and communities spent nearly USD 25bn on payments for green infrastructure for water.

A total of 419 programs in 62 countries invested in the natural ability of forests, wetlands, grasslands, and other ecosystems to ensure clean, reliable water supplies for cities and communities, and to combat threats from rapid urban expansion and agricultural pollution. Green infrastructure payments protected, rehabilitated, or created new habitat on more than 486m hectares of land around the world, an area nearly 1.5 times the size of India. These programs paid nearly USD 16bn to landholders to reward good stewardship.

Most of this spending (USD 23.7bn) came in the form of direct subsidy payments from supranational, national, and state/ provincial-level governments to landholders to protect and restore water-critical landscapes and promote a green economy. Unlike globe-spanning carbon markets, watershed investments usually remained within the political or watershed boundaries where they originated. Interestingly, companies, not donors, drove the water space's share of nonlocally originating, user-driven watershed investment. Programs reported at least USD 3.5m in international payments in 2015 following water risk upward along companies' supply chains.

### 2.3.2 Biodiversity

Similarly a 2017 Forest Trend and Ecosystem Marketplace report on the "[State of Biodiversity Mitigation](#)" presented that nearly a hundred biodiversity offset and compensation policies were active in 33 countries around the world in 2016.

Collectively, these programs have restored, recreated, and protected important habitats on more than 8.3m hectares - an area of land roughly the size of Austria. Most of these projects have been triggered by national/ regional regulatory requirements related to biodiversity impact and compensation management. Nearly two-thirds of the costs of these conservation efforts have been paid by the private sector, primarily the energy, transportation, and mining/minerals sectors. Voluntary biodiversity offsets tend to be mostly developed through Payment for Ecosystem Services programs.

Payment for Ecosystem Service (PES) is the most established form of nature financing, denoting any form of arrangement where compensation is given for the conservation or restoration of an

ecosystem. Following this broad principle, there are several more nature finance schemes that are emerging concurrently. More so than with carbon finance, nature-based schemes are most effective when they are more bespoke to the local context, and as such are both still quite piecemeal, but also an active and exciting area of experimentation. These include Payment for Watershed Services (PWS), Payments for biodiversity services and habitat, bio-banking, and other forms of innovative nature based solutions.

The next two sections will now present further details and examples associated with Carbon Finance as well as emerging Nature Finance schemes.

### **3. Deep dive: carbon finance**

Carbon Finance has historically been associated with Compliance and Voluntary markets. In addition, recent developments in corporate climate change management i.e. the development of Corporate Science-Based Targets for both operational and supply chain carbon footprint emissions are now starting to trigger new supply chain carbon financing mechanisms (see subsection 3.3). Please find below some high level contextual information on such carbon markets and initiatives.

#### **3.1 Compliance markets**

These occur when governments legally mandate organisations to account for their GHGs, either through paying a penalty for their emissions, or requiring corporate entities to meet a certain GHG reduction goal.

The resulting carbon pricing schemes are operated either through an emissions trading scheme (ETS) or through a carbon tax. In an ETS, if corporate entities have exceeded a certain emissions target level (or emissions cap), they are permitted to buy carbon offsets available in the market to meet compliance requirements.

At this stage, we are not aware of already functioning compliance carbon markets related to agriculture/ cocoa production across key cocoa sourcing countries but it may well be that these would rapidly emerge over the coming years as countries worldwide are implementing their national climate strategies and Climate Paris Accord Nationally Determined Contributions (NDCs). To date, more than 100 countries proposed agricultural mitigation measures in their NDCs and some of the latest developments include:

- South Africa and New Zealand are already planning to include the agricultural sector under their carbon pricing schemes in the near future (2023 and 2025 respectively);
- The Ivory Coast and Senegal are likely to introduce a carbon tax that would copy the South African model; and
- The inclusion of agriculture within the European ETS is currently being worked out.

This indicates that new carbon compliance regimes could rapidly emerge over the coming years as countries worldwide implement their national climate strategies and Nationally Determined Contributions (NDCs).

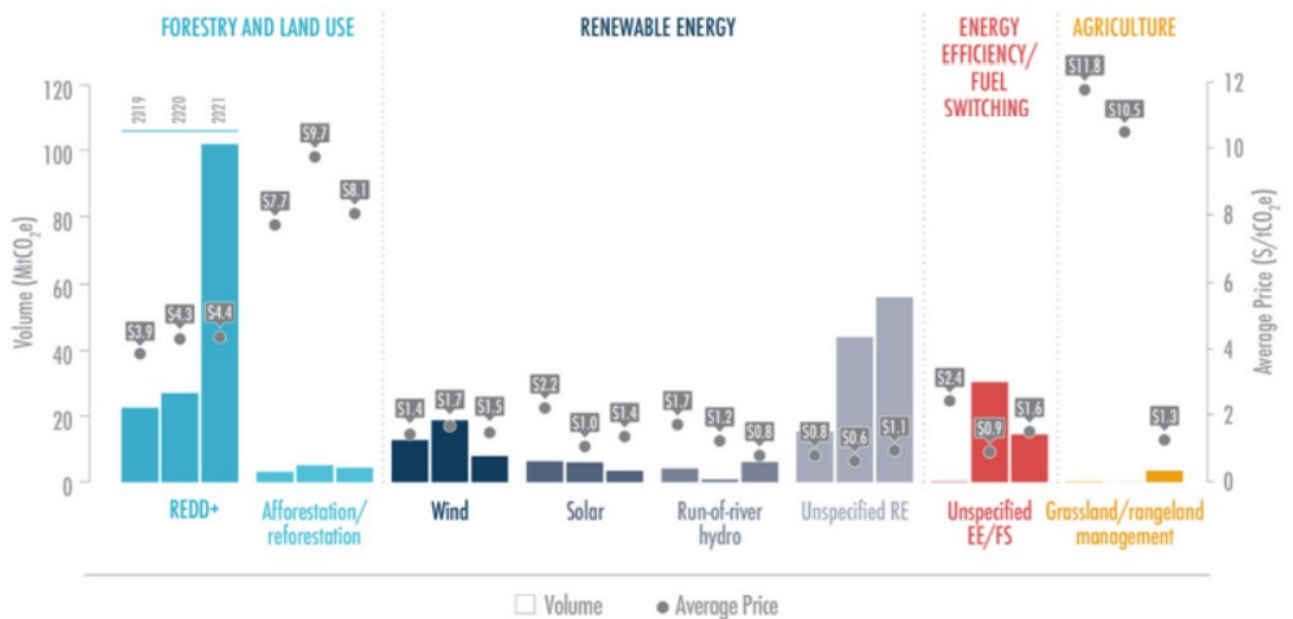


### 3.2 The global voluntary carbon markets

These have been operating over the past 20+ years to accompany the rapidly developing voluntary efforts of organisations on climate change, and the delivery of their carbon neutral/ net zero/ carbon negative claims.

According to the latest 2021 market analysis report by [Ecosystem Marketplace](#):

- The volume of traded voluntary carbon credits hit record volumes of 188m tCO<sub>2</sub>e in 2020, easily setting a new high bar. This growth represents an 80% increase over 2019. Even more dramatic has been the growth of the market in 2021. Just eight months into the year, trading volumes of carbon offsets in the voluntary market have already surged 27% beyond 2020's high-water mark to 239m tCO<sub>2</sub>e.
- The total value of the market tracked in 2020, USD 473m, was the highest annual value since 2012. As of August 31 2021, market transactions had already exceeded USD 748m, meaning that 2021 is highly likely to be the highest annual value ever tracked, potentially exceeding USD 1bn.
- Most carbon credits are generated in projects in Asia (56%), followed by Latin America & Caribbean (22%) and Africa (15%).
- The main carbon standards, to which projects must abide to in order to trade on the voluntary carbon markets, are the Verra Verified Carbon Standard (VCS), the Clean Development Mechanism (CDM), The Gold Standard and the Climate Action Reserve (CAR). Each carbon standards has its specific requirements but broadly speaking, carbon projects must demonstrate that their carbon emissions are:
  - Real: The project removes or prevents GHGs from entering the atmosphere.
  - Measurable: The volume of GHGs can be accurately measured.
  - Additional: The project must not be able to be built or operate without the revenue from carbon credits. The project must go beyond regulatory requirements.
  - Permanent: Carbon credits must represent permanent emission reductions and removals for 100 years. Where projects carry a risk of reversibility, at minimum, adequate safeguards must be in place.
  - Verifiable: A neutral, third party auditor verifies the offset project regularly.
  - Unique: Only one carbon credit can be associated with a single reduction or removal of 1 tonne of CO<sub>2</sub>e, no "double counting". Carbon credits must be stored and retired in an independent registry.
- The global average price dropped significantly from 2019 to 2020, with the weighted average price per ton of CO<sub>2</sub>e decreasing from USD 3.07 in 2019 to USD 2.51 per ton of CO<sub>2</sub>e in 2020 before rebounding to USD 3.13 in 2021 (data up to Aug 2021). Forestry and Land Use and Household Devices projects are experiencing rising prices as such projects also generate significant SDGs co-benefits. At the same time, there is continued demand for Renewable Energy and Energy Efficiency/ Fuel Switching credits from Asia selling for near or below USD 1 per ton of CO<sub>2</sub>e, which is pulling down global average prices.
- Please find in below graph further detail on volumes and prices per types of projects.



Source: Ecosystem Marketplace, a Forest Trends Initiative.

Note: Volumes are calculated from EM Respondents that reported trade data as of 31 August 2021. Respondents did not always respond to all survey questions; differences in the totals (for example, between the total annual volume and the sum of project category volumes) can be attributed to this. Throughout the remainder of 2021 and beyond as more organizations report to EM for the first time, and as existing EM Respondents report new transactions, these figures for 2020 and 2021 will likely continue to be updated. This will be reflected in future installments of EM's SOVCM report and on the EM Data Intelligence & Analytics Dashboard (<https://data.ecosystemmarketplace.com>).

