

FINANCING SUSTAINABLE LAND USE

Unlocking business
opportunities in
sustainable land use
with blended finance

In collaboration with the Business & Sustainable Development Commission
and the Blended Finance Taskforce

KOIS **INVEST**



January 2018

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Acknowledgements

The authors wish to thank the following for their cooperation and valued contributions, in alphabetical order by organisation, including Catharina Dyvik, John E. Morton, Jeremy Oppenheim and Katherine Stodulka at the Blended Finance Taskforce, Julia Koskella and Morten Rosse at SYSTEMIQ, Edward Davey at the World Resources Institute. Finally, the authors wish to thank all the interviewed organisations for their time and valuable insights which contributed tremendously to this report.

Description

Sector:	Sustainable land use
Geography:	Global, with a focus on Brazil and Colombia
Key words:	Sustainable land use, forestry, avoided deforestation, sustainable agriculture, smallholder agriculture, blended finance, private capital, public capital, philanthropic capital

About KOIS Invest

KOIS Invest is a social impact investor with a portfolio in Europe and India primarily in education, employment and healthcare, as well as an innovative finance advisory firm with a focus on sustainable living and climate change. Within the advisory arm, KOIS Invest aims to develop innovative and scalable financing structures that can channel public and private sector financing to tackle some of the most pressing development issues. KOIS Invest is headquartered in Brussels with offices in London, Paris and Mumbai.

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Sustainable land use (SLU) is land use that protects the climate by reducing carbon emissions and preserving nature's vital carbon sinks by averting or mitigating deforestation, degradation and carbon-intensive agriculture¹ while providing safeguards for meeting increasing human needs for food and fibre as well as a habitat for biodiversity.^{2,3} While SLU often includes considerations beyond those directly related to climate change, it is the significance of land use as a source both of carbon emissions as well as natural climate solutions that demands urgent action.

EXECUTIVE SUMMARY

THE SLU CHALLENGE AND OPPORTUNITY

Growing demand for food and energy is putting increasing pressure on land, threatening our planet's natural resources.

In 2014, the Intergovernmental Panel on Climate Change (IPCC) estimated that the agriculture, forestry, land use and land use change sector (known collectively as AFOLU) accounted for 24%⁴ of global greenhouse gas emissions in 2010. The need for more sustainable land use is thus an urgent one. The cost of inaction and its effects on climate change are vast. The Eliasch review estimated that halving deforestation rates by 2030 would reduce greenhouse gas (GHG) emissions by 1.5-2.7 gigatonnes CO₂, and avoid more than US\$3.7 trillion in damages from climate change. These economic costs would be in addition to the social costs associated with reduced food security and the increased risk of natural disasters, which already claim an estimated 400,000 lives each year.⁵

These crises also imply opportunity. "Natural climate solutions" – particularly forest conservation, avoided deforestation,

reforestation and forest landscape restoration – are among our most impactful options to limit global warming. Forest-related activities

account for 68% of total carbon mitigation potential of natural climate solutions. In contrast, although the agriculture sector accounts for 62% of all AFOLU emissions,⁶ agriculture-based pathways only represent 20% of the mitigation solution annually through SLU.^{7,8} A focus on forest conservation and avoided deforestation and degradation, therefore, will deliver the greatest immediate anthropogenic emissions reduction per hectare. Sustainable agricultural practices, to the extent that production intensification and sustainable livelihoods avoid further deforestation, can also deliver initial impact. In the long-term, the successful incorporation of an integrated reforestation, afforestation and landscape restoration component in SLU has significant mitigation potential and can be one of the most important natural climate solutions going forward. Furthermore, the Business and Sustainable Development Commission's report – "Better Business, Better World" – has estimated that forest ecosystem services specifically will be worth US\$365 billion annually, by 2030.

FROM OPPORTUNITY TO ACTION

Private investment is not at the scale needed to tackle the problem.

There needs to be a paradigm shift in the way in which (i) private sector investors view investment opportunities in SLU and how (ii) public and philanthropic investors engage to catalyse private capital in the Sustainable Development Goals (SDGs).

The most common refrain in SLU is the lack of 'investable' project opportunities. Indeed, one of the biggest challenges to private sector investment in SLU is identifying currently-investable projects or projects at the 'tipping point' in which to deploy private capital at scale. Forest Trends finds that committed capital in SLU

of surveyed funds grew 8x to ~US\$8 billion in the decade leading up to 2015; but of that, over 30% remains undeployed because of lack of investable projects.⁹

Many latent SLU investment opportunities with long-term growth potential in developing countries, however, do exist.

To capture this economic value, private sector investors need to assess opportunities for what they really are: early-stage SLU venture capital investments. Private investors cannot look at SLU as 'business-as-usual' investment opportunities. Inherent in this sector are higher risk-return profiles and longer development lead times, but also significant long-term growth potential.

High-potential SLU opportunities by time horizon

	Quick wins Target 6-12% IRR 0-5 years	Medium term Target 10-15% IRR 5-15 years	Long term Target 10-20% IRR 10-20+ years
Sustainable forestry production	<ul style="list-style-type: none"> Non-reforestation sustainable timber in developed markets (<i>New Forests in ANZ; Amata; Symbiosis</i>) 	<ul style="list-style-type: none"> Non-reforestation sustainable timber in emerging markets (<i>New Forests in SEA</i>) 	<ul style="list-style-type: none"> Reforestation sustainable timber in emerging markets
Sustainable agriculture production	<ul style="list-style-type: none"> Large primary producers Value-added processing along value chain of sustainable commodities (<i>&Green Fund; Root Capital</i>) 	<ul style="list-style-type: none"> Sustainable smallholder agriculture with off-takers (<i>TLFF; L3F</i>) 	<ul style="list-style-type: none"> Sustainable smallholder agriculture without off-takers
Integrated approach	<ul style="list-style-type: none"> Production intensification on large degraded lands (<i>PECSA silvopastoral cattle intensification</i>) 	<ul style="list-style-type: none"> Integrated agroforestry on restored lands 	<ul style="list-style-type: none"> Integrated reforestation/landscape restoration for sustainable production or conservation
Other non-production revenue streams	<ul style="list-style-type: none"> Ecotourism (<i>KAZA</i>) 	<ul style="list-style-type: none"> Payment for ecosystem services Conservation through carbon and other credits (<i>New Forests in US</i>) 	<ul style="list-style-type: none"> Innovative technologies and support services (<i>F3Life; Suvo; SSCIV</i>) Reforestation/landscape restoration for conservation
Illustrative role of blended finance			
Illustrative geographies	<ul style="list-style-type: none"> United States/Canada Australia/New Zealand South Africa Latin America 	<ul style="list-style-type: none"> Latin America Southeast Asia East Africa 	<ul style="list-style-type: none"> Southeast Asia/South Asia Sub-Saharan Africa

Mobilising private capital through blended finance is essential to unlock these market opportunities. By deploying public and philanthropic funds, blended finance can mitigate risks and enhance returns for investors by strengthening jurisdictional industrial policy (this will be key for truly systemic change), supporting pipeline development, providing concessional capital and guarantees and improving market incentives.

This will require greater coordination between public investors, as well as a more direct link between public funding and private investments. At both the global and country levels many parallel donor initiatives provide small-scale grants to NGOs and projects, but the missing link between grants and concessional funding leads to many projects dying off or not reaching scale. Financing SLU requires multi-sectoral coordination to integrate programs into a holistic landscape approach. Global platforms can also play an essential matchmaking role, connecting credible private, public, and philanthropic investors to co-invest in deals.

Finally, development finance institutions (DFIs) and multilateral development banks (MDBs) can more significantly shift focus towards private sector mobilisation, and align incentives for investment managers by setting targets around private investor leverage – both at the investment and portfolio sector levels. In addition, they can work alongside and co-invest with emerging blended finance facilities that can de-risk SLU investments. In SLU, transaction costs and risks (country, business, etc.) are high. While some DFIs are currently considering ways to invest in riskier and more impactful projects (e.g., through dual investment policies), emerging blended finance facilities can play an important role in accelerating this trend by providing lower interest, longer tenors and/or subordination to DFIs.

THE SLU CHALLENGE AND OPPORTUNITY

In 2014, the Intergovernmental Panel on Climate Change (IPCC) estimated that the agriculture, forestry, land use and land use change (known collectively as AFOLU) sector accounted for 24%¹⁰ of global greenhouse gas emissions in 2010 (of which net deforestation is responsible for approximately 10%¹¹ and agriculture accounts for the other 14%).¹² Other sources find that gross contributions of forestry account for as much as 4.9 gigatonnes CO₂e (CO₂-equivalent) per year and agricultural activities for 6.1 gigatonnes CO₂e per year.¹³ The AFOLU sector comes second only to electricity and heat production in terms of global carbon emissions.¹⁴

The significance of land use extends far beyond the context of climate change. Forest landscapes constitute 30% of the Earth's surface¹⁵ and are an essential source of energy, food security, shelter, and livelihoods for over two billion people. They provide environmental goods and services such as soil, water, wood and non-wood products in addition to carbon storage. They also serve as homes and havens for 80% of the world's biodiversity.¹⁶

Given these multi-faceted and crucial functions, SLU features prominently in the Sustainable Development Goals (SDGs) of the United Nations. SDGs 2, 3, 6 and 8 deal with sustainable livelihoods and economic development; and 12 and 13 deal respectively with sustainable consumption and production and action to combat climate change—achieving these SDGs will require a transformation in the relationship between human societies and the lands we inhabit. And SDG15 specifically commits to “protect, restore, promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.”¹⁷

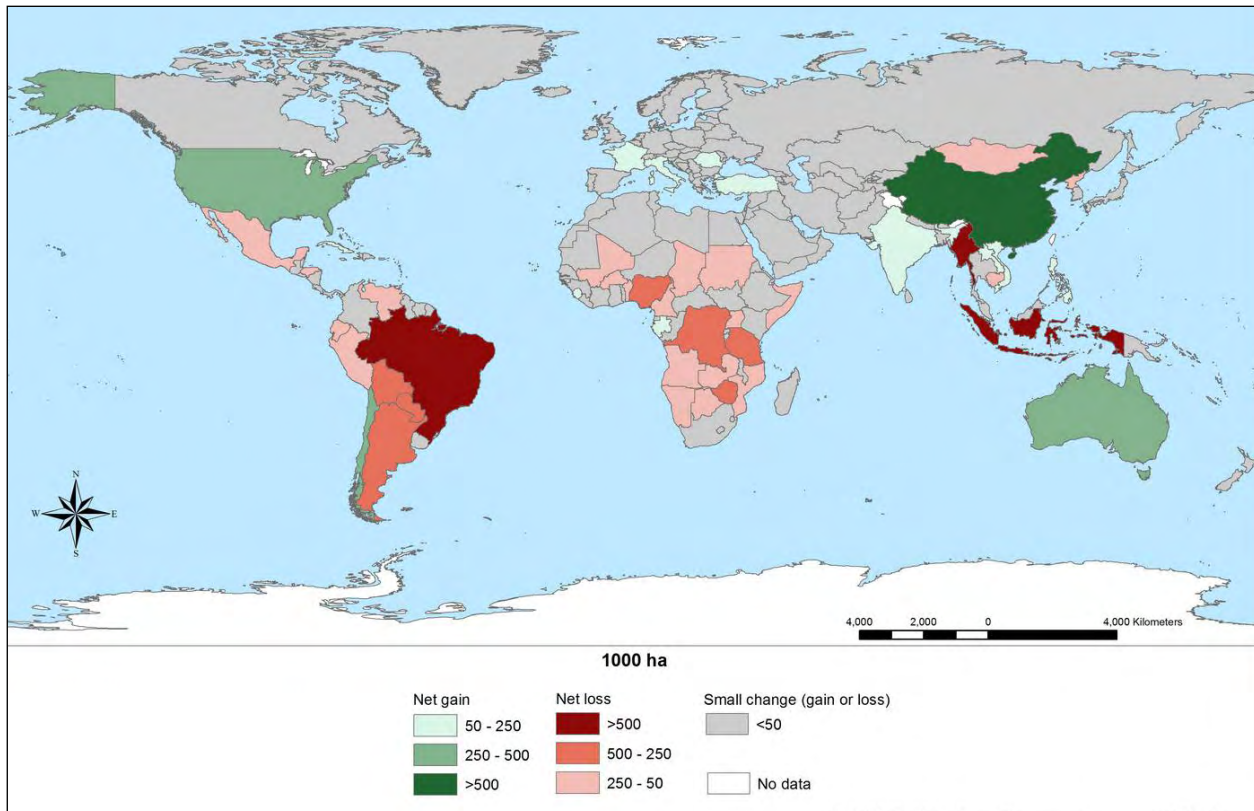
The task is an urgent one. An estimated 129 million hectares of forest - approximately the size of South Africa - has been lost since 1990.¹⁸

1. DEFORESTATION

The Food and Agriculture Organization of the United Nations (FAO) defines deforestation as the “conversion of forest to other land uses or the permanent reduction of the tree canopy cover below the minimum 10% threshold.”¹⁹ While the northern hemisphere has followed a trend of reforestation in the last decades, deforestation has been prominent in tropical regions. In the pan-tropical regions, gross forest loss reached approximately 140.5 million hectares between 2000 and 2012.²⁰

Brazil and Indonesia feature most prominently in the global deforestation agenda, making up 37% of gross forest loss in pan-tropical regions between 2000-2012, with Brazil losing almost 38 million hectares of forest and Indonesia losing over 14 million hectares of forest in that period. While rates of deforestation have slowed in Brazil since 2004, the country still faces significant challenges posed by acute demand for land by cattle ranching and soy production.²¹ And while Indonesia has committed to reducing its carbon emissions by 29% by 2030 (most of which are emitted by the forestry sector),²² its rate of deforestation has increased slightly in recent years,²³ with Sumatra and Kalimantan remaining critical hotspots and Papua seeing an alarming rise in deforestation rates.²⁴

FIGURE 1 | Annual change in forest area (1990-2015)²⁵



Broadly, the causes of deforestation can be disaggregated into five categories: commercial agriculture, subsistence agriculture, infrastructure expansion, industrial extraction of forest products, and mining.

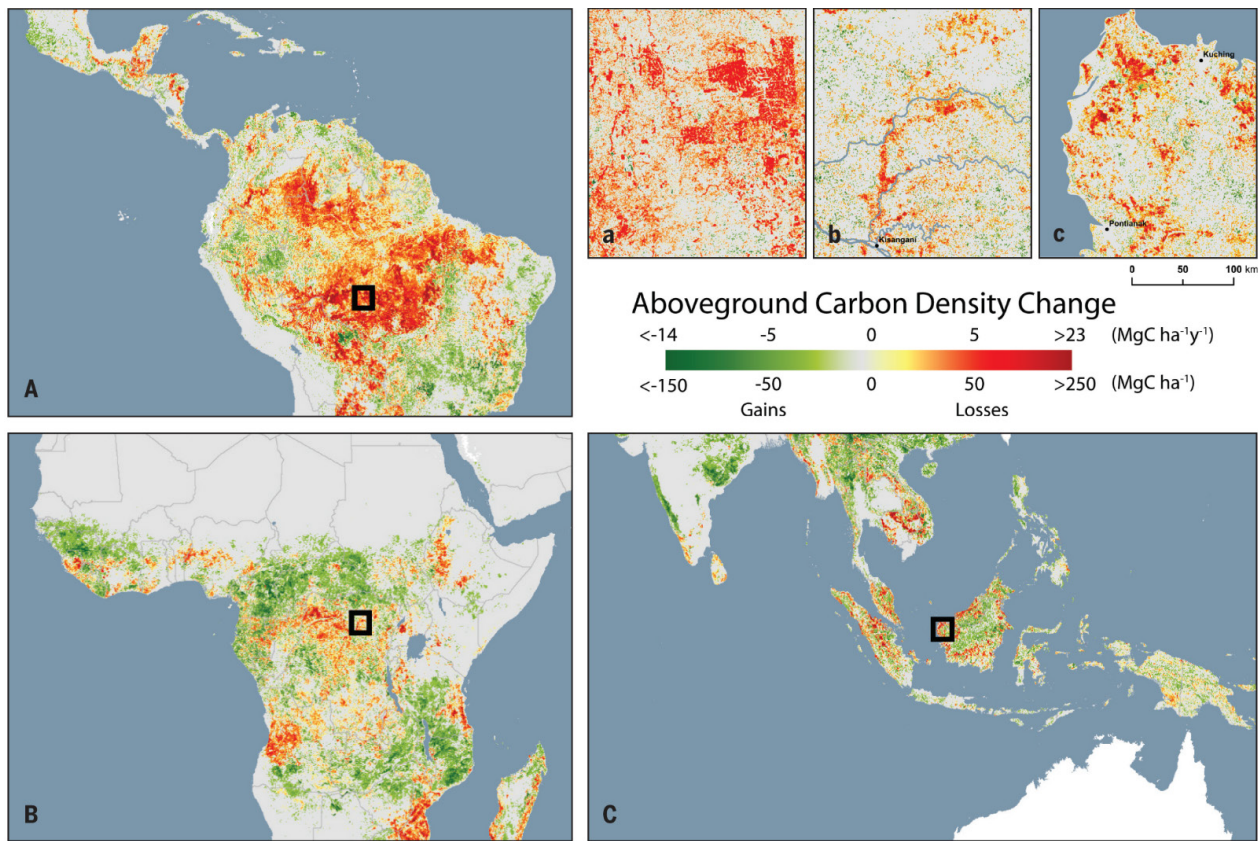
Agriculture drove 73% of hectares impacted between 2000 and 2010.²⁶ Subsistence or smallholder farming accounted for 33% (approximately 2.3 million hectares). Commercial farming drove the remaining 40% (approximately 2.8 million hectares). Though carbon storage estimates vary and depend upon forest type (among other factors), when applying the global average storage rate of 74 tonnes²⁷ of carbon per forested hectare, subsistence agriculture accounted for 625 million tonnes of CO₂ emissions while commercial agriculture accounted for 761 million tonnes.²⁸ Infrastructure expansion and industrial extraction of forest products each account for 10% of deforestation

(0.7 million hectares each) in tropical and subtropical regions. Each practice results in 190 million tonnes of carbon emissions annually. Mining only accounts for approximately 7% (0.49 million hectares) and results in 133 million tonnes of carbon emissions annually.²⁹

2. DEGRADATION

Degradation, which has previously been difficult to track, is now established as a significant source of carbon emissions. During the period of 2003-2014, satellite data quantified net annual changes in the aboveground carbon density of tropical forests, discovering that they emitted approximately 425.2 million tonnes of carbon.³⁰ Given this data, tropical forests have now been defined as net sources of carbon, meaning they emit (from both deforestation and degradation) more than their storage capacity is growing.

FIGURE 2 | Geography of carbon density change in tropical forests, 2003-2014³¹



The top four countries experiencing the greatest net loss in aboveground carbon density – Brazil, Bolivia, Colombia and Indonesia (in that order) – are together responsible for 70% of the global net carbon change occurring in tropical forests. Protecting and reforesting tropical forests, therefore, represents the most important natural climate solution today.

3. UNSUSTAINABLE AGRICULTURAL PRACTICES

There are approximately 7 billion people in the world today. According to the United Nations, that number will grow to 9.7 billion by 2050.³² As a result of such growth, demand for food and other

land-based products will increase exponentially. In order to meet this demand, it is predicted that agricultural productivity must increase 50-70%, and landscapes must be managed sustainably.³³

Apart from its role in converting forest to cultivated land, agriculture and livestock as ongoing activities play a significant role in carbon emissions deriving from land use, with the most important drivers being enteric fermentation of non-dairy cattle and other animals. Between 1990 and 2014, the largest quantity of agriculture and livestock emissions came from China, India, the former USSR territory, Brazil and the United States.³⁴

4. THE OPPORTUNITY FOR IMPACT AND ECONOMIC RETURN

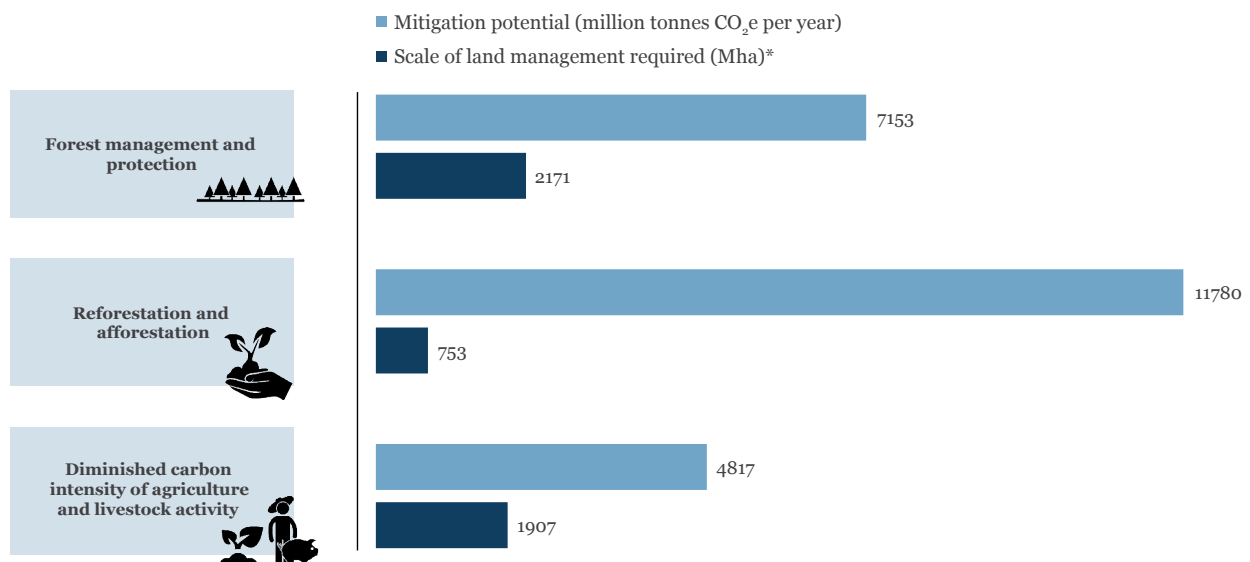
The cost of inaction and its effects on climate change are vast. In 2008, the UK Government's Eliasch Review estimated that halving deforestation rates by 2030 would reduce GHG emissions by 1.5-2.7 gigatonnes CO₂, thereby avoiding more than US\$3.7 trillion in damages from climate change. These economic costs would be in addition to the social costs associated with reduced food security and the increased risk of natural disasters, which already claim an estimated 400,000 lives each year.³⁵

These crises, however, also imply opportunity. “Natural climate solutions” – particularly forest conservation, avoided deforestation

and forest degradation, reforestation and landscape restoration – are among our most impactful options to limit global warming.

At a global level, forest-related activities offer the largest volume of carbon mitigation potential. Forest-related activities account for 68% of total carbon mitigation potential of natural climate solutions.³⁶ In contrast, the agriculture sector accounts for 62% of all AFOLU emissions,³⁷ but only 20% of the 23,750 million tonnes CO₂e of the emissions that could be mitigated annually through SLU³⁸ can be achieved through purely agriculture-based pathways.³⁹ A focus on forest conservation and avoided deforestation and degradation, therefore, will deliver the greatest immediate anthropogenic emissions reduction per hectare. Sustainable agricultural practices,

FIGURE 3 | Potential of core mitigation activities (in million tonnes CO₂e per year)⁴⁰



*The maximum mitigation extent is calculated for 2/7 pathways included in forest management and protection, 3/3 pathways in reforestation and afforestation and 5/10 pathways in diminished carbon intensity of agriculture and livestock activity. While this chart does not show the true magnitude of the numbers of hectares needed for each of the pathways, it clearly shows that reforestation and afforestation provide the highest mitigation volumes per hectare under management.

Based on estimates of Natural Climate Solution pathways Griscorn, et al (2017).
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to the extent that production intensification and sustainable livelihoods avoid further deforestation, can also deliver initial impact. In the long-term, the successful incorporation of an integrated forest reforestation, afforestation and landscape restoration component in SLU has significant mitigation potential and can be one of the most important natural climate solutions going forward.

In addition to the opportunity for environmental impact, the scale and ambition associated with SLU and its associated SDGs also represent a large economic opportunity for commercial and financial investors, particularly in developing countries. There are a number of studies recently published that have estimated the market size of the SLU investment opportunity – although wide-ranging, there is consensus that the opportunity is substantial. For example, the Business and Sustainable

Development Commission's report – "Better Business, Better World" – has estimated that new food and agriculture systems could potentially be worth US\$2.3 trillion, with forest ecosystem services specifically worth US\$365 billion, by 2030.⁴¹ That report further identifies that over 55% of global SDG opportunities and almost 90% of job opportunities would be created in developing countries. The Ecosystem Marketplace estimates that the associated sustainable forestry and agriculture markets alone could be worth US\$196-240 billion in the next decade.⁴² In its World Investment Report of 2014, UNCTAD estimated that the current private sector investment in climate change mitigation and adaptation amount to US\$170 billion and US\$20 billion respectively.⁴³




CAPTURING ECONOMIC VALUE IN SLU

Although SLU represents tremendous opportunity for investment and impact, much of it relies upon developing specific revenue generation models, financial structures and blended finance instruments that can properly capture long-term economic value and catalyse private capital.
















1. REVENUE MODELS AND POTENTIAL FOR MITIGATION IMPACT

Revenue-generating models in SLU monetise the economic value of core mitigation activities, consistent with the climate impact objective of SLU. These revenue models can tap into a diverse set of revenue sources, such as commodity production, carbon credits, payment for ecosystem services, ecotourism revenues, and other technology revenues.

FIGURE 4 | Revenue models and potential for mitigation impact

Core mitigation activities*		
Forest management and protection 	Reforestation and afforestation 	Diminished carbon intensity of agriculture and livestock activity 
(~7 thousand TgCO ₂ e yr ⁻¹ mitigation potential):*	(~11 thousand TgCO ₂ e yr ⁻¹ mitigation potential):*	(~5 thousand TgCO ₂ e yr ⁻¹ mitigation potential):*
<ul style="list-style-type: none"> Reduced overall emissions and carbon storage loss from halting expansion of cultivated or grazing land Decreased carbon emissions from logging, non-commercial tree damage and damage from natural fires 	<ul style="list-style-type: none"> Increased carbon storage potential from growth in forest cover and density 	<ul style="list-style-type: none"> Increased carbon storage potential of agricultural land Reduced carbon emissions from livestock and agricultural activity per hectare

* Based on estimates of Natural Climate Solution pathways Griscom, et al (2017)
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Revenue model	Revenue drivers	Market size (2020)*	Mitigation impact	Critical success factors
Sustainable commodity production: (i) plantation and natural forestry (e.g., exotic/native timber, paper and pulp); (ii) non-timber natural forest products (e.g., wild forest products, biofuels, chemicals); (iii) agriculture commodities and livestock	Varies by the stage of the supply chain being considered (e.g., climate smart inputs at the input level, increased yields and/or premium pricing for primary producers, value-added processors and retailers, premium service fees for improved distribution)	US\$228 billion for certified forest products; US\$190 billion for certified agricultural goods	   Natural forest products: high Timber: low-medium (higher if incorporates reforestation/sustainable forest management in natural forests) Agriculture/livestock: low (higher to extent it avoids further deforestation)	<ul style="list-style-type: none"> Enabling infrastructure to connect to global supply chains High-value commodity with committed off-takers
Carbon and other credits: voluntary and compliance markets	Public and private off-takers purchasing credits to meet regulatory or voluntary commitments to offset carbon-emitting activities	US\$9 billion	   Forest conservation and reforestation: high	<ul style="list-style-type: none"> Regulatory markets Voluntary international markets
Payment for ecosystem services: watershed services, air quality, biodiversity conservation	Performance-based payment by downstream actors for the preservation of upstream ecosystems	US\$21 billion	   Forest conservation and reforestation: high Sustainable agriculture practices: low	<ul style="list-style-type: none"> Committed off-takers
Ecotourism: tourism and recreational services in areas of high conservation value	Revenues from recreation and tourism activities	US\$200 billion	   Forest conservation and reforestation: high	<ul style="list-style-type: none"> Natural resources and infrastructure Political stability; market demand for tourism
Other technology and supporting ecosystem revenues: innovative products and services supporting sustainable land use activities (e.g., land registry, financial inclusion, big data, etc.)	Product and service fees for use of technology and supporting services	n/a	   Depends on specific intervention	<ul style="list-style-type: none"> Applicability of new products and services to the SLU space

* Forest Trends Ecosystem Marketplace

Across all revenue models, there are important implications depending on the scale of the stakeholders involved (i.e., smallholder or large scale).⁴⁴ While working with fewer and larger-scale actors is more cost-effective to reach project scale, engaging with smallholders is a social imperative: there are approximately 525 million smallholder farms globally.⁴⁵ Yet, the challenges they face hinder deep and prolonged engagement. For instance, smallholders are often subject to more uncertain land tenure rights, lack access to credit for inputs and technology, are largely uncoordinated (as such, aggregation can be time-consuming and costly), and have limited access to markets.