Figure 2: Transacted Voluntary Carbon Market Sizes by Largest Project Types 2019 - August 2021 (Source: Ecosystem Marketplace, State of the Voluntary Carbon Markets 2021 Installment 1, 2021)

### 3.3 The Science Based Targets (SBTs) framework

SBTs and associated criteria and guidelines have been developed by the Science Based Target Initiative (SBTi), an organisation which defines and promotes best practice in carbon emission reductions and net-zero targets in line with climate science. The SBTi is a partnership between Climate Disclosure Project (CDP), the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). The SBTi is the most credible standard for carbon emissions reductions, and its call to action is one of the “We Mean Business Coalition” commitments.

Science-based targets show companies how much and how quickly businesses need to reduce their GHGs/ carbon emissions to prevent the worst impacts of climate change, leading them on a clear path towards decarbonization, while seizing the benefits and boosting their competitiveness in the transition to a net zero economy.

Corporate GHG emissions are separated into three broad categories: Scope 1 are direct emissions from a company's operations, Scope 2 are indirect emissions from purchased energy sources, and Scope 3 are value chain emissions. For the majority of companies, the largest sources of emissions lie upstream and downstream of their core operations (i.e. Scope 3). For a target to be officially validated by the SBTi, companies whose scope 3 emissions cover more than 40% of their total emissions need to set scope 3 targets (see GHG Protocol).

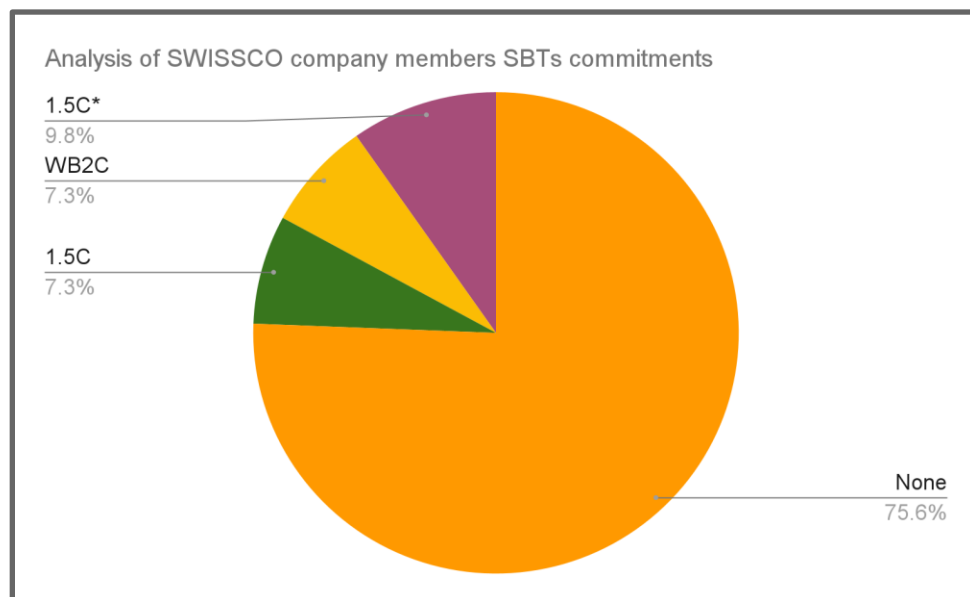
By setting ambitious SBTs for carbon reduction, corporates can attract investment at favourable rates from institutional investors. SBTs that are in line or ahead of industry expectation demonstrates a level of commitment that shows investors that your company is serious about the threats posed by climate change and is taking tangible steps to mitigate associated risk. The expected levels of decarbonisation are as follows. When referring to 1.5°C or WB2°C, this is in reference to not increasing global warming above pre-industrial levels by 1.5°C or WB2°C respectively. A 1.5°C SBTs target usually equates to absolute reductions of total emissions of 4.5% per year :

- For the so-called “near-term targets”: 1.5C for Scope 1 and 2, and either Well Below 2°C (WB2°C) or 1.5°C for Scope 3.
- For the so-called “long-term targets”: the Scope 3 target evolves to be aligned to 1.5°C if not yet already.

In 2019, the SBTi also began developing a framework to enable companies to set robust and credible “Net Zero” targets in line with a 1.5°C future. The framework and associated criteria and guidelines will be launched prior to the 26th Conference of the Parties (COP26) at the end of this October. The associated so-called Forest, Land and Agriculture (FLAG) SBT and guidelines, highly relevant for Cocoa & Chocolate companies, will be issued in March 2022.

Yet, despite the undeniable momentum experienced by the SBTi over the past 6 years i.e. 2,000 companies worldwide with validated or committed SBTs - mostly large global organisations, many more companies across sectors and geographies remain uncommitted . Of all the company members of the Swiss Cocoa Platform (41 companies):

- 7.3% of companies have set 1.5°C targets for Scope 1&2; and 7.3% have set WB2°C targets for Scope 1&2 (these will need to be updated to 1.5°C by 2025 latest).
- 9.8% have committed to the “Business ambition for 1.5°C” i.e. pledging over a 2 years period to setting Scope 1&2 SBTs for 1.5°C; or committing to a Net Zero target in compliance with the to be released SBTi criteria (Nov 2021).
- All companies that have set Scope 1&2 SBTs (14.6%) also have Scope 3 targets; and so will the companies currently setting their SBTs (9.8%).
- 75.6% still do not have any commitment to set SBTs.



### 3.4. Types of carbon project and valorisation pathways

The range of carbon projects to be considered in the cocoa sector encompasses:

1. On one hand **on-farm projects** implemented within the supply chain and counting towards the company's SBTs/ Supply chain climate targets
2. And on the other hand, **off-farm projects** that are implemented at landscape and community level generating **in/offsetting carbon credits** for companies (in the cocoa & chocolate sector as well as any other sectors) wanting to compensate their residual carbon footprint emissions for the purpose of carbon neutral/ net zero claim (and cannot be used to deliver SBTs ie footprint decarbonisation).

In addition, we have seen over the past few years the development of:

3. **National Carbon Programs and their associated Benefit Sharing Schemes**, such as the Ghana and Ivory Coast REDD+ programs, where a certain performance based incentive is provided by the program's benefit sharing scheme for both on & off-farm carbon impact.

We will now provide further details and examples for these types of carbon projects and valorisation pathways.

### 3.5 On-farm projects and the emerging SBTs carbon projects and finance

On-farm carbon projects can be associated with many interventions including sustainable improvement of the cocoa yield, stopping on-farm deforestation, agroforestry and better management of soils and use of inputs. These are generally called "climate-smart" farming practices and a number of guidelines have been developed by and for the cocoa sector of which the most prominent are the Climate-Smart Agriculture in Cocoa, developed by the Ghana Cocobod in conjunction with the World Cocoa Foundation; and the Cocoa climate smart recommendations, sponsored by the World Agroforestry Centre and Rainforest Alliance.

Low carbon cocoa could be produced over a period of years through implementing such climate-smart farming practices. It should be recognised with a premium value to be agreed by the value chain partners in order to continuously incentivise farmers to improve their climate performance. To do so, appropriate farming and trading standards need to be developed to better reward farmers' efforts towards climate smart cocoa production. Such farming and trading practices are still nascent but are rapidly developing.

Among others, the principal tools and standards to assess and verify the cocoa carbon footprint include: the GHG Protocol and its various product and project level guidelines, the Cool Farm tool, ISO 14064, the Gold Standard Value Chain Intervention Standards, and the relevant methodologies from the carbon standards such as the Verra VCS, Gold Standard and Plan Vivo.

The guidance for on-farm projects is constantly evolving to better reflect the realities. A significant technical development of the past few months has been the recognition by the SBTi that carbon removals (e.g. agroforestry trees) should contribute to companies' SBTs. This emerged as part of the SBTi Forest Land and Agriculture (FLAG) initiative, and final criteria and guidelines will be issued in March 2022.

Another recent development has been the work done by the Gold Standard and ISEAL on defining best practices for "Accounting & Reporting the climate impact of certified commodities".

### **Case study 1: Nestlé's 2050 Net Zero target and 1.5°C SBTs for Scope 1/2/3**

Nestlé is leading corporate action against climate change through its “Good Food, Good Life” motto. Since 2019, Nestlé committed to achieving net zero carbon emissions across its value chain by 2050, consistent with a 1.5°C pathway for Scope 1/2/3 i.e. reducing absolute scope 1, 2 and 3 GHG emissions by 20% by 2025 and 50% by 2030 from a 2018 base year.

The conversion of natural landscapes for the cultivation of ingredients in Nestlé's supply chain is estimated to account for between 25-35% of its total ingredient emissions. For key crop supply chains, such as cocoa, coffee, palm oil and soybean, the proportion can be even higher. Among other initiatives, its zero deforestation commitment forms a critical element of its journey to net zero. Where forest degradation has happened, Nestlé has ambitious reforestation plans and has planned to plant at least 3 million trees in key sourcing locations by 2021, and a further 3 million by 2023. It is investing CHF 2.5m in critical forest conservation and restoration in Côte d'Ivoire.

Nestlé can't transform their agricultural value chains alone, they are fully reliant on the support of their suppliers and farming partners. Nestlé has many initiatives to engage their suppliers, particularly in the cocoa sector, to standardize accounting practices and to drive projects that deliver a positive impact for people & planet.

For further information, please see [Nestlé's 2050 net zero roadmap](#)

### **Case study 2: Barry Callebaut**

Barry Callebaut's Forever Chocolate programme plans to make sustainable chocolate the norm by 2025 to help ensure future supplies of cocoa and improve farmer livelihoods. It includes a commitment to have more than 500,000 cocoa farmers in their supply chain lifted out of poverty, eradicating child labor from their supply chain, becoming carbon and forest positive and having 100% sustainable ingredients in all of their products - all by 2025. This not only generates value for society in terms of a stable climate, poverty reduction and fair labour practices, it also future-proofs their business by helping ensure chocolate can still be grown decades from now.