2. FINANCIAL STRUCTURES

Depending on the associated SLU revenue models, different financial structures are best suited to aggregate project opportunities and attract private capital at scale. An integrated landscape approach combining multiple revenue models and financial structures in a certain jurisdiction is becoming increasingly common in the SLU space: for example, The Sustainable Trade Initiative's (IDH) investment model in production, conservation and social inclusion is being rolled out at the jurisdictional level in Mato Grosso and Pará states in Brazil.

FIGURE 5 | Financial structure options for SLU revenue models (See Annex B)

Economic value (that can be captured by direct investors)	Financial structure	Description
Real asset value and/or rent	Real estate	Purchase or lease of real estate, such as degraded land, generating cash flows from carbon offset payments from public and private off-takers, from sustainable timber production and recreation payments
Interest payments from loans	Debt	Debt and equity funds can include a hybrid of: <ul style="list-style-type: none"> • Portfolio of loans that are securitised to investors • Portfolio of loans to local financial institutions, supply chain actors, project developers or supporting tech/services companies
Equity returns from operations	Private / public equity	<ul style="list-style-type: none"> • Private equity in portfolio companies of sustainable agriculture/forestry supply chain actors or supporting tech/services companies • Public equity portfolio investments in SLU-oriented companies
Result-based payments	Result- based financing	Private or public off-takers pay a fee based upon achievement of agreed-upon results (e.g., certified forest or agriculture products of a particular quality)
	Holding company	HoldCo/evergreen quasi-fund in real assets and/or with stable revenue streams; or a real estate fund in sustainable agriculture

FIGURE 6 | Revenue models according to different financial structures

		Financial structures			
		Real estate	Debt	Private equity	Result-based financing
Revenue models	Sustainable commodity production	<ul style="list-style-type: none"> Real estate value appreciation Rent from smallholder contract farmers 	<ul style="list-style-type: none"> Interest payments from debt financing 	<ul style="list-style-type: none"> Equity returns from supply chain operations 	<ul style="list-style-type: none"> Payment from corporate off-takers for sustainable supply
	Carbon and other credits	<ul style="list-style-type: none"> Payment from carbon market/public off-takers for carbon offsets 	<ul style="list-style-type: none"> Interest payments from debt financing 		<ul style="list-style-type: none"> Payment from carbon market/public off-takers for carbon offsets
	Payment for ecosystem services	<ul style="list-style-type: none"> Payment from corporate/public off-takers for watershed/biodiversity services 	<ul style="list-style-type: none"> Interest payments from debt financing 		<ul style="list-style-type: none"> Payment from corporate public off-takers for watershed/biodiversity services
	Ecotourism revenues	<ul style="list-style-type: none"> Real estate value appreciation Rent from ecotourism operator 	<ul style="list-style-type: none"> Interest payments from debt financing 	<ul style="list-style-type: none"> Equity returns from recreation revenues 	
	Other technology and supporting ecosystem revenues		<ul style="list-style-type: none"> Interest payments from debt financing 	<ul style="list-style-type: none"> Equity returns from product/service revenues 	

3. BLENDED FINANCE INSTRUMENTS

In order to realise the environmental impact of SLU at scale, public or philanthropic actors can offer blended finance instruments to mobilise private capital flows. Blended finance instruments are specifically designed to enhance the expected return and/or mitigate the risk of investments, as needed to bridge the financing gap for new business models and/or frontier markets. Typical risk mitigation instruments include guarantees, insurance, securitisation and derivatives. Returns

can be enhanced ex-ante in the form of direct funding (e.g., grants, below-market debt or equity) or ex-post as a results-based incentive (see Figure 7). Blending can happen at the fund level (e.g., by providing first-loss protection to other more commercial investors in a fund) and/or at the project level (e.g., by investing in earlier stages of a project and/or with longer tenor). By shifting the investment risk-return profile with flexible capital and favourable terms, development funders can crowd-in more commercial players into SLU funds and projects (see Figure 8).

FIGURE 7 | Blended finance instruments to attract private investment



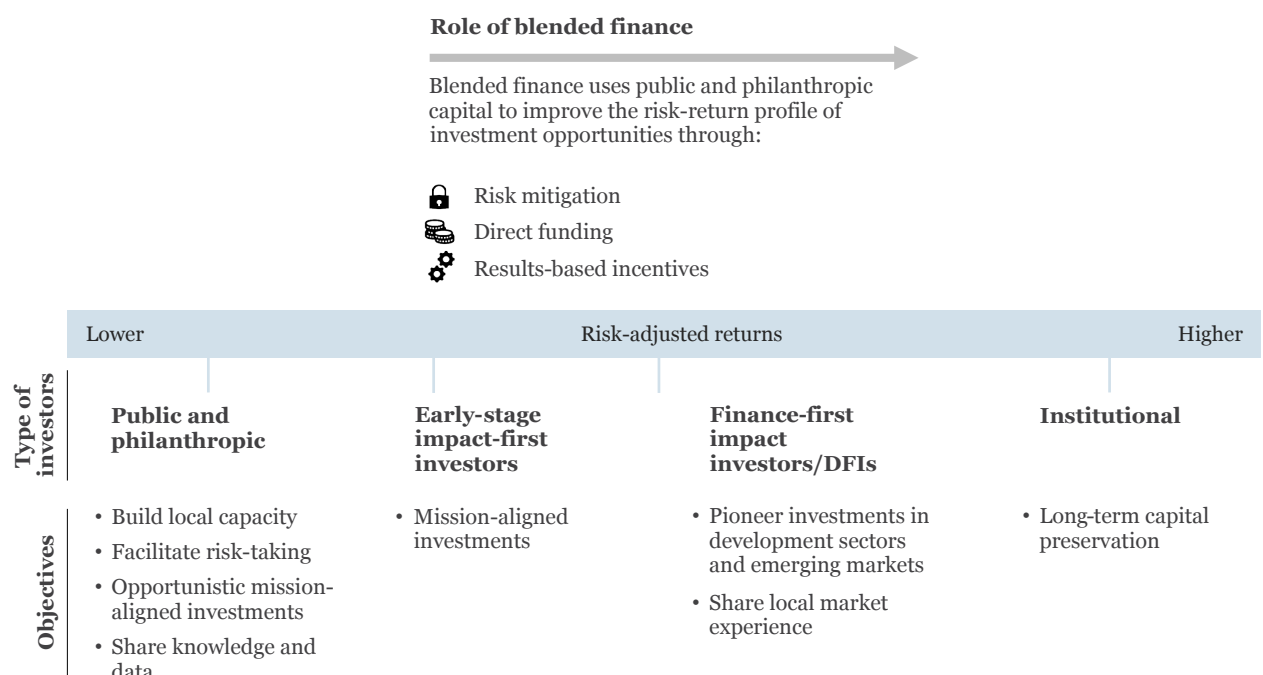
Instrument	Description	Examples
 Risk mitigation	Mechanisms to protect private investors from specific risks at business, program and/or country level	<ul style="list-style-type: none"> • Guarantees (e.g., credit risk, political risk) • Insurance • Securitisation (e.g., warehouse finance) • Derivatives (e.g., interest rate swaps)
 Direct funding	Concessional direct investment into a company or project delivering social or environmental benefits, through the provision of equity, debt and/or grants	<ul style="list-style-type: none"> • Equity (e.g., seed equity, junior equity) • Debt (e.g., mezzanine, subordinated debt) • Grants (e.g., technical assistance, design grant)
 Result-based incentives	Instruments that incentivise private investors or companies to invest in high impact sectors	<ul style="list-style-type: none"> • Performance-based contracts • Impact bonds • Advanced market commitments

FIGURE 8 | Role of investor types in SLU



4. FRAMEWORK TO ASSESS EFFECTIVENESS OF INNOVATIVE FINANCING MECHANISMS IN SLU

Innovative financing mechanisms in SLU combine revenue models, financial structures and blended

finance instruments. A framework for assessing the effectiveness of these mechanisms can be a useful tool for public and private investors to identify and prioritise the most innovative, catalytic and/or actionable solutions.

FIGURE 9 | Innovative financing mechanism assessment framework

Dimension	Description
Innovation	Ability to address barriers to private sector investment in SLU through an innovative revenue model, financial structure, and/or blended finance instrument.
Catalytic effect	<p>Potential to (i) leverage* private sector capital at scale through financially-sustainable revenue models and blended finance instruments, (ii) be scaled and replicated in other markets, (iii) achieve environmental, social and economic development impact.</p> <p><i>* We define leverage (a:b) as the ratio of public and philanthropic (a) to private capital (b). Some caveats with implications for leverage ratios: grant funding for design grants and project preparation are excluded if not explicitly linked to the financing vehicle; however, it may be included if grants are explicitly tied to the financing vehicle. Potential leverage can also be achieved in the future—through additionality of current financing—but is excluded from this analysis. Finally, DFIs can be counted both as private capital when invested with market-rate returns but as public when invested with concessional terms.</i></p>
Actionability	Clear short- to medium-term pathway to implementation in terms of relevant public and private stakeholders, legal and regulatory frameworks, actionable activities and timelines, risk mitigation strategies, etc.

CURRENT STATE OF BLENDED FINANCE IN SLU

1. EXISTING SLU INVESTMENTS IN SUSTAINABLE FORESTRY, CONSERVATION AND REFORESTATION

We identified 19 vehicles currently targeting forestry in two main ways: (i) 11 established investment funds focused on mainstream asset classes, including sustainable timber and (ii) 8 funds focused on forest conservation models through carbon credits and payment for ecosystem services (PES). Sustainable timber investment management organisations (TIMOs) represent a mature forestry-related investment vehicle that has successfully scaled and replicated across developed countries, attracting significant private capital. To the extent, however, that sustainable timber is essentially the agriculture of trees, TIMOs are less climate positive than other forest conservation and reforestation investment funds that require more creative revenue models and financing mechanisms.

Sustainable timber/timber investment management organisations (TIMOs)

Assets under management of mainstream sustainable timber vehicles from the past two decades range from US\$38 million up to US\$3.4 billion, with many funds able to attract institutional capital given the large ticket sizes and natural inflation hedge of the asset class. Timber vehicles take a long-term approach with fund life ranging from 10+ years to evergreen. The returns for these vehicles range from 6% to 15%: developed markets target 6-8% IRR, while vehicles for emerging markets such as Southeast Asia target the upper range.

The most common vehicle structure for mature funds is a real estate/real assets and private equity hybrid (TIMOs) in developed markets (e.g., United States, Australia, New Zealand). In many jurisdictions in West Africa and Asia, for example, purchasing land is not allowed and obtaining concessions may be time-consuming and costly. To address these challenges, fund managers have structured vehicles as debt/equity funds (e.g., Tropical Asia Forest Fund) with domestic plantations or companies that already own concessions.

Blended capital is rarely used in mainstream sustainable timber in developed geographies, but grant funding for project preparation and concessional capital has been used to scale into developing countries. Miro Forestry, for example, has received upfront design grant funding by a DFI for project preparation, and otherwise does not rely on concessional capital. Additionally, although institutional investors have invested in fund managers with track records in developing geographies, they have done so at significantly smaller scale (e.g., US\$170 million in Southeast Asia versus US\$3.4 billion with New Forests). This highlights the difficulty of scaling and replicating even mature and mainstream models to other markets, let alone other revenue models (e.g., forest conservation, agriculture).

CASE STUDY 1 | New Forests (see Annex C.1)

Financial structure	Geography	AUM	Blended finance
TIMO	Australia, New Zealand	AU\$4 billion	None
PE fund	Southeast Asia	US\$170.7 million	20% equity from DFI
Project finance	US	US\$70 million	None
Description			
New Forests is a TIMO (first fund launched in 2005) with a strong drive to generate economic value together with positive social and environmental outcomes from sustainable forest management projects. New Forests has successfully attracted significant capital from institutional investors and is expanding to new geographies and forest carbon markets.			
Financial performance	Environmental impact	Social impact	
Confidential	Carbon sequestration of 110,000 MtCO ₂ e over 400,000 hectares of plantation forests (2016)	>3,650 employed (2016)	
Innovation	Medium: New Forests has leveraged its significant track record with institutional capital in mainstream asset classes in developed countries (e.g., sustainable timber in Australia and New Zealand) to scale into new geographies (e.g., sustainable timber in Southeast Asia) and into innovative assets (e.g., forest carbon markets in the U.S.).		
Catalytic effect	High: Sustainable timber as a mainstream asset class in developed countries has scaled without blended finance. New Forests has leveraged its track record to scale to emerging markets and crowd-in 1:4 leverage with grant funding for preparation and concessional equity from DFIs.		
Actionability	High: Strong track record and management experience in sustainable forest management; existing pipeline and partnerships with local stakeholders.		

Forest conservation and reforestation investment vehicles

There are eight newer funds taking a more innovative approach by focusing on forest conservation and reforestation through compliance and voluntary carbon credits, tax credits, public funding for conservation easements, and payment for ecosystem services (PES). These new vehicles are typically smaller in size than sustainable timber funds (US\$5-89

million) and tend to be launched by a variety of NGOs and early-stage mission-oriented impact investment firms; a few are still in early-stage pilot phases. These forest conservation investment vehicles target an indicative 6-10% IRR and predominantly rely on jurisdictional regulatory frameworks (e.g., compliance markets, tax credits), though many express optimism for voluntary markets maturing in the medium-term.

CASE STUDY 2 | Lyme Timber Company LP (see Annex C.2)

Financial structure	Geography	AUM	Blended finance
TIMO and PE fund	U.S. and Canada	4 forest funds: LNFF (2002): US\$64.5 million LFF (2006): US\$190.6 million LFF II (2010): US\$160.4 million LFF III (2014): US\$250 million	Public-private partnership through conservation easements (in all four funds)
Description			
Lyme Timber is a TIMO that manages and invests in rural real estate and timberland that have high conservation potential. Lyme generates revenues through sustainable timber, recreational leasing, alternative energy supply agreements and carbon offset credits.			
Financial performance	Environmental impact	Social impact	
IRR for the 4 funds: LNFF (2002): 6% LFF (2006): 6.9 LFF II (2010): 22.8% LFF III (2014): 11.2%	966,000 acres conserved to date	Lyme Timber boosts employment in forestry, logging and other recreational activities on conservation easement land in rural economies	
Innovation	High: Lyme Timber has pioneered and monetised a public-private partnership approach called conservation easements. A conservation easement is a legally-binding contract that limits the proprietor’s right to develop or divide his/her property in order to protect the land’s resources. This is an innovative approach as it keeps the land in private hands and boosts the land’s public benefit while simultaneously protecting its natural ecosystems.		
Catalytic effect	Medium: The conservation easement model is highly scalable and can be replicated across North America and Canada, with potential for further replication in less-developed markets. As the market became more efficient over the years and the model demonstrated increasing IRRs, Lyme Timber has been able to attract increasing amounts of capital from institutional investors.		
Actionability	Medium: Lyme Timber has strong track record in land conservation– it has scaled its model to three additional funds of US\$150-\$200 million each. Additionally, Lyme is demonstrating high potential for scaling and replicating the model across the U.S. and Canada based on their existing pipeline of projects and pre-existing partnerships with public, philanthropic and private entities. Scaling and replication in emerging markets, however, may be more difficult given the less established legal environment (e.g., income and real estate tax incentives).		

In addition to traditional real estate/real asset TIMOs financial structures (e.g., The Climate Trust, Lyme Timber), forest conservation investment vehicles also use a number of different structures such as result-based payments in developed markets (e.g., Carbon Fund), project finance (e.g., New Forests in Native American territories), or debt/equity funds in developing markets (e.g., Moringa Fund).

Unlike mainstream sustainable timber, these newer asset classes typically require some form of blended finance in the form of grants for pilot/project preparation, concessional capital, guarantees, and/or tax credits, to make investments more economically viable for private capital. Should a growing number of jurisdictions create regulatory markets in the medium- to long-term (e.g., Colombia implementing a national carbon tax), blended capital may become more catalytic as markets mature.

2. EXISTING SLU INVESTMENTS IN SUSTAINABLE AGRICULTURAL PRACTICES AND LIVELIHOODS (FOR AVOIDED DEFORESTATION)

We classified 12 vehicles focused primarily on sustainable smallholder agriculture. An additional 14 vehicles have more explicitly defined an integrated agriculture/forestry approach as part of their investment thesis. We did not focus on fund structures that primarily invest in large scale plantations (though some funds do incorporate a plantation component), which typically can deliver clear returns and procure financing from formal markets at better rates.

Sustainable smallholder agriculture investments may be comparably poor climate solutions as compared to forest conservation and reforestation, but to the extent that these investment opportunities lead to improved yields and

livelihoods for large populations of smallholder farmers in high deforestation jurisdictions and value chains, the risks of deforestation may be significantly reduced.

There is additionally a social component of these investments, but the degree to which this is impactful depends on whether funds directly target smallholder populations in highly-integrated and captive value chains or not; and whether funds invest in higher-value intermediaries or primary smallholder production. This will ultimately affect the scalability and replicability of these models as those with greater social impact (smaller-scale and less integrated) are typically more difficult to scale; those that invest directly in primary smallholder production also deliver lower returns than those that invest in value-added intermediary processing.

Sustainable smallholder agriculture

Investment vehicles in sustainable smallholder agriculture range in size from US\$14 million up to US\$1.1 billion, attracting mainly early-stage impact-first, corporate and DFI investors (though some funds are looking at attracting domestic institutional investors with guarantees). As large-scale agricultural plantations have greater access to formal financial markets, most of these investment vehicles focus primarily on smallholder agriculture in emerging markets in Africa, Asia and Latin America. These vehicles are more nascent (eight vehicles launched in the past two years) and many do not have sufficient data on returns. Instead, most funds that invest in primary production express targets of 10-15% IRR; funds investing in value-added intermediary processing have higher targets at 15-25% IRR. To illustrate the difficulties of scaling and replicating models in this sector, there are several examples of funds that have successfully raised >US\$100 million in financing, but in which equity investors are now expecting little to no returns.

That said, there also have been several large-ticket fund launches in sustainable agriculture at scale in recent years, though these may have been facilitated by focusing parts of their investment portfolio on high-value integrated supply chains and plantations (e.g., Tropical Landscapes Financing Facility in palm oil and plantations) and higher-return, value-added

intermediary processors (e.g., &Green Fund). Most of these funds are structured as debt or equity funds with geographical focus ranging from single country (e.g., TLFF in Indonesia) to multi-country (e.g., &Green Fund focuses on Indonesia, Brazil and Liberia).

CASE STUDY 3 | Tropical Landscape Finance Facility (TLFF) (see Annex C.3)

Leading organisations: ADM Capital, BNP Paribas

Financial structure	Geography	Target size	Blended finance
Debt fund	Indonesia	US\$1 billion	Grant fund; Targeting 50-100% (deal-dependent)
Description			
The TLFF provides affordable, long-term loans to enhance smallholder farmer livelihoods, rehabilitate degraded land, and provide cleaner electricity, by mobilising international capital markets for projects with financial, environmental and social returns. While donor funding is used to finance early-stage development costs and technical assistance through the Grant Fund, once projects reach maturity and generate sustainable cash flows, these are securitised and sold as notes to patient capital investors.			
Financial performance	Environmental impact	Social impact	
Targeting 10-20% IRR; 5-15 years payback period (deal-dependent)	Initial pipeline targeting >90,000 hectares preserved	Initial pipeline targeting >42,000 smallholder livelihoods improved	
Innovation	Medium: The TLFF enables public, philanthropic and private investors to invest in different SLU projects, at different maturity stages according to their risk-taking capacity.		
Catalytic effect	High: By securing strong security packages (e.g., corporate and DFI guarantees, off-take agreements, hard asset collaterals and more), the TLFF aims to attract institutional investors (DFIs, pension and insurance companies).		
Actionability	High: Thanks to the Grant Fund managed by UNEP and ICRAF and acting as a deal originator, TLFF has a strong pipeline of immediate investment prospects in Indonesia. The initial deal pipeline for land rehabilitation and smallholder livelihoods projects amounts to US\$350 million.		

CASE STUDY 4 | &Green Fund (see Annex C.4)

Leading organisations: IDH as incorporator; Sail Ventures as investment advisor; NICFI, GEF as initial public funders

Financial structure	Geography	Target size	Blended finance
Debt fund	Tropical forest regions (Brazil, Liberia, Indonesia, DRC)	US\$400 million (including \$100 million committed by Unilever)	Targeting 1:3 leverage at fund level (US\$100 million from NICFI); additional concessional capital at project level
Description			
&Green Fund launched in July 2017 as a debt fund for sustainable smallholder investments. &Green aims to provide concessional/subordinated loans to catalyse co-investments from multinationals and development banks in investment opportunities in tropical forest regions and projects considered as high risk due to traditionally insecure land tenure or illegal logging activities.			
Financial performance	Environmental impact	Social impact	
Confidential	Targeting 5 million hectares of tropical forests and peatlands protected; focus on jurisdictions with progressive environmental policies to maximise impact	Targeting 500,000 improved smallholder livelihoods	
Innovation	Medium: &Green Fund will primarily invest in value-added intermediary processors in areas using a jurisdictional approach to achieve higher initial returns.		
Catalytic effect	High: &Green is targeting 1:3 leverage through concessional/ subordinated loans (compared to other existing vehicles with 1:0.5-1.5 leverage). &Green also expects high additionality by providing capital only to projects in which private investors would not invest without the intervention of the fund.		
Actionability	High: Strong existing on-the-ground partnerships through IDH Sustainable Trade network with ready pipeline of pilot projects.		

A more nascent model uses a result-based financing structure (e.g., Livelihoods Fund for Family Farming) to create a stronger correlation between environmental and social returns with financial returns. An underlying precondition

for the success of these funds, however, is the presence of committed public and private off-takers that can fund environmental and social impact metrics. But even then, these funds have been smaller in scale.

CASE STUDY 5 | Livelihoods Funds for Family Farming (L3F) (see Annex C.5)

Leading organisations: Livelihoods Venture as fund manager; 10 large European corporates, including corporate off-takers such as Danone, Mars, Veolia, Firmenich as well as public off-takers.

Financial structure	Geography	AUM	Blended finance
Result-based financing	Asia, Africa, Latin America	US\$40 million; currently fundraising for second fund up to US\$100 million	Revenue enhancements through public off-takers
Description			
L3F delivers financial returns through performance-based payments by meeting pre-agreed metrics: commodity production (volume and quality), environmental (carbon offsets) and social (smallholder farmers trained and implementing sustainable agriculture practices). The fund provides upfront financing to long-term 10-20 year projects (typically managed by NGOs) for technical assistance, capacity-building and inputs/equipment to smallholder farmers; it does not take an equity stake or provide loans in its project portfolio. Public and private off-takers commit to pay out based on receiving in-kind returns of high-quality production and/or carbon offsets with environmental and social impact.			
Financial performance	Environmental impact	Social impact	
Targeting >10% IRR; currently breakeven	10 deployed projects count about 9 million tons of CO2 sequestered (about 32,000 hectares of land restored from 6 projects)	Targeting 200,000 trained farmers and 2 million lives impacted	
Innovation	Medium-high: Result-based financing structure creates stronger link between sustainable agriculture practices and environmental and social impact through innovative long-term partnerships with large public and private corporate off-takers.		
Catalytic effect	Medium: Replicability of model for other projects can be high if partnerships with large public and private off-takers that are committed to environmental and social impact can be developed. Partial reliance, however, on limited number of long-term off-takers of carbon offsets can affect scale.		
Actionability	Medium: Finding long-term and large-scale public and private off-takers, long project development leads times, and inherent challenges in monitoring and evaluation/impact measurement can hinder pathways to implementation.		

In all cases, blended capital has been essential for private sector investment, given the typical challenges of aggregation, technical assistance and capacity-building with smallholder farmers. Most investment vehicles have required blended capital either directly (i.e., fund-level technical

assistance facilities for pipeline development, grant funding for projects, guarantees) or indirectly (i.e., investing in projects that have previously received grant funding from public donor/international aid agencies for project preparation). For example, Root Capital has two

decades of track record, has been at the forefront of smallholder agriculture financing (though it also targets SMEs to generate returns), and has successfully scaled its loan disbursements to US\$1.2 billion based on a largely self-sufficient

model (earned fees cover ~70% of lending), but they still needed to raise de-risking funding from philanthropies every year to cover the cost of lending in riskier geographies, earlier-stage value chains and smaller loan amounts.

CASE STUDY 6 | Root Capital (see Annex C.6)

Financial structure	Geography	AUM (US\$)	Blended finance
Debt fund	Latin and Central America (~2/3) East and West Africa (12 countries, ~1/3) Indonesia (small)	US\$1.2 billion loan disbursements since 1999; outstanding balance of US\$104.8 million and loan disbursements of US\$137.9 in 2016	Public-private ratio is roughly 1:3. Public capital being grants from donors and subordinated debt.
Description			
Root Capital is a non-profit social investment firm founded in 1999 which aims to provide loans to small and growing agribusinesses in poor, environmentally vulnerable places that are too big for microfinance, yet lack formal track record to receive credit from conventional banks. Root Capital provides credit to both farmer cooperatives and private businesses active in export value chains (mainly cocoa and coffee) and local supply chains (mostly at post-harvest handling stages). In addition, Root Capital provides agribusinesses financial management training and other targeted advisory services to help them better access and manage credit.			
Financial performance	Environmental impact	Social impact	
Average annual coupon of 2%	1.8 million hectares under sustainable cultivation (1999-2017)	1 million producers and 5.7 household members (1999-2017)	
Innovation	Medium: Root Capital has been a pioneer in the field (launching almost 2 decades ago) and has developed a network of 120+ global buyers to support its smallholder producer clients.		
Catalytic effect	Medium: Given its solid business model and proven track record, additional concessional capital to increase its loan portfolio and/or grant funding for riskier operations can have significant catalytic effect. Role in field-building has also catalysed and shaped agri-finance, including leadership in impact measurement and integration of impact goals into investment decisions (see “Towards Efficient Impact Frontier” in Stanford Social Innovation Review), in addition to leadership roles in key sector networks like Aspen Network of Development Entrepreneurs, Global Impact Investing Network, and Council on Smallholder Agricultural Finance, for which it currently serves in a secretariat capacity.		
Actionability	High: Root Capital has developed a significant pipeline of projects worldwide thanks to its experience, strong partnerships, worldwide network and participation in strategic alliances (e.g., CSAF)		

FROM OPPORTUNITY TO ACTION

There needs to be a paradigm shift in the way in which (i) private sector investors view investment opportunities in SLU and how (ii) public and philanthropic investors engage to catalyse private capital in the SDGs. Significant

SLU funding needs to come from the private sector and should be used to incentivise forest conservation and restoration. However, given nascent markets with political, legal, and regulatory constraints, private investment is not at the scale needed to tackle the problem.

Estimates on total annual capital flow to SLU - both public and private finance - vary widely from US\$1.3 billion to US\$51.8 billion.⁴⁶ However, even the highest estimates do not come close to other climate related investments, such as clean energy (US \$287.5 billion in 2016).⁴⁷ This relative lack of investment in the sector belies the significant market opportunities that exist in the space: US\$2.3 trillion and US\$365 billion market opportunities per annum by 2030 for new food and agriculture systems and forest ecosystem services, respectively, as estimated by the Business & Sustainable Development Commission.

Despite expressed mandates to catalyse investment in the SDGs, public and philanthropic investors have yet to achieve the desired catalytic effect in SLU. DFI/MDB blended capital, for example, has tended towards investments in other mainstream asset classes, such as renewable energy. Even when investing in SLU specifically, many institutions prefer to invest in sustainable timber with market-rate or close-to-market-rate returns through concessional capital. This may leverage private capital up to the 1:10 range, but is arguably less additional as many of these opportunities may already be considered well past the 'tipping point'; more importantly, this concessional investment may actually crowd-out private sector capital. At the other end of the spectrum, donor and philanthropic capital is often used inefficiently to fund a diaspora of small-

scale initiatives globally with little coordination, pooling of assets or linkages to further funding. There needs to be a call to action for public and philanthropic capital to more efficiently and effectively target project opportunities where a high risk-return profile remains unattractive for many private sector investors, particularly in early-stage ventures/unproven business models with longer project development timelines, higher risk and uncertain returns.