In relation to SBTs, Barry Callebaut has committed to reduce absolute Scopes 1, 2, and 3 GHG emissions by 35% by 2025. The targets covering greenhouse gas emissions from company operations (scopes 1 and 2) are consistent with reductions required to keep warming to 1.5°C. In 2019/20, it successfully reduced its carbon footprint by 8.1% as well as led the testing and implementation of innovative industry-wide carbon reduction methods across its value chain.

In relation to its supply chain, this included the planting of over 2.5m non-cocoa trees on farms and in non-agricultural areas surrounding farming communities, the distribution of over 10,000 cookstoves and solar home systems to cocoa farming communities, and the piloting of biochar production. Pipeline activities include scaling ambitious and fully monitored agroforestry systems, electrification and greening remote communities.

For further information, please see [Barry Callebaut's Forever Chocolate plan](#).

### **3.6. Off-farm projects and the carbon in/offsetting credits finance**

Off-farm carbon projects for the cocoa sector are typically associated to either:

- Forest conservation, reforestation, afforestation projects - overall so-called REDD+ projects
- Wetland restoration projects
- Community projects such as cookstove, water filter, and biomass to energy projects

Off-farm carbon projects would be developed and certified to ensure compliance with reputable carbon project standards such as the Verra VCS and CCB and Gold Standard, as well as potentially other specific requirements associated with a specific voluntary carbon market. The carbon credits generated by certified carbon projects are sold to buyers in the relevant voluntary carbon markets, and as a result retired from the relevant carbon standard registry.

It is important to note the development over the past few years of a new REDD+ jurisdiction initiative called The Architecture for REDD+ Transactions (ART) and its standard called The REDD+ Environmental Excellence Standard (TREES). Key features of this new REDD+ approach include among others: the large size of the jurisdictions to avoid any carbon leakages with other near-by geographies and stronger carbon standard criteria. Seven REDD+ jurisdictions have now been approved including selected jurisdictions in Brazil and Ghana. Associated with this new REDD+ scheme, the LEAF Coalition was also launched, bringing together governments and companies committed to halting deforestation and protecting tropical forests at scale.

There are currently more than 2,000 carbon projects across types of technologies/ projects and geographies worldwide. However, off-farm carbon projects are still seldom across cocoa landscapes around the world. Please find below some carbon project case studies and related initiatives as examples.

#### **Case study 1: Reforestation of degraded forest reserves in Ghana**

This VCS project, developed by FORM Ghana, aims to reforest 15,000 hectares of degraded forest reserves in Ghana. Currently, 1,506 ha in the Asubima Forest Reserve in the north of the Ashanti region has been reforested, forming the first project phase of this grouped project. The project foresees an average expansion of 1,000 hectares of reforestation per year, adding new project areas and instances. The first project instance is expected to deliver a carbon reduction & removal impact of 361,000 tCO<sub>2</sub>e over the 40 year crediting period.

#### **Case study 2: Mondelēz' efficient cookstoves for cocoa communities in Ivory Coast**

The use of firewood for cooking in Ivory Coast contributes to the global emissions of greenhouse gases but also affects the health of many people, in particular women, that develop respiratory diseases associated with the inhalation of smoke. To mitigate this unsustainable household cooking practice, Mondelēz, with the support from South Pole and an international NGO has sponsored a three-year pilot project, aiming to install 4,000 fuel-efficient cookstoves made out of locally available materials. This is an initial pilot aimed to be scaled up over the coming years.

The project activities are expected to deliver about 10,000 tCO<sub>2</sub>e per year as the efficient firewood cookstoves will use less firewood than the traditional three stove fires. It will also importantly grant participating women more free time (saved from collecting as much firewood) for more productive activities promoted within Village Saving Loans Associations. The project will be registered under the Gold Standard for the Global Goals and the funding from the sales of the generated carbon credits are planned to be used to cover the project implementation costs.

### ***Case study 3: The Rabobank Acorn program***

Smallholder farmers and their communities often bear the brunt of climate change, but they can also play an important role in reversing its effects. Rabobank is developing “Acorn” to open the carbon market up to smallholder farmers using proven agroforestry practices and modern, enabling technologies. Rabobank’s intention is to build a global, transparent carbon removal system for smallholder farmers who sequester carbon on their land using agroforestry techniques. By facilitating the transition to agroforestry and making its technologies available at smaller scales, Rabobank hopes to enable smallholder farmers to participate in the carbon marketplace and earn its financial benefits. Bringing together smallholder communities with an agroforestry-led carbon trade is at the core of Rabobank’s Acorn program and its aim to make a real contribution to climate preservation, land renewal and food security.

### ***3.7 On & off-farm projects and National Carbon Program finance***

REDD+ is the most common type of National Carbon Program associated with forest conservation and regeneration in cocoa origins. It has become globally an important mitigation mechanism against climate change over the past 10 years. This mechanism seeks to reward stakeholders for maintaining or restoring forests as a means of reducing carbon emissions.

One of the main sources of financing of rewards has been carbon credits from the voluntary carbon market or other schemes such as the World Bank’s Forest Carbon Partnership Facility (FCPF). This monetization of carbon has made it possible to channel a large volume of resources to conservation activities in developing countries.

However, REDD+ projects face a major challenge related to the setting up of an equitable benefit sharing scheme, ensuring that the majority of the carbon benefits flow to the communities that protect the forests. In this regard, many projects around the world are continuously improving the distribution of REDD+ benefits through a number of strategies including: strengthened local governance, transparency in the administration of money in the long term, and the appropriate oversight of different entities involved.

### ***Case study 1: The World Bank Forest Carbon Partnership Facility (FCPF)’s Cocoa and Forest Knowledge Exchange Program***

The Cocoa and Forest Knowledge Exchange Program stems from an effort by the World Bank Forest Carbon Partnership Facility (FCPF) to implement sustainable landscapes in vulnerable areas. It does this by helping the private sector reduce deforestation through activities and engagement in a specific supply chain. The program is providing a space for dialogue and exchange between West African and Latin American cocoa-producing regions, bringing together stakeholders from the private and public sectors, intergovernmental organizations, civil society, and indigenous peoples. The subsequent national REDD+ program in Ghana was signed and validated in 2019, and is expected to generate 10 million Emission Reductions (ERs) until 2024. The program includes a Benefit Sharing Plan (BSP), according to which 69% of funds go to Hotspots Intervention Areas (HIAs), 58% for inputs to farmers, 3% to traditional authorities, and 39% for community projects. This program frequently interacts with other initiatives and programs in Ghana, such as the Cocoa & Forests Initiative (CFI), the New Living Income Differential (LID), and the Cocobod’s Climate Smart Cocoa (CSC) Standard, among others.

## **Case study 2 : Cocoa carbon project for Coop and Chocolat Halba in Ghana**

The project's objectives are to find better ways to promote more diverse cocoa production systems and increase the resilience of the cocoa farmers in Halba's supply chain in Ghana, while reducing carbon emissions. By collaborating with key stakeholders in Ghana's cocoa sector, South Pole was able to help the company implement activities that diversify the livelihoods of the participating farmers and build Halba's supply chain resilience.

This included reforesting 400 hectares by installing dynamic agroforestry plots with up to 400 different cocoa farmers. This system of reforestation includes planting of a wide range of different tree species (mostly indigenous) that perform different functions within the agroforestry plots. These include timber, fruit, and soil improvements, and diversification with other food crops such as yam and bananas; whilst at the same time increasing cocoa production and eliminating the use of all chemical inputs used as pesticides and fertilisers.

The project is in the process of being certified by the Gold Standard for Global Goals for the reporting of impacts. This will demonstrate the project's climate impacts (based on monitoring and verification), however it does not lead to the issuance of carbon credits (Gold Standard Verified Emission Reductions (GS VERs)) for commercialisation because these emission reductions will all be accounted for in Ghana's NDC until 2025.

Throughout the process, the project developers have worked closely with the Forestry Commission of Ghana who are managing the Ghana REDD+ program. The project's carbon impact will be accounted to help deliver the Ghana REDD+ program carbon performance objectives and will receive in return some revenue from the generated carbon impacts through the established REDD+ Program's Benefits Sharing Scheme.

## **4. Deep dive: other emerging nature finance**

Over the last few years, as greater urgency and resources have been directed to the climate crisis, green shoots of finance innovation have increasingly emerged. Below, rather than provide a comprehensive examination, we have provided a few selected examples of what is available with respect to tropical agriculture. Several of which are interpretations of "blended finance", a finance model that is increasingly being viewed as a critical vehicle to unlocking private investment for climate and nature finance.

Positioned as a key mechanism to bridging the long-standing gap in development finance, blended finance has developed as an evolution of traditional public private partnerships (PPPs), where governments contract the private sector, usually to build and operate a public service; and multilateral development finance - publicly funded loans and grants from development institutions such as the IMF and World Bank. Blended finance, however, can exist in any sector, and is a collaboration between nonprofit entities such as development banks or development arms of national governments and private sector entities.

Critical to the functioning of blended finance is "concessionality": where funds are committed by at least one party, on less than commercial terms i.e. below market rate. This is done to draw in private investment into areas that would otherwise not be viable since the risk outweighs the returns, thereby providing a publicly financed buffer to de-risk and make the investment more attractive from a commercial perspective Havemann et al., 2020). Blended finance is increasingly being



positioned as a key mechanism in bridging the long-standing gap in development finance and to galvanise the private investment for sustainable development initiatives ([OECD, 2020](#)), as the examples below will demonstrate.

### ***Case study 1: West African Initiative for Climate Smart Agriculture (WAICSA)***

WAICSA is an initiative led by the Commission of the Economic Community of West African States (ECOWAS), including Cote D'Ivoire and Ghana. It is the only West African-led blended finance fund that specifically focuses on increasing the uptake of Climate Smart Agricultural practices by smallholder farmers.

Leveraging both public and concessional capital, WAICSA provides subsidised loans to smallholders and cooperatives to help them invest in new technologies. This includes contributions from ECOWAS Member States and investments from the fund manager, to de-risk and crowd-in private investments. Embedded into all investments are conditions meant to incentivise the adoption of Climate smart agriculture (CSA) by smallholders, thus reducing their exposure to climate risk and accelerating uptake of CSA practices.

To facilitate this, the money also pays for financial and technical support. They work closely with smallholder communities to deliver extension services, disseminating the benefits and reducing perceived barriers to adoption. They also work with local finance providers to design loan products with specific CSA adoption conditions which incentivises farmers to adopt such practices through the receipt of favourable interest rates. It is currently in its pilot phase - with trials in six of ECOWAS member states - but if success is proven, then the plan is to replicate in all 15, and expand the penetration within those states once more.

### ***Case study 2: African Development Bank's Adaptation Benefits Mechanism (ABM)***

A project by the African Development Bank and the International Agroforestry Agency - in partnership with Mars Confectionary and Rainforest Alliance, ABM seeks to enhance the resilience of cocoa supply chains in Cote D'Ivoire and increase the uptake of CSA, and in particular, agroforestry.

Adaptation project developers, together with local smallholders can sign off-take agreements with a range of public, private, and non-profit actors whereby payment will be given upon adoption of certain CSA practices. These agreements can then be used as collateral to secure the capital for the investment needed to implement those CSA practices in the first place. In short, smallholders can borrow money at a lower risk to both parties, incurring lower interest rates, since the 3rd party (public, private, non-profit entity), effectively acts as a guarantor to the financier and de-risks the loan.

The ABM seeks to reconcile the 'catch 22' that smallholders and local financial institutions conventionally face, that acts as a major barrier to adaptation projects. Namely, since adaptation investments typically are a public good, and generate minimal cash flow, securing initial finance is very difficult, as any loan represents an undesirable high risk, low return outcome.

### ***Case study 3: Weather Index based Risk Services (WINnERS), EIT Climate-KIC***

Climate change is driving the unpredictability of weather. With low levels of income diversification, smallholders can have all their finances locked in and dependent on the success of their crop. Such limited diversification and low liquidity means adapting to external shocks such as flooding, drought, and locust plagues can be near impossible, essentially bankrupting them.

A system developed by Torus X, a startup providing bespoke de-risking solutions for value chains, and Munich Re, the world's largest reinsurance group, WINnERS project seeks to offset the risk of crop failure by providing crop insurance. It does this by creating real-time weather indices that use machine learning to deliver robust climate risk information which determines the value of insurance premiums.

This information helps smallholder farmers plan ahead to secure their crops and allows them to access loans and insurance services, often for the first time in their lives. WINnERS is specifically designed to incentivise CSA, since the premiums will decrease based on the level of calculated resilience of the farm to extreme weather.

Through the programme, 25,000 farmers have been insured for their maize crop in Tanzania. Part of the funding is also designed to promote gender equity and financial empowerment for female farmers, since they are typically under voiced in traditional farmer cooperatives. The programme now aims to operate in 10 countries, and to reach a million farmers in sub-Saharan Africa by the year 2022.

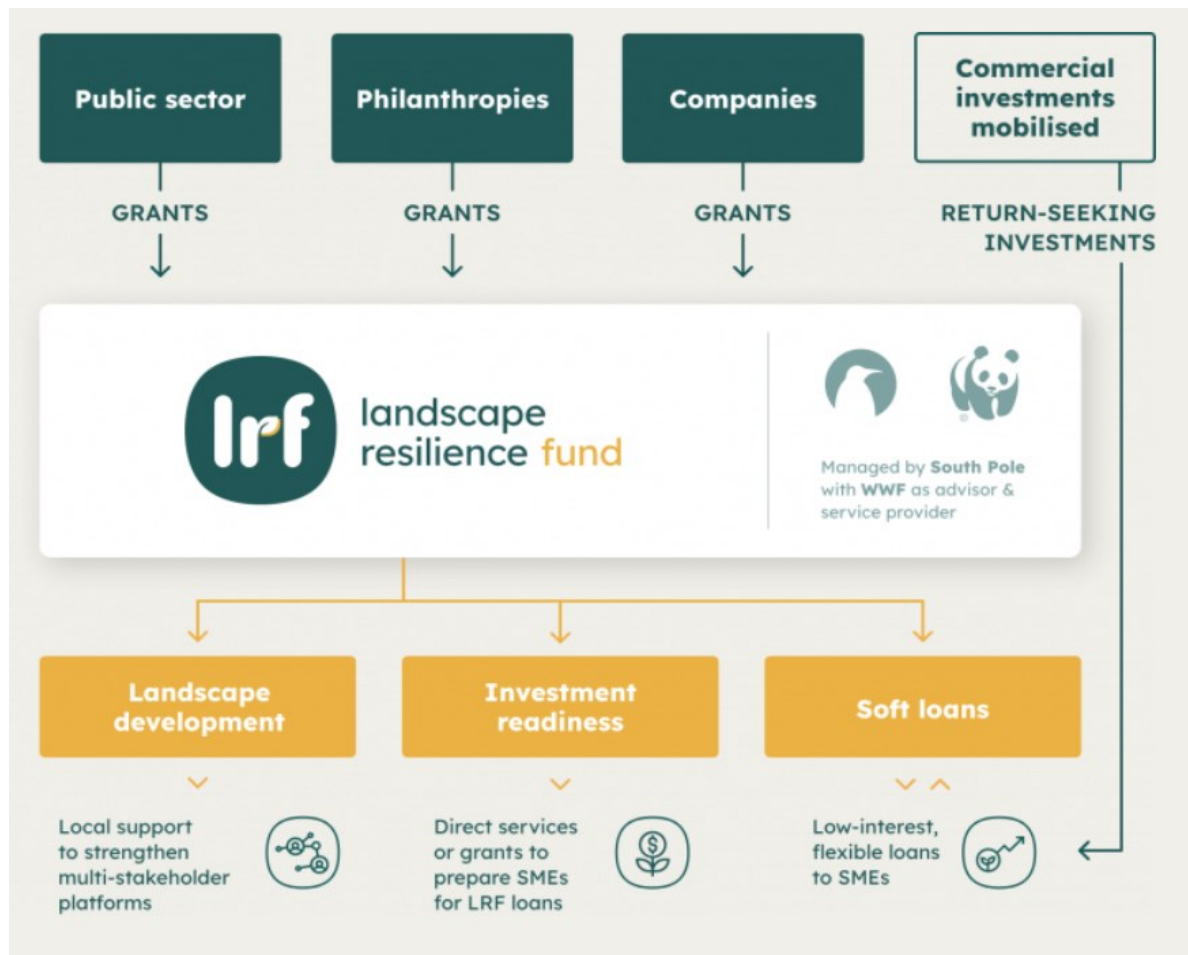
### ***Case study 4: Landscape Resilience Fund (LRF), mobilising finance for communities, conservation, and commerce***

The Landscape Resilience Fund (LRF), which has been co-developed and is managed by South Pole and WWF, is a non-profit foundation under Swiss law and is driven by the objective to generate maximum environmental and social impact. Unlike the other examples, LRF represents a private sector driven fund for climate mitigation and adaptation projects.

With initial investment of 25m from anchor investor, "Chanel", the LRF aims to crowd in USD 100m by 2026 from other public and private sources. The proceeds will be directed to climate adaptation projects that support sustainable agricultural and forestry supply chains and that improve the resilience of smallholder farmers in developing countries. The fund works across three funding pillars: strengthening an integrated landscape approach; delivering technical assistance for small and medium-sized enterprises (SMEs) towards investment readiness; and providing concessional loans to SMEs.

Launched in 2019, the LRF has received critical praise, earning special recognition from the 2019 Global Environment Facility Challenge Program for Adaptation Innovation. LRF activities are grounded in an integrated landscape approach that seeks to reconcile competing natural resource demands and interests in order to effectively address broader objectives of inclusive development, biodiversity conservation, and climate change mitigation.

Diagram illustrating the financing structure of the Landscape Resilience Fund:



## 5. Deep dive: emerging nature finance schemes

Carbon finance can definitely provide co-financing additionality whilst acting on climate change, and improving ecosystems and livelihoods. But on its own, it may not provide enough new financing for farmers, communities and value chain partners to feel appropriately rewarded and incentivised in comparison to the opportunity costs associated with their land use.

Being able to also improve performance of other forms of natural capital like water and biodiversity would certainly strengthen the business case for project implementation and rally stakeholders into actions. This is because synergies could be found where certain interventions generate water, biodiversity, and carbon impact. Please find a high level introduction on a few selected Nature Finance schemes: namely, voluntary biodiversity offsets and Payment for Ecosystem Services (PES) schemes associated especially to water and biodiversity

## 5.1. Voluntary Biodiversity offsets

Biodiversity is essential for life and the long term future of business. Biodiversity and ecosystem services are critical to ensure human well-being, maintain and improve production systems, and are fundamental to businesses value generation across sectors. All life and all economies depend on healthy ecosystems.

Similarly to Voluntary Carbon Offsets, and in the absence of a given national/ regional biodiversity compliance regime, Voluntary Biodiversity Offsets can be purchased by companies and individuals who want to make investments to deliver a “biodiversity net gain performance” through a voluntary compensation mechanism.

Such voluntary biodiversity offsets are generated by conservation projects in strategic ecosystems often developed in partnerships with local conservation actors. The achieved biodiversity impacts from these projects can be certified using a number of standards (e.g. Verra CCB<sup>2</sup>, SD VISTA<sup>3</sup>, LandScale<sup>4</sup>, IUCN Global Standard for Nature-based Solutions<sup>5</sup>). The revenue generated from the sales of the biodiversity offsets reward and incentivise landowners based on the number of hectares preserved, restored, or dedicated to sustainable use.