1. REFRAMING INVESTMENT OPPORTUNITIES IN SLU FOR THE PRIVATE SECTOR

The most common refrain in SLU is the lack of 'investable' project opportunities - unfortunately, outside of a few successful examples, this generally holds true today.

Indeed, one of the biggest challenges to private sector investment in SLU is not the lack of pledged/committed investment capital in private sector funds, but rather identifying those currently-investable projects or projects at the 'tipping point'—that pipeline of opportunities with attractive risk-adjusted returns—in which to deploy this pent-up private capital at scale. Forest Trends finds that committed capital in SLU of surveyed funds grew 8x to ~US\$8 billion in the decade leading up to 2015; but of that, over 30% remains undeployed because of lack of investable projects.⁴⁸

Similarly, several funds interviewed for this study expressed difficulties in deploying capital after fundraising; some have yet to make their first investment after 1-2 years since initial closing. These funds often attributed this limited capital deployment to (i) the lack of already investable/bankable pipeline, (ii) the lack of large ticket sizes and cost-effective asset pooling/intermediation of bankable projects to justify high transaction and

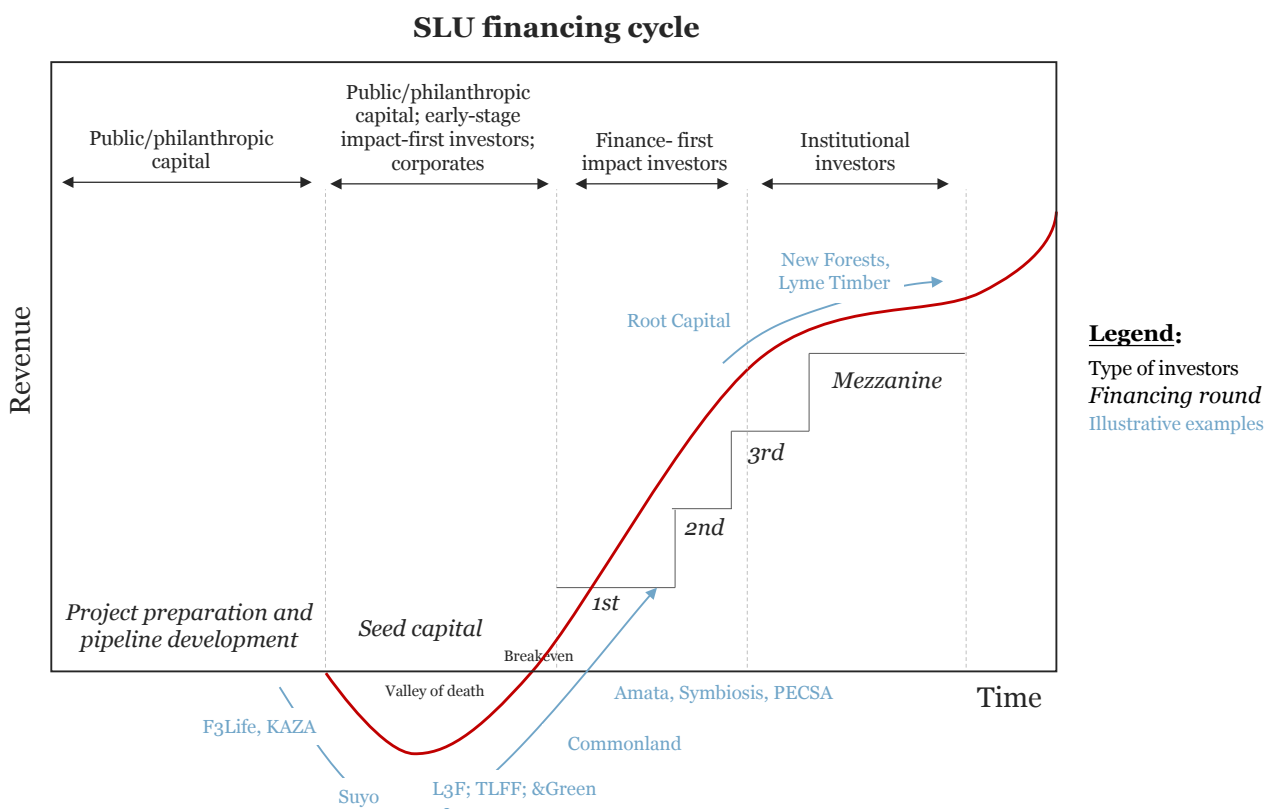
due diligence costs and (iii) the lack of investor appetite to take on significant risk for unproven/early-stage business models that require substantial upfront time and capacity-building to become bankable.

For many, to truly unlock capital there is a fundamental need for blended finance to facilitate pipeline development. This can be done by coordinating with national and sub-national governments to create favourable enabling conditions within a given jurisdiction (i.e., infrastructure, legal and regulatory frameworks), by identifying opportunities and intermediating, and by providing technical assistance and funding project preparation (including knowledge sharing of relevant benchmarks for investment decision-making). In addition, guarantees and insurance products play an essential role to provide first-loss buffers against both the real and perceived risks of investing in SLU and/or in emerging markets.

Many latent SLU investment opportunities with long-term growth potential in developing countries, however, do exist – but to capture this economic value, private sector investors need to assess opportunities for what they really are: early-stage SLU venture capital investments. Private investors cannot look at SLU as ‘business-as-usual’ investment opportunities: inherent in this sector are higher risk-return profiles and longer development lead times, but also significant long-term growth potential.

Unfortunately, most investors still structure investment vehicles and conduct due diligence in SLU from the lens of traditional private equity or short-term capital. Most SLU fund lifecycles do not exceed 7-10 years, with some ‘long-life’ funds winding-down after 15 years. Short-term investment structures, unsurprisingly, expect to deliver risk-adjusted returns in the short-term, which is not particularly realistic for many

FIGURE 10 | SLU venture capital financing cycle and investor type by stage



SLU projects where early years are dominated by high upfront costs of technical assistance and capacity-building (e.g., farmer and local community buy-in and training) and capital expenditures. Long development lead times imply that much of the economic value cannot be captured during the lifetime of most funds. For example, reforestation projects may require significant capital outlays in the early years of investment but do not see their first revenues until year 7 (after first harvest), may not breakeven until year 20, and will only deliver stable long-term cash flows from the project's third decade (up to 90% of project valuation is captured within the terminal value).

Few long-life or evergreen funds exist in this space outside of TIMOs, though this structure may be adapted for the long-term financing of more innovative, non-timber SLU investment opportunities. KOIS Invest, with the support

of a grant from the John D. and Catherine T. MacArthur Foundation, researched the appropriate considerations and viability for an effective impact investing holding company more broadly across sectors. Results from that stand-alone assessment will be made public, and have served as foundational data for the conceptual evergreen fund structure for SLU in this report (See Annex B.5).

Private investors are not monolithic and have different risk-return profiles – this has implications for their respective appetites and capacity to invest along the SLU venture capital financing cycle: from early-stage mission-driven private investors with more flexible and patient capital and greater risk tolerance to allow projects to develop over time through to risk-averse institutional investors with capital preservation objectives but greater capacity for longer-term capital and larger ticket sizes in later rounds.

FIGURE 11 | Investor appetite and capacity

Organisation type	Appetite	Potential capacity for SLU financing	Example SLU opportunities
Public and philanthropic capital	<ul style="list-style-type: none"> Strong field-building mandate 	<ul style="list-style-type: none"> Very early stage grants for pipeline development and project preparation in non-mainstream asset classes Concessional and de-risking instruments (i.e., guarantees) Can have narrow focus on programmatic priorities (e.g., sectors, geographies) 	<ul style="list-style-type: none"> Smallholder agriculture Forest conservation and reforestation
Early-stage impact-first investors (e.g., HNWI/family offices)	<ul style="list-style-type: none"> Good field-building appetite and strong impact focus 	<ul style="list-style-type: none"> Mission-aligned early-stage investments; patient capital Minority investments, typically in earlier stages, alongside public and philanthropic capital More flexible in terms of sectors/geographies 	<ul style="list-style-type: none"> Smallholder agriculture in integrated and captive value chains Forest conservation and reforestation
Finance-first impact investors/DFIs	<ul style="list-style-type: none"> Less catalytic/lower risk for innovation and risk 	<ul style="list-style-type: none"> Large, more mature portfolios in a broad mix of assets Potential legal challenges 	<ul style="list-style-type: none"> Mainstream sustainable timber in emerging markets Value-added processing in supply chain Mature portfolios of forest conservation and reforestation assets
Institutional	<ul style="list-style-type: none"> Minimal appetite for risk; capital preservation 	<ul style="list-style-type: none"> Not as many direct investments (mostly through funds) 	<ul style="list-style-type: none"> Mainstream sustainable timber in developed markets

For many SLU opportunities, public and philanthropic capital can help—and indeed may be needed—upfront to finance pipeline development and project preparation through grant funding before the ‘valley of death’ when cash flows are negative and private participation may be less likely. Concessional seed capital and guarantees may additionally be necessary to bridge early stage projects through to breakeven. Early-stage private venture capital investors, however, may have appetite to provide seed capital to fund opportunities during this initial period alongside public capital; these investments may make sense for impact-first investors with a strong mission-alignment for long-term impact in the SLU space. Finance-first investors and institutional capital are likely to come only in later phases of development to scale-up proven investments.

2. CONCRETE OPPORTUNITIES FOR PRIVATE AND PUBLIC INVESTMENT

There is a spectrum of SLU investment opportunities with attractive risk-adjusted returns across different time horizons — from quick wins to long-term opportunities at scale.

These ‘quick wins’ opportunities can deliver early financial returns in SLU, but it is important for private sector investors to also look further afield to incorporate into their portfolios medium- and long-term opportunities that may deliver greater long-term financial and environmental impact. The opportunities outlined below show indicative investment time horizons (to begin generating stable cash flows) for illustrative revenue models and financial structures that can be scaled and replicated from a greenfield perspective; notwithstanding, there are also many case study

FIGURE 12 | High-potential SLU opportunities by time horizon

	Quick wins Target 6-12% IRR 0-5 years	Medium term Target 10-15% IRR 5-15 years	Long term Target 10-20% IRR 10-20+ years
Sustainable forestry production	<ul style="list-style-type: none"> Non-reforestation sustainable timber in developed markets (<i>New Forests in ANZ; Amata; Symbiosis</i>) 	<ul style="list-style-type: none"> Non-reforestation sustainable timber in emerging markets (<i>New Forests in SEA</i>) 	<ul style="list-style-type: none"> Reforestation sustainable timber in emerging markets
Sustainable agriculture production	<ul style="list-style-type: none"> Large primary producers Value-added processing along value chain of sustainable commodities (<i>&Green Fund; Root Capital</i>) 	<ul style="list-style-type: none"> Sustainable smallholder agriculture with off-takers (<i>TLFF; L3F</i>) 	<ul style="list-style-type: none"> Sustainable smallholder agriculture without off-takers
Integrated approach	<ul style="list-style-type: none"> Production intensification on large degraded lands (<i>PECSA silvopastoral cattle intensification</i>) 	<ul style="list-style-type: none"> Integrated agroforestry on restored lands 	<ul style="list-style-type: none"> Integrated reforestation/landscape restoration for sustainable production or conservation
Other non-production revenue streams	<ul style="list-style-type: none"> Ecotourism (<i>KAZA</i>) 	<ul style="list-style-type: none"> Payment for ecosystem services Conservation through carbon and other credits (<i>New Forests in US</i>) 	<ul style="list-style-type: none"> Innovative technologies and support services (<i>F3Life; Suyo; SSCIV</i>) Reforestation/landscape restoration for conservation
Illustrative role of blended finance			
Illustrative geographies	<ul style="list-style-type: none"> United States/Canada Australia/New Zealand South Africa 	<ul style="list-style-type: none"> Latin America Southeast Asia East Africa 	<ul style="list-style-type: none"> Southeast Asia/South Asia Sub-Saharan Africa

examples of longer-term opportunities that are already in mature stages of project development that may be investable in the nearer-term (e.g., AMATA, Symbiosis).

Common across all these opportunities, with perhaps the exception of non-reforestation sustainable timber in developed markets, is the need for blended finance. Though each opportunity may have its own specific blended requirements (see descriptions in section below), there are many instruments that are essential across the board: (i) knowledge sharing/intermediation for opportunity identification; (ii) grant funding for project preparation, pipeline development and due diligence; and (iii) de-risking instruments to mitigate emerging market and local currency risk for investors (e.g., financing only through domestic investors, using currency hedges, MIGA guarantees).

QUICK WINS (0-5 YEARS)

- **Non-reforestation sustainable timber in developed markets**

Financial structure: TIMOs

Impact: Low (may have positive climate impact in certain locations, but low compared to real forest projects)

The large bulk of private sector capital in SLU has flowed into opportunities in mainstream asset classes, primarily in sustainable timber. These models have scaled and replicated without the need for blended capital across developed markets in Australia and New Zealand; TIMOs have attracted billions of dollars in institutional capital from pension plans and insurance companies looking for a natural inflation hedge with attractive yields. New Forests, for example, has raised AU\$4 billion in its timber funds across these two geographies. Institutional investors, however, typically require large ticket sizes ranging

from US\$100m to US\$3-4 billion. From an environmental impact perspective, non-reforestation sustainable timber may also be less impactful if not integrated with natural forest conservation and/or reforestation.

- **Sustainable commodity intensification on large, degraded landholdings (e.g., cattle intensification, high-value crops) in emerging markets**

Financial structure: Real estate//private equity (PE) hybrid; PE fund; debt fund

Impact: Low-medium (high to the extent that project avoids deforestation)

Increasing productivity on large swathes of inefficiently-used lands can deliver quick cash flows after 1-2 years with small investments in inputs, tools and technical assistance/capacity-building in sustainable practices. There are several potential financial structures to capture economic value: (i) a real estate/PE hybrid investment in a management company on purchased lands; (ii) a PE investment in a management company on leased lands/long-term concessions; or (iii) a debt investment. Grant funding for ongoing technical assistance and capacity-building, concessional capital, and guarantees on debt service (for debt funds) can help attract non-institutional private capital with up to 1:7 leverage, particularly for scaling in new geographies.