There is currently no equivalent to a “Climate Neutral or Net Zero claim” for biodiversity and companies tend to report on such investment and performance in their Sustainability General Reporting Initiative report (i.e. the GRI biodiversity requirement 304<sup>6</sup>). That said, the recently launched Science Based Target for Nature and the Taskforce for Nature-related Financial Disclosures may trigger in the coming years similar supply chain-led incentive mechanisms as we are starting to experience for climate SBTs.

### **Case study: EcoAustralia credits = Biodiversity + Climate credits**

“EcoAustralia” credits blend government-accredited Australian Biodiversity Units (ABUs) with international carbon credits from high-quality Gold Standard projects. These voluntary standards are compliant with the Australia Government's Climate Active Program (formerly the National Carbon Offset Standard – NCOS). When purchasing EcoAustralia credits, there is a direct contribution to the regeneration of Australian native vegetation at a time where land clearing, degradation, and biodiversity loss are major issues. Each EcoAustralia credit combines 1 Australian Biodiversity Unit (ABU) with a 1 tonne carbon credit. Each ABU represents 1.5 m<sup>2</sup> of government-accredited habitat protection. A covenant placed on the land title ensures that vegetation is managed for conservation in perpetuity. Each carbon credit represents 1 tonne of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e) avoided or removed from the atmosphere.

Currently, EcoAustralia supports two biodiversity projects that are listed on the Victorian Government's Native Vegetation Credit Register:

- i) The Mount Sandy project is a rare pocket of intact native vegetation in South Australia's Coorong region on the traditional lands of the Ngarrindjeri people. Project management is made possible through close collaboration with the nearby Raukkan Aboriginal Community

---

<sup>2</sup> <https://verra.org/project/ccb-program/>

<sup>3</sup> <https://verra.org/project/sd-vista/>

<sup>4</sup> <https://verra.org/project/landscale/>

<sup>5</sup> <https://www.iucn.org/theme/nature-based-solutions/resources/iucn-global-standard-nbs>

<sup>6</sup> <https://www.globalreporting.org/standards/media/1011/gri-304-biodiversity-2016.pdf>

and local Ngarrindjeri Elders, who oversee vegetation management and conservation at the site.

- ii) The Myamyn project area in southwest Victoria's Annya State Forest regenerates land that was illegally cleared and replanted with invasive species, encouraging the return of native wildlife such as the powerful owl and the long-nosed potoroo.

## ***5.2. Payment for Ecosystem Services (PES)***

These schemes are based on the connection of buyers (usually corporate actors) with sellers of ecosystem services in order to create the necessary incentives to achieve their conservation or improvement in their provision (must have at least one buyer and one seller). PES schemes are defined in this paper as innovative private deals and government led programmes structured around the premise that natural ecosystems provide valuable services (carbon, water or biodiversity-related) and that paying landowners and other stakeholders to provide such services can help ensure their continuance while generating income for those willing to participate.

PES should therefore target areas and ecosystems of strategic interest for the provision of environmental services. It is therefore appropriate as a strategy for landscapes where cocoa is produced or tends to expand. The objective of the PES payments is to encourage landowners and land managers to generate the greatest impact with the available resources through the preservation and restoration of the largest area, thereby driving down the transaction costs. PES should be 'additional' i.e. the gain in ecosystem services should be the result of the implemented actions, which would not have occurred otherwise. To demonstrate this, a PES must have a Monitoring, Reporting and Verification (MRV) system to assess the impact and effectiveness of the scheme. A PES is not a grant, so it must demonstrate results.

Among others, PES benefits include: enhanced livelihood and the creation of a new revenue stream for landowners and land managers who are preserving and restoring healthy ecosystems; the adoption of sustainable or regenerative agricultural and forestry practices across a large group of farmers within a given landscape; the production of new products and the access to new markets; and empowered local stakeholders and long-term sustainability and stewardship of their landscape.

### ***5.2.1. Payments for Watershed Services (PWS)***

In the case of PWS, the clear connection between land management in an upper watershed and threats of poor water quality and flooding to downstream users makes it easier to obtain support for payments from beneficiaries to providers. Transaction costs can be low because existing institutions often collect funds from beneficiaries, either through water services or through government taxes. Compliance is easy to monitor because almost all PWS programmes pay for the implemented practices, such as installing fences to keep livestock out of riparian areas, rather than performance (such as water quality improvements). The main transaction method is usually a direct payment from the users of the improved watershed services to the operators of the PWS program.

The watershed PES sector is the most mature type of PES scheme in terms of transaction value and geographical distribution (USD 24.7 billion in 62 countries by 2015). There are currently 387 PES programmes by watershed: 153 user-funded, 203 government-funded, and 31 compliance (Salzman et al., 2018).

### ***Case study: Integrated PES to preserve water, biodiversity and forests in the central region of Colombia***

In the central region of Colombia, the environmental authority implemented a PWS to manage and conserve the water sources and biodiversity in the Corpochivor's jurisdiction. With a main objective to avoid the inadvertent transition from forest cover to grasslands. The project operates in 1,063 hectares of natural forests and projects a potential reduction of 54,000 tCO<sub>2</sub>e of GHG emissions over 30 years. The project has restored areas of ecological connectivity, and improved the home of the Andean bear, Andean condor, and Brown-breasted Parakeet. In addition, the project has improved the availability and sanitation of water by fencing off 51 properties. South Pole has supported the design of the PES mechanism, which includes a REDD+ strategy: with sales of carbon offsetting credits, as well as the development and sales of biodiversity offsetting credits and private investment in water provision- the proceeds of which go to the local communities responsible for the project implementation and landscape stewardship.

#### ***5.2.2. Payments for biodiversity services and habitat***

Unlike Watershed PES, where identifying the beneficiaries of clean water and flood protection is simple as they are generally located in the same area, the beneficiaries of biodiversity are generally diffuse and the specific benefits are often indirect or non-material, such as the enjoyment of knowing that Andean condors can fly every day. One of the main limitations of Biodiversity and Habitat PES is that there are no institutions that can charge fees on behalf of many beneficiaries, as is the case with utilities. As a result, Biodiversity PES programmes currently exist in only a small number of countries, and the most successful initiatives depend on regulatory drivers that are almost always linked to compensation for biodiversity loss. They are costly schemes, as they require the implementation of strict MRV systems to demonstrate no net loss in key biodiversity indicators. It is for this reason that Biodiversity PES schemes always try to group different compensators in a large area to apply economies of scale and become viable.

There are currently 120 biodiversity and habitat PES programmes in 36 countries: 16 user-funded and 104 compliance programmes. Estimated global transactions range from USD 2.5 bn to USD 8.4 bn per year (Salzman et al., 2018). In Australia, the New South Wales (NSW) government has been implementing a "Biobanking" program. This enabled biodiversity credits to be generated by landowners and developers who committed to enhancing and protecting biodiversity values on their land through an agreement. In NSW, the biodiversity credits are not associated to a hectare but the special environmental conditions of the total area (from a hectare can be issued several credits). Other examples of Biodiversity PES through compliance markets can be found in Madagascar (Rio Tinto QMM) and in the United States (Compensatory Wetlands Mitigation).

### ***Case study: Development of Cocoa Sustainable Landscapes in San Martin in Peru leveraging climate, water, and biodiversity finance***

A coalition of partners led by Seco and Helvetas, and including South Pole, Earthworm, Ecom, Choba Choba and many others are developing a Cocoa Landscape initiative in the San Martin region in Peru.

South Pole is currently leading the feasibility analysis associated with leveraging climate, water, biodiversity finance across the full landscapes including the cocoa farms and surrounding forests. All sources of co-financing will be explored including PES financing, and compliance and voluntary Climate & Nature financing schemes.

## **6. Relationship between Climate & Nature Finance and poverty alleviation**

Although climate and nature finance were conceptualised and undertaken originally as mechanisms to improve the efficiency of natural resource management and provide an effective response to the global climate crisis, they can contribute to some extent to poverty alleviation (Landell-Mills & Porras, 2002; Pagiola, Landell-Mills et al., 2002).

Evidence from the literature shows that Climate and Nature finance through PES can contribute to an increase in households Income by 8-10% (Malavasi et al., 2003; CED, 2012; Fobissie, 2014; WWF, 2013) However, most of the studies concluded that PES programmes are not a silver bullet for poverty reduction, but there can be important synergies when programme design is well thought out and local conditions are favourable. To effectively contribute to poverty alleviation in cocoa producing countries, climate and nature finance schemes need to embed in their design the valorisation of all income streams available in the project area; encompassing the valorisation of carbon and other non-carbon outcomes, such as biodiversity conservation, water stewardship and other crop diversification and livelihood activities.

Climate and nature finance schemes are context-specific and evolving concepts, with much of the success dependent on the specific characteristics of the programme, the stakeholders involved, and the conditions under which it is designed and implemented. Likewise, it is necessary to consider conditions of the local area in the design of the incentive, such that it ensures the sustainability of the strategies over time.

## **7. Key challenges faced by the cocoa sector in climate and nature finance access and some recommendations to overcome them**

In order to reduce the impacts and risks to smallholder cocoa farmers associated with poverty, and increased environmental degradation, sustainable cocoa farms and landscapes are a viable alternative. This is because they optimize the channeling of economic resources from different available sources. However, cocoa & chocolate companies that join such a sustainable strategy, as well as implementers, government, and rural smallholders, face major challenges in attracting investment and sustaining it over time. These challenges largely arise from the divergence of motivations and expectations held by each stakeholder. To harmonize them towards common sustainable goals, we've identified below a number of key challenges that we believe must be addressed, and we offer solutions in order to further deliver impact at scale and pace across cocoa farms and landscapes.

*These are initial “food for thoughts” and intended to stimulate further discussion and development with the SWISSCO members and its stakeholders.*

### **7.1 Navigating compliance with local government frameworks**

Successful project implementation must work within existing governance structures and ensure the intended activities comply with local regulations. This should be done as early as possible to avoid

regulatory difficulties delaying or derailing a project entirely. Climate and nature project developers and financiers must carry out good due diligence and treat each country as a separate regulatory environment - especially as Climate & Nature related regulation is very new and developing rapidly.

In Ghana for instance, all Climate and Nature Finance within the cocoa sector is currently guided by the Ghana Cocoa Forest REDD+ program. The government devised landscape approach guidelines to collaborate with other stakeholders within an established set of Hotspot Intervention Areas (HIAs) by means of Memorandum of Understandings (MoUs) with the Forestry Commission. These are clearly key stakeholders who need to be engaged with as early as feasible, and integrated into the design of the programs. Under the current rules, it is for example not possible to leverage carbon credit finance within the regions that are under the agreement with the World Bank FCPF scheme, as all carbon impact is to be recognised and valorised through this agreement between the Ghanaian government and the World Bank. However, carbon project developers in this area will still have their carbon impact performance recognised through the program's benefit sharing scheme.

As a guiding principle, engaging with the government throughout the project design and implementation both alleviates concerns that the project may not be developed and implemented successfully and that the government's efforts are being undermined. It will also benefit both parties through knowledge exchange and capacity building.

## ***7.2 Property rights and access to natural resources***

Property rights are a fundamental element for the negotiation leading to the retribution of actors contributing to the provision of positive environmental externalities in accordance with the Coase theorem<sup>7</sup>. Hence, when property rights are not well defined, negotiation becomes impossible and it becomes more difficult to compensate for externalities. This also applies to climate finance and alternative financing mechanisms such as Payment for Ecosystem Services (PES). Lack of clarity in the ownership of land, trees, and rights to gains and improvements in ecosystem services limits the financing of sustainable landscapes, as it makes the adoption of sustainable practices impossible (Nyaga et al., 2015), as well as transactions impossible to be established successfully (Louman et al., 2020). In addition, access to natural resources is often also linked to tenure. In many countries, land ownership does not automatically imply that the land owner has rights over the trees on the land. For example, Ghanaian law prohibits the harvesting of indigenous species by anyone that was not the individual who planted them (Lee 2012). As such, tree planting activities must be registered with the government so that communities could harvest and benefit from the resources once grown.

## ***7.3 Technical capacity building and awareness raising for beneficiaries***

While the people tasked with carrying out projects on the ground will likely have the best local knowledge and community relations, they often lack the experience and acumen to execute a project to the level that commercial investors would expect: namely, delivering the new climate and nature performance in a timely manner and within budget. This is often why such projects can overrun and become loss-making. To mitigate this, we recommend that climate and nature projects for sustainable cocoa landscapes must leverage strategic alliances between different actors, including project developers with expertise in carbon and other ecosystem services. Each actor brings different, complementary skills but together they bring a complete set of requisite knowledge

---

<sup>7</sup> In law and economics, Coase theorem purports that the allocation of resources will still be optimal regardless of initial allocation, provided trade of externalities (costs/benefits that are not borne by the original transaction) produced are tradable, and that transaction costs are sufficiently low - permitting "Coasean" bargaining.



to execute the project to a high level. An additional benefit of such a partnership is the transfer of knowledge to rural communities to empower them to exercise better governance over resources and ecosystems whilst at the same time capitalizing on their local expertise.

#### ***7.4 Monitoring Reporting and Verification (MRV) system, and certification***

A major challenge for projects and programs that intend to positively impact climate and ecosystems is to define the performance baseline and regularly measure their results in cost-effective ways. MRV systems seek to provide standardized indicators and metrics that can be validated, used to assess impact, and identify points of improvement. However, they can be expensive and for this reason many programs do not use them, making it difficult to be officially accredited and successfully access funding. The use of remote sensing technologies, local expertise development, partnerships with local universities and NGOs, and the use of open source information collection systems help to mutualise resources and make these more viable.

#### ***7.5 Stronger commitment to act, deliver impact and work collaboratively***

Individual governments, companies, NGOs and civil society efforts are necessary but not sufficient on their own to transform the cocoa sector sustainably and address environmental concerns of the scale and impact associated with climate change and deforestation. Deforestation is by nature a “tragedy of commons” issue - whereby each actor is inadvertently incentivised to deplete more of a common-pool resource such as a forest (Vreja et al., 2016; Cohen et al., 2007; Dean et al., 2007). Resolving deforestation challenges and transforming a given landscape into a thriving, resilient and sustainable one requires stronger commitment, direct investment and a lot of concerted actions from all stakeholders, including all the cocoa farmers and communities and their partners in the value chain (potentially other sectors such as palm oil or mining too if active in the landscape); as well as the national and local government agencies in order to reverse the trend.

Much headway has been made, spearheaded by the Cocoa & Forest Initiative as well as many more landscape level ones led for example by the Partnership For Forest and [IDH](#). However, the current business models used in the cocoa sector and the underlying legal and regulatory frameworks are not yet fully promoting collective action. As a consequence, cocoa driven deforestation is still a pressing issue and the vast majority of cocoa farmers across key producing regions are currently living under the poverty line.

Cocoa stakeholders must therefore commit more strongly to a Net Zero Climate & Nature pathway, further work collaboratively (across the cocoa & chocolate sector but also with other sectors present in the given landscape e.g. palm oil, mining) and adapt their business model by balancing profit maximization with the fundamental social and environmental values that are necessary to maintain the landscape's long-term sustainability. Recent exploratory studies around these challenges suggest that by working collaboratively, stakeholders within a landscape can reverse the trend of unsustainable environmental and social practices within an industry while generating economic profits for the businesses and the local communities (Juma et al., 2017; Cohen et al., 2007; Dean et al., 2007).

#### ***7.6 Climate and Nature Finance Gap***

A recent [report](#) by the Paulson Institute, the Nature Conservancy and the Cornell Atkinson Center for Sustainability estimated that the nature finance gap stood at USD 700bn (Deutz et al., 2020). The

finance mechanisms for climate, water and biodiversity are rapidly emerging, constantly evolving and being further structured but are still facing a number of key challenges. Even for carbon impact projects, funding is sometimes not sufficient and consistent. In most cases, the value of the natural capital is still priced too low and does not cover the opportunity cost of maintaining or restoring ecosystems. This is why resources are optimized, and even then, some of the remaining costs must be covered by small producers or landowners (e.g. part of the labor costs associated with project implementation). Meanwhile, financial returns from specific investments in sustainable landscapes are often low, or may only be realised over the longer term, and so carry more risk.

To lessen such challenges, the value of natural capital will need to significantly increase over the coming years. Taking climate finance as an example, the vast majority of carbon offsetting credits are currently priced broadly speaking between USD 3-15/ tCO<sub>2</sub>e. At the same time, many studies from the World Bank and the IFC are clearly presenting that the price of carbon should be a minimum of USD 75/ tCO<sub>2</sub>e to incentivise serious action against the climate emergency. Another solution would be to develop investment risk sharing mechanisms among public and private entities whereby the public entity shoulders more risk. This can then generate greater assurance that in turn encourages more private investment (see blended finance, section 4).

### **7.7 Cost-effectiveness**

As in all business investments, Climate & Nature Finance seeks the highest possible environmental and social impact at the lowest cost. As occurs in biodiversity banks (see 5.2.2), some climate finance schemes collate contributions from many sources of off-set, which facilitates financial economies of scale. Thus, the marginal cost of managing one additional hectare lowers each time. However, in other schemes, such as PES, where contributions may not be constant, it is necessary to adopt more effective forms of budgetary management. For instance, contracting a legal trust to "smoothly" distribute the capital, or managing a strong initial investment so that the returns can finance the activities later. In most cases, the available budget will be limited and competing with different demands. Different approaches should be considered to continuously drive cost-efficiency. For example, cost-saving synergies can be found in developing integrated climate, water, and biodiversity impact and finance programs concurrently at landscape level. While the use of geospatial technologies (remote sensing, and geographic information systems) in conjunction with artificial intelligence can improve the process of selecting and monitoring lands for climate, water, and biodiversity PES programs, bringing efficiencies. Aggregating small projects together or developing projects at landscape scale by design will also generate transaction cost-efficiencies.

### **7.8 Community empowerment and buy-in risks**

Community engagement and empowerment is fundamental to successfully achieving the objectives of landscape programs. Natural capital conservation and regeneration, and crops production agreements that are signed between stakeholders must be respected, but this is not always the case. A landowner whose land belongs to a project or program may sell it to another stakeholder without first ratifying the agreement. This puts the permanence of management activities at risk. Instead, this community commitment needs to be strengthened through environmental education, community governance, landscape management, and also through communication and enforcement of land use regulations.

### ***7.9 Internal organization and social networks***

The success of projects and programs that seek to conserve forests and ecosystem services depends to a large extent on how well local producer associations can optimize existing resources. If the best strategies for optimizing landscape resources are not adopted jointly, the initiatives will fail (and the money invested will be lost). That is why the transfer of expert knowledge to small rural producers is a key activity, but so is the creation of better forms of cooperation between these producers, so that the adoption of optimization strategies is faster and more harmonious. For example, some forest concession holders in Peru preparing for Forest Stewardship Certification indicated that improving their internal organization was one of the biggest benefits gained: resulting in production losses after tree harvest decreasing by about 10%. This reduced loss also meant that fewer trees needed to be cut for each cubic meter of sawn wood produced. Stronger operational management facilitates the adoption of standards, and this can be channeled through buyers, project developers and fund managers (Louman et al, 2020).

### ***7.10 Risk of project management and ecosystem services non-permanence***

One of the main challenges of implementing sustainable projects at the landscape level is the risks of project management and ecosystem services non-permanence over the long-term. There are a number of factors that threaten the continuity of management actions and ecosystem services related namely to internal management, socio-economic development, and natural hazards such as locust plagues especially in the context of rapidly increasing climate change. Since the coverage of this type of risk in the rural parts developing countries is neither common nor continuous, the challenge to lessen these adverse impacts is to design plans that mitigate these risks through prevention, a strategy that turns out to be cost-effective ex post intervention.