Annex E provides illustrative models for silvopastoral cattle intensification on degraded pasturelands in Brazil and Colombia (~60 million and ~38 million hectares of degraded pasturelands, respectively). In addition, PECSA in Brazil provides a case study of the ability of sustainable practices to increase livestock productivity and revenues in the short-term.

CASE STUDY 7 | PECSA

Financial structure	Geography	Financing	Blended finance
Portfolio company	Mato Grosso, Brazil	€11.5 million loan from Althelia Climate Fund (first funding window)	US\$1.8 million in grant funding for project preparation from Moore Foundation
Description			
PECSA is one of the first cattle ranching management companies founded in 2015, as a for-profit spin-off of the Instituto Centro de Vida’s Novo Campo pilot programme in Mato Grosso state. PECSA aims to increase productivity and financial returns to cattle ranchers through cattle intensification and to restore degraded pastureland. PECSA developed an innovative co-investment rural partnership model with cattle ranchers to invest infrastructure deployment and natural resource restoration as part of a management (i.e. PECSA does not own the land nor the farm) and profit-sharing agreement.			
Financial performance	Environmental impact	Social impact	
Targeted IRR (after 5-7 years) 15% in real terms	First window targets restoration of 10,000 hectares of degraded pastureland and 700 hectares of riparian forests; 40% emission reduction per hectare while doubling production; 90% reduction in emission intensity kilogram of produced beef	120 jobs created in 2016	
Innovation	Medium: Cattle intensification has become a proven model to deliver strong financial returns on degraded pasture lands. PECSA’s model incentivises significant numbers of cattle ranchers to deliver environmental impact by decreasing the economic value of deforestation. Additionally, PECSA continually adjusts the operating and financial model to make the business more viable and replicable at large scale (e.g., the company now only invests in areas where rice can be planted after the pasture reform, to generate revenues from the first year).		
Catalytic effect	High: Grant funding for project preparation and pilot testing delivered 1:7 leverage. Beginning next year, PECSA plans to expand to 100,000 hectares over the following 4 years for which it will raise capital from the IDB (concessional loan of US\$2.5 million) to crowd-in capital from institutional and commercial investors. In addition, PECSA is exploring off-take agreements with large food and retail companies which are made possible by the large volume of production it is targeting.		
Actionability	High: The success of the model has enabled PECSA to gain much traction in the industry. The company has developed well-established network of cattle suppliers and ranchers on the ground to scale and replicate more broadly across the Brazilian Amazon.		

- **Value-added intermediary processors along sustainable commodity supply chain**

Financial structure: PE fund; debt fund

Impact: Low-medium (high to the extent that project incentivises smallholder producers engaged to avoid deforestation)

Value-added intermediary processors in high-value commodity supply chains (both agriculture and forestry) can generate attractive risk-adjusted returns (funds target 13-25% IRR). Additionally, these investment opportunities are particularly attractive for investors interested in smallholder agriculture as they provide an aggregated structure in which to invest in smallholder farmers.

PE and debt funds are typical structures used to invest in intermediary processors. Given the key aggregator/intermediary role that these value-added processors play in global supply chains and the higher returns, these investment opportunities can attract corporate, impact- and occasionally finance-first investors. Operations strongly integrated with large plantations or more mature and already-captive smallholder value chains may largely use commercial financing. For investment opportunities in less-integrated/captive smallholder value chains, blended finance can be used (i) directly as concessional capital and/or guarantees on debt service (for debt funds) or (ii) indirectly by supporting the smallholder farmers that supply the intermediary processors. Potential instruments at the indirect level include: grant funding for aggregation, technical assistance and capacity-building of smallholder farmers; concessional debt/guarantees to local

aggregators to reduce smallholder cost of capital; and subsidised agri-insurance to protect smallholders against poor harvests/lost livelihoods, as well as to incentivise them to invest in their lands. Such blended finance can deliver an indicative 1:3-5 leverage of concessionary to private capital (e.g., &Green Fund).

- **Ecotourism/recreation**

Financial structure: Real estate/PE hybrid; PE fund; debt fund

Impact: High for projects in high conservation areas (local communities)

Ecotourism activities in conservation areas provide niche opportunities to generate revenues from luxury-driven demand for eco-conscious travel. There are several potential models, including: as a standalone real estate or PE investment (e.g., Peace Parks Foundation's KAZA in transfrontier conservation areas) or as additional revenue streams integrated into other models (e.g., The Climate Trust monetising forest conservation through carbon credits, PES, ecotourism, hunting licences, etc.).

Given the high-value, high-return nature of ecotourism, many ecotourism projects have the potential to deliver quick cash flows and impact through forest conservation. Blended capital may be necessary in certain conservation areas through concessional capital, guarantees on debt service (for debt funds), and/or grant funding for forest restoration, reintroduction of wildlife, basic infrastructure, etc.

CASE STUDY 8 | Ecotourism in KAZA

Financial structure	Geography	Target size	Blended finance
Private equity	Kavango-Zambezi Transfrontier Area (Silowana, Southern Africa)	n/a	Grant funding for restoration and infrastructure
Description			
<p>The Peace Parks Foundation (PPF) and their partners are planning to catalyse tourism development as a basis for long-term ecosystem protection. Currently, the lack of viable economic models in and around sub-Saharan Africa’s vulnerable ecosystems lead to poor socio-economic and associated environmental results (more than 40% of the sub-Saharan African population lives on less than \$2 per day¹ whilst the abundance of the continent’s iconic mammals has dropped by ~60% in under half a century²). Tourism has the potential to drive increases in social, economic and environmental results – by providing employment and livelihood options, by increasing revenues and acting as the foundation for sustainable ecosystem management.</p> <p>(Sources: 1. World Bank. 2. Large mammal population declines in Africa’s protected areas. Craigie et al., (2010).)</p>			
Financial performance	Environmental impact	Social impact	
n/a	Sustainable ecosystem development through land restoration and preservation	Job creation, improved livelihoods by increasing revenues	
Innovation	High: PPF and its partners aim to access a relatively new market (KAZA), and tap into Africa’s unique environmental assets, leveraging their regenerative uses.		
Catalytic effect	High: By establishing a new ecotourism model in markets perceived as a high-risk, PPF will create a roadmap for further investment.		
Actionability	Medium: Large, expanding tourism market, but could face operational and infrastructural hindrances.		

MEDIUM-TERM OPPORTUNITIES (5-15 YEARS)

- **Non-reforestation sustainable timber in emerging markets**

Financial structure: TIMOs

Impact: May have some positive climate impact in certain locations, but low compared to real forest projects

Even for successful funds such as New Forests with significant track record, replicating this mature SLU model in emerging markets in

Southeast Asia, for example, can be difficult and attract less financing (US\$170.7 million in Southeast Asia versus US\$3.4 billion in Australia and New Zealand). Less favourable enabling environments (i.e., land tenure rights, permitting issues, macroeconomic and currency volatility, and other emerging market risks) and perception of risk by institutional investors of unknown geographies reduces actionability.

Grants for project preparation and long-term concessional equity from DFIs and foundations were used, in New Forests' case,

for 1:4 leverage. Other potential instruments include: (i) revenue enhancements from public off-takers through environmental and social performance-based payments; (ii) guarantees on payment of annual investor returns (e.g., 2%) and on investor buy-outs (for those expecting exits in 7-10 years) prior to the project's ability to realise revenues from forest activity in the first 10+ years—though long-term concessional equity to co-invest with large private investors with patient capital (e.g., DFIs with New Forests) may be better suited in this case; and/or (iii) subsidised insurance against forest fire and disease.

- **Sustainable smallholder agriculture in integrated value chains with informal land rights for avoided deforestation/forest conservation**

Financial structure: Result-based financing; debt fund

Impact: Low-medium (high to the extent that project (i) avoids deforestation and/or (ii) conserves forests through non-timber forestry products); high socio-economic development impact for smallholder communities engaged

Given traditional challenges, aggregating smallholders at scale and improving productivity/ yields can take 3+ years of upfront investments with minimal returns. Global commodity supply chains and the corporate sector, however, are increasingly attuned to the need to source supply from sustainable land sources as a fundamental component of their core business strategy, both to manage market reputation as well as ensure long-term sustainable supply. There are many examples of increased corporate investment in smallholder initiatives: for example, Starbucks has invested more than US\$100 million globally

in supporting coffee communities through farmer support centres, farmer loans and forest carbon projects to help ensure a long-term supply of high-quality coffee for the industry; most recently, Mars has pledged US\$1 billion on its “Sustainability in a Generation Plan”.⁴⁹ See Annex C.5 for a detailed example of the Livelihoods Fund for Family Farming with Danone and Mars and Annex C.4 for the &Green Fund with Unilever. These committed global off-takers can ensure stable returns in the medium-term.

Blended capital may be necessary in three important ways for both fund structures: (i) concessional capital; (ii) grant funding for ongoing aggregation, technical assistance and capacity-building; and (iii) subsidised agri-insurance. For debt funds, blended finance can additionally be used directly through guarantees on debt service and indirectly through concessional debt/guarantees to local aggregators to reduce smallholder cost of capital. These blended instruments may indicatively achieve 1:1-3 leverage. There is arguably less additionality, however, as private capital from corporates and agriculture funds already flows increasingly to highly integrated and captive high-value global supply chains with well-established off-takers. Public and philanthropic capital as revenue enhancements (e.g., as public off-takers through clear environmental and social performance-based payments), in this case, may be more additional and have greater impact. More nascent revenue models involving non-timber natural forest production of wild forest products, biofuels, and chemicals may deliver comparably more positive climate impact through forest conservation. Grants for market-building will additionally be important here.

- **Integrated agroforestry on existing productive lands**

Financial structure: Real estate/PE hybrid; PE fund; debt fund

Impact: Medium (high to the extent that project avoids deforestation); high socio-economic development impact for smallholder communities engaged

An integrated and phased approach to diversify revenue streams can strengthen the SLU

investment case. Early cash flows from cattle/agricultural intensification on large degraded landholdings (see Annex E), for example, can subsidise longer development lead times for agroforestry. Symbiosis Investimentos and Amata—both TIMOs in Brazil—are also exploring agroforestry as a next stage of revenue enhancement/diversification after the first timber production cycles. Typical blended finance instruments would be similar to other smallholder models.

CASE STUDY 9 | Symbiosis Investimentos

Financial structure	Geography	AUM	Blended finance
TIMO	Brazil	n/a	Currently none; preference for concessional debt after breakeven to re-lever as early-stage debt service can be too risky
Description			
Symbiosis Investimentos is a Brazilian TIMO founded in 2006. It launched an initial pilot on a 1,500-hectare timber plantation combining native and exotic species in 2008 and expects to breakeven from timber revenues at 20 years from planting. Symbiosis plans to generate additional cash flows through agroforestry/natural forest production, carbon and legal reserves credits, and payment for ecosystem services in the future.			
Financial performance	Environmental impact	Social impact	
Targeting IRR 12-13% in 20 years; up to 17% with selective breeding of best-in-class species	Currently 1,500 hectares of restored sustainable timber plantations	n/a	
Innovation	Medium: An integrated approach to revenue models through sustainable timber, agroforestry, carbon and legal reserve credits strengthens the model’s investment case, despite long development lead times and challenges in the Brazilian market.		
Catalytic effect	High: Although Symbiosis has self-financed early development through founders’ equity, concessional debt can help finance expansion into new plantations and agroforestry (once initial timber revenue streams are established) at scale and with high catalytic leverage.		
Actionability	High: Strong track record and management experience, with clear pathway to profitability. Symbiosis also has significant expansion plans in the short- to medium-term to reach 30,000 hectares.		

- **Forest conservation through carbon and other credits/payment for ecosystem services**

Financial structure: Real estate; project finance

Impact: High positive climate impact

Monetising forest conservation through compliance and voluntary credits markets remains relatively small. Payment for ecosystem services is equally small as it remains a nascent market with few off-takers (outside of niche successful examples; for example, New York's payment for watershed services; there are also many failed pilots). That said, there may be opportunities in the medium-term as favourable regulations are implemented, thereby instantly creating sizeable compliance markets (e.g., carbon market in Colombia is expected to reach US\$200-250 million per annum; legal reserve liabilities in Brazil). In Indonesia, ecosystem restoration concessions (ERC) are similarly being piloted to monetise conservation activities through nascent voluntary carbon markets. An integrated approach of combining carbon credits/PES as a supplementary revenue stream to another revenue model may strengthen the investment case of projects (e.g., forest conservation of natural forests with wild forest production of non-timber forest products).

Additionally, as the success of these markets depends heavily on jurisdictional regulations, there could also be quicker wins in jurisdictions in which the regulatory and legal frameworks already exist (e.g., California's cap-and-trade market). For example, The Climate Trust is currently investing in early-stage carbon offset projects in forestry, agriculture and biogas across the US; New Forests has similarly set up reduced impact logging activities for PES and carbon credits in the US in Native American territories; and Lyme Timber Company has successfully monetised conservation easements in part through government tax credits.

For many standalone voluntary and compliance market/PES investments, public and philanthropic capital (both directly through concessional capital, funding as a public off-taker and/or tax credits; or indirectly through public policy coordination and regulatory market creation) can be fundamental to enhancing returns and/or creating an underlying market for forest conservation. Indeed, the use of public capital for policy coordination with national and sub-national jurisdictions can be an effective tool to drive systemic change.

LONG-TERM OPPORTUNITIES (10-20+ YEARS)

- **Reforestation through/for sustainable timber or non-timber natural forest production/conservation**

Financial structure: TIMOs; real estate/PE hybrid; PE fund; project finance

Impact: High (to the extent that former natural forest areas are reforested and conserved)

With long lead times on reforestation of degraded lands and ~90% of the project valuation captured within the terminal value, these investment opportunities may not be realistic for short-term oriented private investors. For example, Brazilian TIMOs Amata and Symbiosis Investimentos are only now generating their first revenues after ~10 years of operations, with expectations of breakeven within another decade. These two TIMOs have proven successful in attracting capital from domestic institutional investors and HNWI/family offices, though these include domestic development banks and impact-oriented investment firms with strong development mandates, higher risk tolerance and patient capital.