In South Africa, for example, farmers incorporated crop diversification, precautionary savings, and participation in social networks in their risk reduction strategies (Kisaka-Lwayo and Obi, 2012). Crop diversification, if well managed, can address efficiency of resource use, seasonality of harvests, and susceptibility to climatic conditions and pests. Moreover, crop insurance is increasing. Whereby payable premiums pre-hazard by a broad population of regional actors (some of the cost for which could be paid by corporate stakeholders) that would then cover the most acute damages in the specific localised natural disasters (Carter et al., 2014; WINnERS scheme). Finally, setting up financially self-reliant communities could provide a long term solution to the continuity of the provision of ecosystem services when transitioning from one ecosystem services buyer to another. There are numerous other finance innovations emerging from the tropical agriculture arena (see section 4).

## 8. Conclusions

The landscape of Climate & Nature Finance in the cocoa and chocolate sector is still relatively nascent. However in the last few years it has grown rapidly in size and sophistication and it is ready for being scaled up at pace. In many ways, even though the overall framework for financing and delivering climate & nature impact remains imperfect, it has never been better. Moreover, there has never been as many potential opportunities for cocoa & chocolate companies to seek and gain co-financing from 3rd parties, or as many financing vehicles aligned to the shared objectives of addressing the climate and nature emergency. Depending on the projects, their size and activities, Climate & Nature Finance could potentially provide a 20-40% co-financing additionality based on South Pole experience.

The business case for climate & nature cocoa farming and for sustainable landscapes is very clear. More cocoa and chocolate companies are committing to radical transformation of their business models to deliver strong economic, social and environmental performance. The carbon rule books at global and national level, as well as for companies' climate performance management, are rapidly being finalised - at least with respect to implementation for the coming decade of actions. As a result the markets to deliver new climate & nature performance at scale and pace are rapidly developing and offering a multitude of new options for companies to leverage.

To give a sense of context, at least on the climate agenda, we have broadly calculated that the global chocolate sector generates 100m tCO<sub>2</sub>e per year. Limiting the global average climate temperature to 1.5°C, we will need to collectively reduce this performance by 50% by 2030. **Now is the time to act at scale and pace, to put forward and implement real Climate & Nature programs across cocoa landscapes, to fully leverage Climate & Nature financing mechanisms and bring our collective good to act on the Climate & Nature Emergency.**

In this paper, we have attempted to provide at a high level an overview that brings together many of the Climate & Nature Finance initiatives into a more coherent narrative, such that stakeholders are empowered to take action to tackle the climate emergency, regenerate ecosystems, alleviate poverty and build resilience in the cocoa sector. We fully recognise this is just an initial and high level research paper produced in advance of the SWISSCO workshop on Climate & Nature Finance in October 2021, and further research and stakeholder engagement is required to fully map out the specific potential opportunities.

To conclude, and in light of the recently approved SWISSCO 2030 Roadmap, we would like to briefly share some thoughts on very concrete actions that SWISSCO and its members could take to lead this Climate & Nature agenda going forward. We recognise these further require discussions, explorations and developments.

### **In relation to companies strategies, commitments, management framework and sector initiatives**

- Develop a collective commitment for all SWISSCO company members to have validated Climate Net Zero and Science-Based targets by 2025.
- Develop a collective commitment for all SWISSCO company members to halt deforestation across all their sourcing regions by 2030 the latest.

- Develop a commitment to addressing collectively the increasing challenges posed by climate change across cocoa producing regions and the need to invest in adaptation and a fair and just transition for all stakeholders across its cocoa value chains.
- Develop a collective commitment on Nature and Biodiversity for all SWISSCO company members to align their sustainable cocoa strategies to the emerging new UN Global Framework for Managing Nature and its 2030 and 2050 targets, and to commit to the recently launched Science Based Targets for Nature.
- Develop a collective commitment for all SWISSCO main sourcing cocoa landscapes to be Climate Net Zero by 2040 latest (50% of them by 2030) and be aligned to the emerging new UN Global Framework for Managing Nature and its 2030 and 2050 targets.

### **In relation to companies leveraging Climate & Nature Financing:**

- Leverage all sources of Climate & Nature financing as presented below:
  - *At corporate level:* financing schemes such as green bonds, climate/ sustainability linked loans, and climate & nature funds.
  - *At farm project level:* climate SBTs financing, watershed management financing, biodiversity credits, Public-Private financing.
  - *At landscape level:* carbon in/offsetting credits, biodiversity in/offsetting credits, climate/ water/ biodiversity Payment for Ecosystem Services, Public-Private financing, Impact finance.
- Integrate a cost of carbon (and nature) into its own financial system to ensure that all its investment and financial management decisions are optimising the improvement of its Climate & Nature performance.
- Collaborate to create a new and innovative financing mechanism associated with the delivery of Climate SBTs within the cocoa supply chain as a first step, and then upscale this model to other chocolate ingredients, as well as to other natural capitals such as biodiversity.
- Collaborate to create appropriate collective financing mechanisms such as a Cocoa Climate & Nature Fund to help leverage all available financing sources (on-farm only/ off-farm only/ mixed). Engage with the Swiss/ other countries Financial Services sector to explore synergies and innovate.
- Engage with key cocoa initiatives such as other European Cocoa National Platforms and the Cocoa & Forest Initiative to:
  - Formally include into these initiatives' strategy and objectives specific Climate & Nature performance objectives, targets and associated KPIs to be collectively delivered on.
  - Collaborate to develop a common carbon accounting & reporting system from the farm to the end-product/ brand.
  - Collaborate to invest in a number of Landscape Initiatives and leverage all the potentials that Climate & Nature financing can offer for these given landscapes.
  - Collaborate to create appropriate collective financing mechanisms such as a Cocoa Climate & Nature Fund to help leverage all available financing sources.

## **In relation to engaging with Governments in both cocoa exporting and importing countries**

- Collaborate with Cocoa Exporting Governments to develop and jointly implement with other key stakeholders:
  - Best Climate & Nature smart cocoa farming/ community/ landscape practices and the accompanying implementation and financing program.
  - Climate & Nature policies/ frameworks that are easy to work with, can truly deliver impact and incentivise/ reward farmers & their communities as well as attract private investment. Among others, develop and pilot the concept of a Climate & Nature Smart Cocoa Premium that will guarantee a “net of opportunity costs benefit” to the farmers and further help improve their living income.
  - Climate adaptation programs to optimise resilience to upcoming climate induced changes and ensure as needed a fair and just transition for cocoa stakeholders across the value chain (farmers, communities, processing facilities etc).
  - Recognising SWISSCO's strong relationships with Ghana and Peru, develop concrete 2030 Climate & Nature programs to further help these countries deliver their strategies and aspirations to become leading sustainable and climate & nature cocoa producers.
- Collaborate with Cocoa Importing Governments to develop:
  - The appropriate sourcing due diligence requirements for all market players, and for these to cover appropriately the Climate & Nature agendas.
  - Sustainability/ Climate & Nature requirements in public purchasing policies.
  - An enabling environment for communicating with integrity on sustainable/ climate & nature friendly chocolate and gaining further support from consumers. This could include supporting the development of a product level eco-label (there are multiple initiatives currently being piloted across Europe).

## **In relation to cocoa farmers and their communities**

- Develop and implement with cocoa farmers and associated communities a new cocoa farming and trading business model that will foster the rapid delivery of SWISSCO sustainability objectives, including Climate & Nature topics.
- Among many topics to be addressed:
  - Invest significantly in farmers and communities' training in Climate & Nature Smart farming and landscape management practices. Build local farmers advisory capacity expertise.
  - Work with farmers, communities and national/ local governments to raise tenure security and improve access to finance and climate adaptation insurance schemes, such that adoption barriers related to the transitions costs are reduced.
  - Develop and pilot the concept of a Climate & Nature Smart Cocoa Premium that will guarantee a “net of opportunity costs benefit” to the farmers and further help improve their living income.
  - Work with farmers, communities and local governments to encourage farm production diversification and creation of market linkages.

- Strengthen the cocoa communities stewardship of its landscapes by organising stakeholders into Community-Based Natural Resources Management (CBNRM) committees such as the Community Resource Management Areas (CREMA) model in Ghana.
- Develop with farmers, communities and national/ local authorities climate adaptation programs to optimise resilience to climate induced changes and deliver as needed a fair and just transition.

## References

- Barbier, E.B., 2000. The economic linkages between rural poverty and land degradation: some evidence from Africa. *Agriculture, Ecosystems & Environment*, 82(1-3), pp.355-370.
- Benjamin, E.O. and Sauer, J., 2018. The cost effectiveness of payments for ecosystem services—Smallholders and agroforestry in Africa. *Land use policy*, 71, pp.293-302.
- Bunn, C., Castro, F., Lundy, M. and Läderach, P., 2018. Climate change and cocoa cultivation. Burleigh Dodds Science Publishing.
- Carter, M., De Janvry, A., Sadoulet, E. and Sarris, A., 2014. Index-based weather insurance for developing countries: A review of evidence and a set of propositions for up-scaling. Development Policies working paper, 111.
- Centre pour l'Environnement et le Développement (CED). (2012). "Community PES: Community Payments for Ecosystem Services (PES) in the Congo Basin (Plan Vivo Project Design Document (PDD))." Accessed 24 August 2021. <https://www.yumpu.com/en/document/read/34082498/download-the-pdd-pdf-plan-vivo>
- Cohen, B. and Winn, M.I. (2007) 'Market imperfections, opportunity and sustainable entrepreneurship', *Journal of Business Venturing*, Vol. 22, No. 1, pp.29–49.
- Crescenzi, R. and Rodríguez-Pose, A., 2011. Reconciling top-down and bottom-up development policies. *Environment and planning A*, 43(4), pp.773-780.
- Dean, T. J., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of business venturing*, 22(1), 50-76.
- Dechezleprêtre, A., Fankhauser, S., Glachant, M., Stoeber, J. and Touboul, S., 2020. Invention and Global Diffusion of Technologies for Climate Change Adaptation.
- Deutz, A., Heal, G.M., Niu, R., Swanson, E., Townshend, T., Zhu, L., Delmar, A., Meghji, A., Sethi, S.A. and Tobin-de la Puente, J., 2020. Financing Nature: Closing the Global Biodiversity Financing Gap (The Paulson Institute, The Nature Conservancy, and the Cornell Atkinson Center for Sustainability).
- Fa, J.E., Watson, J.E., Leiper, I., Potapov, P., Evans, T.D., Burgess, N.D., Molnár, Z., Fernández-Llamazares, Á., Duncan, T., Wang, S. and Austin, B.J., 2020. Importance of Indigenous Peoples' lands for the conservation of Intact Forest Landscapes. *Frontiers in Ecology and the Environment*, 18(3), pp.135-140.
- Fobissie, K. (2014). Experiences and Lessons Learned on REDD+ Social and Governance Safeguards in Cameroon. Accessed 24 August 2021. [https://www.researchgate.net/publication/283290024\\_Experiences\\_and\\_Lessons\\_Learned\\_on\\_REDD\\_Social\\_and\\_Governance\\_Safeguards\\_in\\_Cameroon](https://www.researchgate.net/publication/283290024_Experiences_and_Lessons_Learned_on_REDD_Social_and_Governance_Safeguards_in_Cameroon)
- Gauvin, C., Uchida, E., Rozelle, S., Xu, J. and Zhan, J., 2010. Cost-effectiveness of payments for ecosystem services with dual goals of environment and poverty alleviation. *Environmental management*, 45(3), pp.488-501.