- For most other investment opportunities not in mainstream asset classes (i.e., conservation), blended capital needs will be similar to other forest conservation and smallholder agriculture models to make projects viable for private capital, initially with low concessional-private leverage (~1:1). An integrated and phased approach to diversify revenue streams may improve the SLU investment case: long-term reforestation on a portion of multi-purpose land, for example, can be subsidised by cash flows from earlier-stage cattle/agricultural intensification and agroforestry project opportunities.

CASE STUDY 10 | AMATA

Financial structure	Geography	Financing	Blended finance
TIMO	Brazil	n/a	Financing from the Brazilian development bank
Description			
AMATA S.A. is a Brazilian sustainable timber company with both native and exotic timber plantations. Founded in 2005, the company aims to fight against illegal forest logging by providing the consumer market with solid wood and wood products from certified origins. The company exports most of its products to developed markets such as Europe and Japan, where the demand for sustainably-sourced timber is increasing due to regulatory requirements on imports. AMATA works in close collaboration with the FSC in Brazil and applies a strict zero deforestation policy.			
Financial performance	Environmental impact	Social impact	
Targeting IRR 8-10% (forestry only) in real terms over 20 years; IRR 10-12% (including agroforestry); IRR 15-20% for value-added processing	Sustainable exotic and native timber plantation and sustainable forest management. Over 110,000 hectares managed and 80,000 hectares (to be added)	400 employees, more than 60 different local communities positively impacted	
Innovation	High: Despite long development lead times and operating in a market in which illegally-sourced wood is produced at 40% of its cost basis, AMATA has managed to build a strong long-term investment case for its FSC-certified wood products from restored lands. Additionally, it has developed this model whilst still adhering to strict transparency standards and a yet-to-be implemented Forest Code that many of its competitors do not follow.		
Catalytic effect	High: AMATA's long-term model has successfully attracted patient capital from the Brazilian development bank and mission-driven domestic investors; this initial capital and its model have since attracted interest from American and German long term investors.		
Actionability	High: AMATA has been expanding its operations through new acquisitions over the last years (three windows raised), and will soon harvest the trees of its first plantation back from 6-7 years ago.		

- **Sustainable smallholder agriculture in non-integrated value chains and/or without land rights for avoided deforestation/forest conservation**

Financial structure: Result-based financing; real estate/rent-to-buy; debt fund

Impact: Medium (higher to the extent that marginalised smallholder communities can avoid greater deforestation through sustainable livelihoods); high social and socio-economic development impact that addresses land rights, post-conflict rural development, etc.

Similar to other smallholder models, aggregating smallholders at scale and improving productivity/yields can be timely and costly. In scenarios with low actionability (e.g., not in integrated or captive global supply chains of high-value commodities, non-existent land rights, post-conflict areas with marginalised/displaced populations, costly aggregation, lack of identifiable implementation partners), higher innovation and increased blended capital with low concessional-private leverage (less than 1:1-2) will be needed to attract primarily early-stage impact-first investors with patient capital. More specifically, in addition to the typical blended instruments needed for other smallholder models, these opportunities can benefit significantly from design grants for new and innovative financing structures (e.g., real estate/rent-to-buy model) and greater funding/public policy coordination to strengthen the supporting enabling environment (e.g., infrastructure, jurisdictional regulatory and legal frameworks, data availability).

For example, KOIS Invest is developing a conceptual real estate/rent-to-buy model (see Annex E) that could engage smallholder farmers or marginalised/displaced populations with no formal land rights (though often with traditional claims) to commit to sustainable land management practices in exchange for

land titling at the end of the fund life. Indeed, this promise of land rights can give significant incentive to add value through investment, innovation, asset pooling, etc. Based on the assumption of improved yields, a profit-sharing agreement tied to harvest cycles would ensure a financial return to the fund (with a built-in minimum 'rental' payment as part of the rent-to-buy scheme). Guarantees on 'rental' payments in the event that smallholders have poor harvests would strengthen the investment case.

In the second phase—once land ownership is transferred on the portion of land under the rent-to-buy scheme—the real estate fund rolls over into a long-term debt fund that provides loans to local financial institutions (similar to the successful Root Capital model) to supply credit to those smallholder farmers that were part of the real estate fund. These smallholders in theory would have long credit histories (based on their 'rental' payments), collateral through formal land ownership and proven reliable cash flows to now allow them access to local credit markets; and indeed, they would be a ready pipeline of new and at-scale opportunities for local financial institutions. Creating this local credit market is also key to ensuring that local financial systems can grow and scale to support future projects.

- **Early stage venture capital in innovative technologies and services**

Financial structure: PE/venture capital (VC) fund

Impact: Low-high (high to the extent that it leads to systemic SLU change)

Innovative technologies and services are playing an increasing role in the SLU landscape. Examples include monitoring deforestation and signalling environmental damages via sensors and satellites (e.g., by the Brazilian government, Suvo in Colombia);

facilitating access to agricultural credit via sophisticated credit scoring based on data analytics (e.g., CSLP); regulating land tenure through blockchain technology (e.g., Bitfury in Georgia); agri-insurance (e.g., SSCIV), etc. These innovative technologies and use-cases can be particularly attractive to impact-driven PE/VC investors looking to capture new economic value and unlock systemic

change. Given the high-risk perception of SLU investments, however, blended finance can be catalytic in supporting early-stage R&D, pilot development and testing through incubators and accelerators (e.g., Partnerships for Forests) and early seed capital before private capital can scale operations.

CASE STUDY 11 | Climate-Smart Lending Platform (CSLP) (see Annex C.7)

Leading organisations: F3 Life, Financial Access, IUCN, Climate Policy Initiative

Financial structure	Geography	Financing	Blended finance
Debt fund and grant fund	Kenya, Rwanda, Ghana	Target US\$27 million debt; US\$12 million grant in Phase 1	Mostly concessional in first phase, 1:3 ratio in second phase and move towards fully private in third phase
Description			
Launched in 2017, the CSLP makes use of technology and visual data to offer climate-smart credits to smallholder farmers and ensure restoration of degraded land. When signing a loan agreement, a farmer commits to adopt climate resilient land management practices, which also increase crop productivity and reduce risk of default on credit. A monitoring system verifies the compliance of the farmer with the agreement and assigns a credit score, which determines the "Environmental Interest Rate" charged by the local bank to the farmer.			
Financial performance	Environmental impact	Social impact	
Deal-dependant	Restore 1.5 million hectares by 2026	45,000 farmers in pilot phase	
Innovation	High: The provision of financial services with environmental credit scores to incentivise smallholder farmers towards more sustainable practices makes of the CSLP an innovative instrument.		
Catalytic effect	High: The Fund aims to rely on grants and concessional capital in the pilot phase. As the model proves its success, it will use public money as a de-risking instrument to mobilise increasing sums of private investments throughout the two next phases.		
Actionability	Medium: The fund is currently running a pilot with 75 farmers in Kenya. The next pilot will target scaling up to 45,000 farmers in Ghana, Kenya and Rwanda by making use of existing lending, climate and agricultural programs and funds.		

CASE STUDY 12 | Suvo

Financial structure	Geography	Financing	Blended finance
Portfolio company (PE/VC)	Latin America – Colombia, Bolivia	Omidyar Network seed funding	Grant funding from Mercy Corps for project preparation and pilot testing
Description			
Suyo was founded in 2015 with the aim to help families secure property rights by offering affordable and reliable land formalisation services in urban areas for the 60% of families in Latin America whose property is unregistered. By using mobile and geospatial technologies and forming partnerships with community organisations, microfinance institutions and government agencies, Suyo streamlines the complex, multi-step process for acquiring formal property documentation: this technology and service decreases costs by 50% and reduces time by 3x.			
Financial performance	Environmental impact		Social impact
n/a	n/a		~1,100 families since 2015. Targeting >500,000 people by 2021
Innovation	High: Suyo’s technology and service are currently applied to urban areas, but it (or a similar investment opportunity) could potentially be scaled to rural areas to help formalise smallholder and degraded pasture land titling. Formal land titles and cadastres can have systemwide implications for rural investment and SLU. The Brazilian government, for example, is using satellite technology in a similar fashion to create a land registry for all rural areas.		
Catalytic effect	High: Grant funding for project preparation and pilot testing followed by initial seed capital for disruptive technologies can lead to both the crowding-in of significant private investment and systemic change.		
Actionability	High: Pilot’s proven model is looking to scale to 500,000 people in the next four years. Strong backing from Omidyar Network and domestic angel investors and partnerships with relevant stakeholders strengthen Suyo’s pathways to implementation and scale.		

CASE STUDY 13 | Sustainable Supply Chain Insurance Vehicle (SSCIV)

Leading organisations: Good Energies Foundation, Mondelez International, ECOM Trading, Social Impact Partners (a joint venture between Munich Re and Hollard Insurance), Solidaridad Network, Rabobank and Care International

Financial structure	Geography	Target size	Blended finance
Insurance	To be determined	US\$TBD	Donors partially fund the captive (TBD%)
Description			
<p>This market-based mechanism introduces a new way to counteract deforestation through a series of incentives and disincentives for the entire supply chain and community partners to contribute to zero deforestation of a pre-defined landscape. The SSCIV will be based on a “captive” insurance solution. It enables different supply chain actors to jointly engage in an insurance vehicle to “share the load” of responsibility, creating value, increased efficiency, financial stability and profitability for the supply chain. By enabling supply chain actors to produce more and earn more by avoiding deforestation and incurring losses if they do deforest, this new instrument harnesses the self-interest of these actors to commit to and implement zero-deforestation supply chains. The actors are incentivised to perform with built-in benefits in the vehicle’s structure, such as local climate/weather, price, and health insurance, while disincentives are strong with clear financial repercussions if deforestation occurs. The SSCIV will make – from the view of a commercial insurer –the previously uninsurable risks of deforestation insurable. In addition, a portion of the risk can be transferred to a reinsurer. If no deforestation occurs, actors involved – all the way down to the community – are rewarded. In cases where deforestation occurs, the captive will pay for reforestation projects and the actors lose the built-in incentives and their financial contributions.</p>			
Financial performance	Environmental impact	Social impact	
N/A	The insurance vehicle will fund reforestation if deforestation does occur and will incentivise and enforce zero-deforestation across the supply chain actors engaged in the vehicle	Incentives built into the structure will benefit smallholders and communities (e.g., through access to local insurances, like price, weather or health insurance, or through investments in local communities)	
Innovation	High: The vehicle is structured so that good performance is in everyone’s best interest along the whole supply chain. There are financial repercussions if the whole chain of actors does not perform and forests are lost; similarly, there are clear economic incentives to keep the forest standing. In addition, to date, no mechanisms exist that can pay for reforestation in the event deforestation occurs. The insurance industry is not currently involved in solving global deforestation issues as it is considered an uninsurable risk.		
Catalytic effect	High: Private actors are incentivised to maintain deforestation-free supply chains through this joint insurance mechanism. The concept can potentially be applied to a variety of deforestation-heavy commodities (soy, beef, palm oil, etc.) in a variety of geographies and is designed to generate social impact as well as environmental protection. The scheme could be further adopted to include other currently “uninsurable” sustainability risks inherent in chains such as child labour and water scarcity.		
Actionability	Medium: A pilot is being designed by a consortium of organisations named above. But insurance schemes are not short-term solutions and it will take time to create and adapt a captive structure to a new sector and a new set of risks. A pilot will be critical to test and refine the mechanism and to determine how it can be scaled up.		

Jurisdictions with integrated landscape approaches represent the most attractive opportunities – private sector investors should prioritise opportunities in these geographies as entry points into SLU.

National and sub-national jurisdictions committed to creating favourable enabling environments (e.g., favourable policies, better infrastructure, knowledge sharing platforms) can significantly reduce risks and transaction costs for the private sector. In turn, increased private sector investment in these jurisdictions can further support the sustainable landscape agenda. The state Mato Grosso in Brazil, for example, has

been successful in creating such an enabling environment. Mato Grosso's Produce, Preserve and Include (PCI) strategy is focused on achieving social and economic development through sustainable land use. Actions under this strategy include the systematisation and dissemination of data on agricultural production, strengthening of land governance and fostering sustainable supply chains by providing traceability tools and technical assistance to farmers. The strategy is accompanied by a monitoring system in cooperation with several organisations. Annex D provides a snapshot of policies in countries with high mitigation potential.

FIGURE 13 | Enabling conditions for SLU opportunities⁵⁰

Capital	Policy influence	Examples of influence on SLU
Human	Enhance the health, knowledge, skills and ability of the population to work	<ul style="list-style-type: none"> • Poor levels of formal education increase the importance of technical assistance and peer-to-peer learning
Natural	Develop and conserve natural resources, sinks, natural processes such as climate regulation	<ul style="list-style-type: none"> • Secure land rights enable land owners to improve, manage and protect their land to unlock its full potential • Land tenure rights mapping incentivises investment in land and can develop tenancy markets • Environmental rights signal an explicit commitment to the protection of the environment and can be a starting point for stronger environmental laws and enforcement policies
Financial	Enable the ownership and trading of the other types of capital	<ul style="list-style-type: none"> • Emissions trading puts a price on carbon and incentivises cost-effective emission reduction • Financial and tax incentives can monetise externalities • Access to (low-cost) capital can incentivise investments in sustainable practices
Social	Strengthen institutional capacity to cultivate partnerships	<ul style="list-style-type: none"> • Facilitating the engagement and transparency of different relevant actors and initiatives • Development of effective partnerships with local stakeholders
Physical	Develop physical assets that enable and facilitate production processes and trade	<ul style="list-style-type: none"> • Infrastructure improvements allow for increased agricultural productivity by creating access to global markets • Monitoring systems enable accurate tracking of SLU objectives and increase validity of carbon markets, pay-for-performance and PES contracts

CASE STUDY 14 | Commonland

Financial structure	Geography	Size (US\$)	Blended finance
Private equity	Australia, Spain, Netherlands South Africa	n/a	Grant funding for pipeline and project development costs
Description			
Commonland aims to develop a large-scale landscape restoration industry by developing 20-year-long projects based on business cases. Created in 2013, the foundation follows a holistic approach by generating ‘4 returns’ (natural, financial, social and inspirational) in ‘3 zones’ (natural, economic and combined) and building long-lasting partnerships with a wide range of stakeholders, including scientific institutions, business schools, and experts from NGOs. To date, Commonland is funded by impact investors (high net worth individuals/family offices) and has founded four ‘regenerative’ companies in four geographies, one of which will enter an IPO next year.			
Financial performance	Environmental impact	Social impact	
n/a	The 4 projects cover 1.755 million hectares in total	South Africa: 500 jobs and 1 million indirect beneficiaries; 3 other projects involve 400 local stakeholders	
Innovation	High: Highly innovative in building a comprehensive approach to landscape restoration, with 4 types of returns to be generated to avoid further soil degradation (which is driven by an exclusively economic-driven approach).		
Catalytic effect	High: By creating a ‘database’ of investable and replicable business models, Commonland aims to standardise investments in landscape restoration and attract more traditional, patient capital investors in the SLU field. The foundation has gained much attention from various investors after only 4 years of pilot.		
Actionability	Medium: Although Commonland’s projects extend over at least 20 years (as required by ecosystems to regenerate) the success of the first four pilots together with its strong partnerships has enabled the foundation to develop a strong pipeline of additional business cases.		