Gitz, V., Pingault, N., Meybeck, A., Ickowitz, A., McMullin, S., Sunderland, T.C.H., Vinceti, B., Powell, B., Termote, C., Jamnadass, R. and Dawson, I., 2021. Contribution of forests and trees to food security and nutrition. Retrieved from: <https://www.cifor.org/knowledge/publication/8006/>

Havemann, T., Negra, C. and Werneck, F., 2020. Blended finance for agriculture: exploring the constraints and possibilities of combining financial instruments for sustainable transitions. *Agriculture and Human Values*, 37(4), pp.1281-1292.

Juma, N., James, C.D. and Kwesiga, E., 2017. Sustainable entrepreneurship in Sub-Saharan Africa: The collaborative multi-stakeholders network model.

Kisaka-Lwayo, M. and Obi, A., 2012. Risk perceptions and management strategies by smallholder farmers in KwaZulu-Natal Province, South Africa. *International Journal of Agricultural Management*, 7(3), pp.28-39.

Landell-Mills, N & Porras, I. (2002). Silver Bullet of Fools' Gold? A Global Review of Markets for Forest Environmental Services and Their Impacts of the Poor. IIED, London.

Louman, B., Meybeck, A., Mulder, G., Brady, M., Fremy, L., Savenije, H., Gitz, V. and Trines, E., 2020. *Innovative finance for sustainable landscapes* (Vol. 7). CIFOR.

Malavasi, Edgar O., Kellenberg, J. (2003). Program of Payments for Ecological Services in Costa Rica.

Nyaga, J., Barrios, E., Muthuri, C.W., Öborn, I., Matiru, V. and Sinclair, F.L., 2015. Evaluating factors influencing heterogeneity in agroforestry adoption and practices within smallholder farms in Rift Valley, Kenya. *Agriculture, Ecosystems & Environment*, 212, pp.106-118.

Ouma, E.A., Obare, G.A. and Staal, S.J., 2003. Cattle as assets: assessment of non-market benefits from cattle in smallholder Kenyan crop-livestock systems (No. 1002-2016-78228).

Pagiola, S., Landell-Mills, N., Bishop, J. (2002). Market-based mechanisms for forest conservation and development.

Robinson, B.E., Holland, M.B. and Naughton-Treves, L., 2014. Does secure land tenure save forests? A meta-analysis of the relationship between land tenure and tropical deforestation. *Global Environmental Change*, 29, pp.281-293.

Salzman, J., Bennett, G., Carroll, N., Goldstein, A. and Jenkins, M., 2018. The global status and trends of Payments for Ecosystem Services. *Nature Sustainability*, 1(3), pp.136-144.

Teklewold, H., Kassie, M. and Shiferaw, B., 2013. Adoption of multiple sustainable agricultural practices in rural Ethiopia. *Journal of agricultural economics*, 64(3), pp.597-623.

Vreja, L.O., Bălan, S. and Mavrodin, C., 2016. Sustainability and the Tragedy of the Commons. A New Perspective. In International Conference on Competitiveness of Agro-food and Environmental Economy Proceedings (Vol. 5, pp. 176-187). The Bucharest University of Economic Studies.

World Economic Forum, 2020. Nature Risk Risking: Why the Crisis Engulfing Nature Matters for Business and the Economy, s.l.: s.n.

WWF. (2013). Payment for Ecosystem services in the Ngoyla-Mintom forest block for rural communities (Plan Vivo project idea note).

## Glossary

Term	Definition
Additionality	Additionality means that the reductions in emissions achieved by the project must be "above business as usual" .i.e. they would not have occurred unless the project was implemented
Biodiversity	The variety of all natural organisms in a given area. Biodiversity is key to maintaining the stability and resilience of natural environments.
Biodiversity credit	A biodiversity credit is a tradable certificate that represents the net gain in biodiversity associated with the restoration or conservation of one hectare of a strategic ecosystem over a given period of time (usually 20 years).
Bottom-up	Approach in development theory whereby local actors are empowered to lift themselves out of poverty. However, it can lack the financial weight that is needed to deliver change at scale.
Carbon credit	A carbon credit is a tradable permit or certificate that provides the holder of the credit the right to emit one ton of carbon dioxide or an equivalent of another greenhouse gas – it's essentially an offset for producers of such gases.
Carbon sequestration	Any activity that draws down greenhouse gases from the atmosphere and locks it away in some form e.g. planting trees.
Climate (green) bonds	Financial bonds that are issued under the proviso that the money raised will be spent only on activities that satisfy certain criteria - usually that the proceeds will be used to fund climate mitigation and adaptation activities.
Climate adaptation	Actions that reduce the <i>effects</i> of climate
Climate finance	Relates to any capital that funds climate mitigation or adaptation activities.
Climate mitigation	Actions that reduce the <i>causes</i> of climate change
Climate smart agriculture (CSA)	Land management practices that improve the resilience of environmental systems to the effects of climate change, whilst maintaining the productivity of the land.
Emissions avoided	Emissions that would have otherwise been produced, had a certain intervention not been implemented
Emissions reductions	Interventions that decrease the emissions intensity for a production activity.
Emissions removed	Emissions that are absorbed from carbon sequestration interventions or carbon capture technologies
ERs	Emission Reduction units
Greenhouse Gases (GHGs)	All gases that exert a warming effect, typically carbon-based.
In-setting	Compensating for greenhouse gas emissions by paying for climate positive activities <i>within</i> your own value chain

<b>Landscape approach</b>	A landscape is a socio-ecological system that consists of natural and/or human-modified ecosystems, and which is influenced by distinct ecological, historical, political, economic and cultural processes and activities. Within a landscape, there can be various land use types, such as agriculture, forestry, pastures, and urban areas. The actors managing these land use types have different objectives, e.g. food production for domestic consumption, production of raw materials for the market, forest and biodiversity conservation, expansion of settlements, among others.
<b>MRV system</b>	Monitoring, reporting and verification system to obtain metrics that validate the impact declared by programs or projects.
<b>Natural Capital</b>	Natural capital refers to the elements of the natural environment which provide valuable goods and services to people e.g. mangroves used to mitigate flood damage
<b>Net Zero</b>	The act of producing a level of carbon output equivalent that that which is sequestered or captured.
<b>Off-setting</b>	Compensating for greenhouse gas emissions by paying for climate positive activities <i>outside</i> of your value chain.
<b>Off take agreements</b>	An arrangement between a producer and a buyer to purchase or sell portions of the producer's upcoming goods
<b>Payment for ecosystem services (PES)</b>	Collective term for arrangements where people are financially compensated for conserving environmental services. E.g. paying people to preserve forests.
<b>REDD</b>	Abbreviation for Reducing Emissions from Deforestation and Forest Degradation: a set of actions and principles for giving financial encouragement to countries to protect their forests
<b>REDD+</b>	REDD+ built on REDD (hence the same acronym) but refers to a more expansive criteria of conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks
<b>Scopes</b>	The boundaries that separate different sources of emissions
<b>Sustainability linked loans</b>	Loans where the borrower may receive favourable terms if certain sustainability criteria are satisfied. E.g. reduced interest rates if a certain proportion of the money funds climate mitigation and adaptation activities. The terms are used because they can also encompass broader sustainability criteria such as labour and gender rights.
<b>Top-down</b>	Development approach whereby large scale corporate and government actors effect change onto stakeholders with minimal consultation. It has been criticised for directing resources in a way that is appropriate to local circumstances.



## Key Contacts



**Christian Robin**  
Executive Director  
SWISSCO  
[christian.robin@kakao.plattform.ch](mailto:christian.robin@kakao.plattform.ch)



**Hans-Peter Egler**  
Director of Public Affairs  
South Pole  
[h.egler@southpole.com](mailto:h.egler@southpole.com)  
+41435013550



**Dominique Gangneux**  
Senior Principal Consultant  
South Pole  
[d.gangneux@southpole.com](mailto:d.gangneux@southpole.com)  
+44 7713 904577



**Florent Dji**  
Senior Consultant, Cocoa  
Specialist, South Pole  
[f.dji@southpole.com](mailto:f.dji@southpole.com)  
+44 277 87 23 77



**Marianne Martinet**  
Programme Director  
Earthworm Foundation  
[m.martinet@earthworm.org](mailto:m.martinet@earthworm.org)



**Renzo Verne**  
Country Head, Switzerland  
Earthworm Foundation  
[r.verne@earthworm.org](mailto:r.verne@earthworm.org)  
+41 (0) 22 367 94 40