Working in these jurisdictions with committed national and sub-national actors playing the aggregation, coordination and intermediation role may also reduce transaction diligence and execution costs, which have traditionally been an obstacle to investment:

- **Reduced search costs and expanded investor networks:** reduced search costs and efficiencies in sourcing deals and

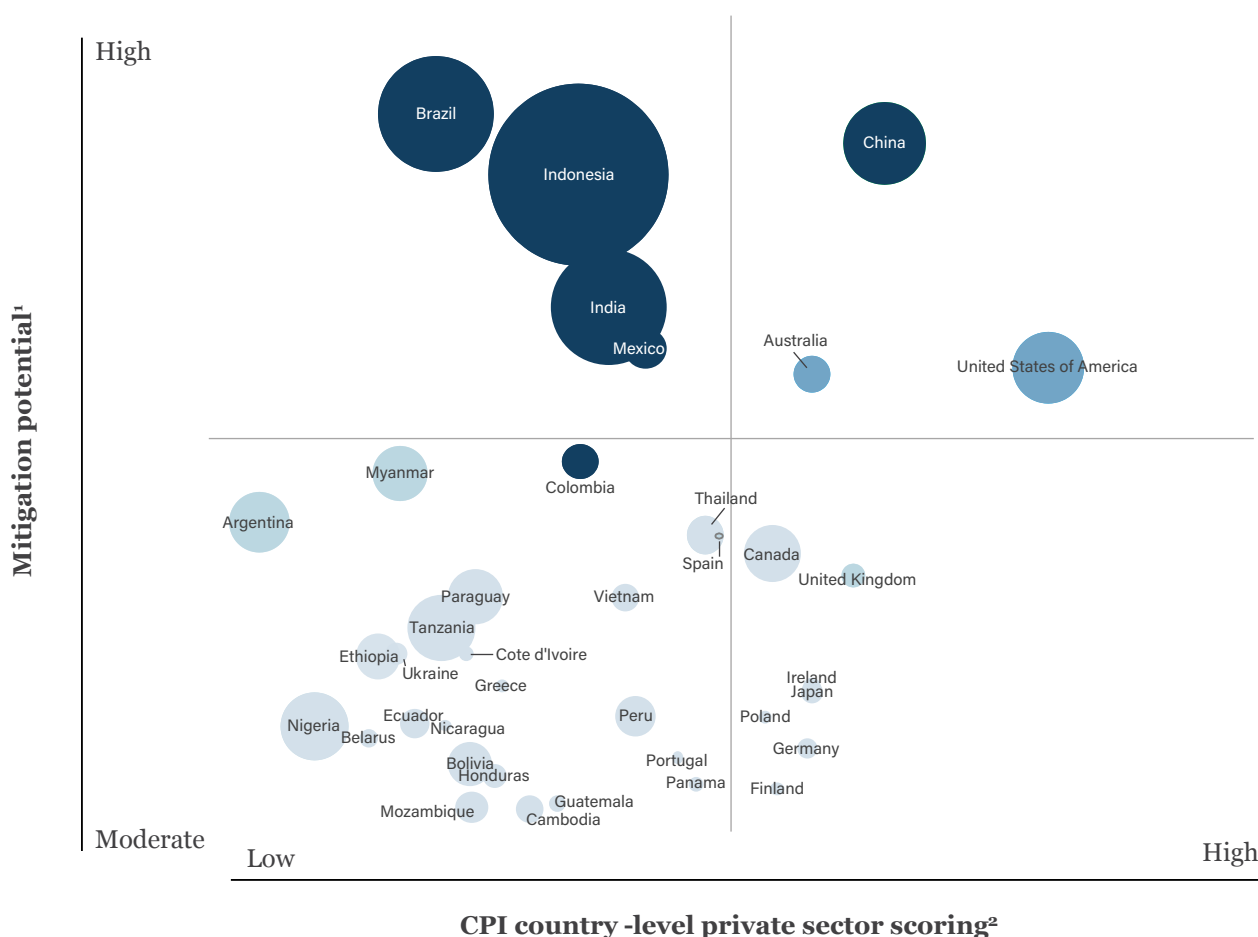
identifying investment partners can accelerate investments.

- **Increased knowledge and data:** insufficient/asymmetric data on transactions typically prevents investors from making informed investment decisions. Sharing information about pipeline and creating comparable benchmarks around risk-return profiles can facilitate investment decisions.

- **Lower due diligence costs:** high transaction costs due to the complexity of structuring and executing deals, particularly those involving diverse stakeholders with differing priorities and incentives, typically hinder innovation, experimentation and ultimately investment in the space. Lowering due diligence costs can allow business models/projects to attract private sector investors and reach scale.

In terms of countries with the greatest mitigation potential and most favourable enabling environments (using Climate Policy Initiative's 2017 country-level private sector scores), South Asia, Southeast Asia and Latin America rank favourably.

FIGURE 14 | Top 50 countries in terms of mitigation potential and private sector attractiveness (size represents total emissions)⁵¹



¹ Logarithmic distribution of the total potential of 8 natural climate solution pathways (which account for 58% of the estimated impact of all natural climate solutions – Reforestation, Natural Forest Management, Grazing - Optimal Intensity, Grazing – Legumes, Improved Rice Cultivation, Avoided Coastal Impacts – Mangroves, Avoided Peatland Impacts, Peatland Restoration), based on data from Griscom, et al (2017).

² Climate Policy Initiative (CPI). 2017. Country-level private sector scoring.

3. A CALL TO ACTION FOR PUBLIC AND PHILANTHROPIC INVESTORS

Mobilising private capital through blended finance is essential to unlock market opportunities. By deploying public and philanthropic funds to mobilise large-scale private investments, blended finance can mitigate risks and enhance returns for investors.⁵² Although designing a particular blended financing intervention will largely depend on the specific needs of a project, there are generalisable roles that blended finance can play across the investment lifecycle – both at the enabling environment and project levels.

It is, however, important to recalibrate expectations around catalytic leverage versus additionality. Certain revenue models and financial structures will have 1:0-1 leverage, and others with higher leverage up to 1:2-4. Expectations of catalytic leverage of over 1:5 in all investments may be unrealistic at best, and crowd-out private sector capital at worst. Public and philanthropic capital will need to seek a balance between high leverage for quick-win opportunities, where business models are close to the tipping point and can mobilise significant private capital; and high additionality for medium and long-term

opportunities to seed more innovative business models and vehicles.

Given the importance of an integrated landscape approach to unlock private capital, public and philanthropic investors can play a key role in lobbying for public policy and regulatory reforms that will be necessary for systemic change. Direct engagement with governments can support improvements in the local investment climate (e.g., through the creation of strategic investment plans and/or carbon markets), and align incentives with private capital providers. Through strategic central planning and the provision of technical assistance, industrial policies can significantly improve the underlying economic viability of emerging SLU projects, develop project pipeline, and accelerate private capital flows. For example, the Mato Grosso state government's commitment to ensuring stable land rights has increased the attractiveness of land-based investments and put the region at the forefront of SLU investments.

Meeting financing needs for SLU will also require greater coordination between public investors, as well as a more direct link between public funding and private investments. Financing SLU requires multi-sectoral coordination to integrate programs into

Project stage	Role for blended finance
Strengthening enabling environment	Public policy engagement, supporting and coordination initiatives
Opportunity identification	Pipeline development, matchmaking
Local community engagement and buy-in	Project preparation, technical assistance and capacity-building
Fundraising	Concessional capital and guarantees, matchmaking
Management and implementation	Technical assistance and supporting initiatives

a holistic landscape approach, though platforms operating at the global (e.g., TFA2020), national (e.g., Colombia Sostenible) and sub-national (e.g., Mato Grosso and Pará states) levels. Platforms like Convergence can also play an essential matchmaking role, connecting credible private, public, and philanthropic investors to co-invest in deals.

Additionally, at both the global and country levels many parallel donor initiatives provide small-scale grants to NGOs and projects, and grants tend to be managed separately from investments. The missing link between grants and concessional funding leads to many projects dying off or not reaching scale. A publicly-funded technical assistance facility used as pipeline development for a blended investment fund can create that direct link.

Public and philanthropic funders can strategically provide direct investments and guarantees to attract and support private investments in SLU by:

1. Supporting pipeline development:

- Project preparation funding (through a combination of grants, repayable grants, and/or concessional loans depending on the project stage), to be managed in conjunction with investment funds or coordinated through matchmaking platforms.
- Demonstration and innovation, by providing highly flexible seed money for venture capital search funds (through a combination of repayable grants and convertible equity) to identify and pilot early stage investments. Foundations are best placed to participate in blended transactions where the structure is particularly innovative and can act as a proof of concept to the market.

2. De-risking SLU investments for private

sector investors (e.g., through subordinated long-term debt) – especially for private foundations, through mission-related investments. When providing soft capital, allowing for a flexible leverage ratio on a project-by-project basis (rather than setting specific targets at the fund level) is needed to allow for experimentation and adaptability in early stage markets.

3. Improving market incentives, by providing result-based financing and off-taker guarantees contingent on the underlying environmental and social performance of SLU projects.

Finally, DFIs and MDBs can more significantly shift focus towards private sector

mobilisation, and align incentives for investment managers by setting targets around private investor leverage – both at the investment and portfolio sector levels. In addition, they can work alongside and co-invest with emerging blended finance facilities that can de-risk SLU investments (e.g., &Green Fund). In SLU, transaction costs and risks (country, business, etc.) are high. While some DFIs are currently considering ways to invest in riskier and more impactful projects (e.g., through dual investment policies), emerging blended finance facilities can play an important role in accelerating this trend by providing lower interest, longer tenors and/or subordination to DFIs.

ANNEXES

A. Methodology

B. Financial structures and revenue models in SLU

C. Case studies

D. Enabling environment

E. Case study on conceptual models in Colombia

F. Interviewees list

ANNEX A: METHODOLOGY

With the aim to have an overview on the most promising and catalytic opportunities in the SLU landscape to date, our research has been divided in three main phases:

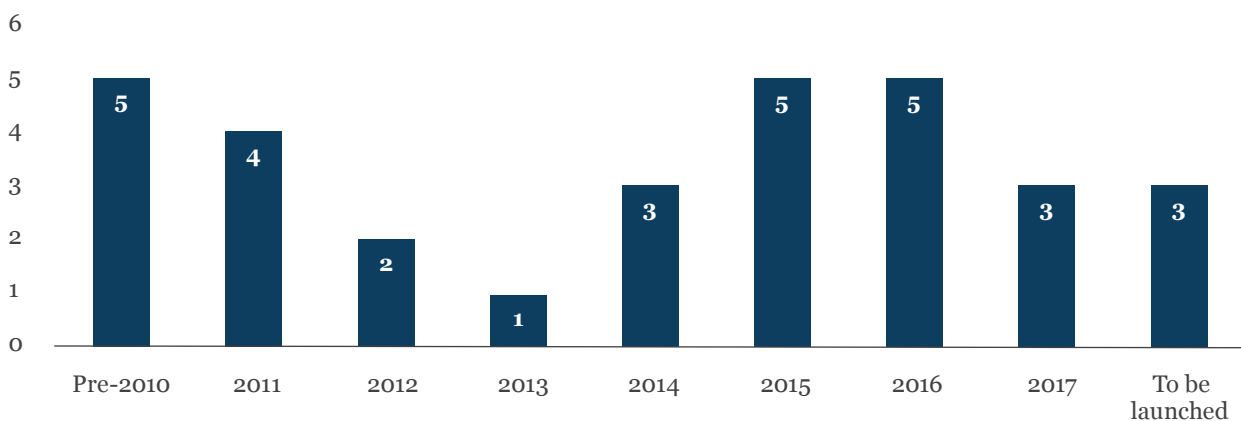
1. Mapping the SLU landscape: creation of database with SLU instruments
2. Defining the opportunity: interviews with global SLU-related actors
3. Shifting opportunity to action: field visits in Colombia and Brazil

Each phase is detailed here below:

1. LANDSCAPE OVERVIEW OF SLU INSTRUMENTS

A review of blended finance in SLU indicates that although it is growing rapidly, this is still quite nascent a space. There is relatively little experience upon which to draw lessons about successfully leveraging private capital or deploying it to realise environmental and financial impact. It will therefore be crucial to effectively support and bolster the dynamism that has been achieved.

Number of vehicles launched per year



In a scan of relevant investments, we identified 134 finance vehicles in the SLU space, of which we were able to confirm 35 have launched and an additional 6 are in the pre-launch phase. Of these, 28 already do or intend to employ some form of blending. Collectively, these vehicles are trying to target over US\$11 billion with individual vehicle targets ranging from US\$5 million to US\$2.7 billion.

The sectoral and geographic focus of the vehicles is as follows:

	Agriculture	Forestry	Multiple	Grand total
<i>Africa</i>	4			4
<i>Asia</i>		1	1	2
<i>Australia</i>	1	3		4
<i>Central and South America</i>	1	3	3	7
<i>Europe</i>			1	1
<i>Global</i>		2	5	7
<i>Multiple</i>	2	1	4	7
<i>North America</i>		9		9
Grand total	8	19	14	41

	Agriculture	Forestry	Multiple	Grand total
<i>Launched</i>	7	16	12	35
<i>Pre-launch</i>	1	3	2	6
Grand total	8	19	14	41

2. INTERVIEWS WITH GLOBAL SLU ACTORS

To have an exhaustive view on the SLU sector, we have conducted **86 interviews** in total, both on the supply/investor side and on the project/demand side. The full list of names, organisations and positions of interviewees can be found in Annex F. We have interviewed a variety of actors on all continents, including:

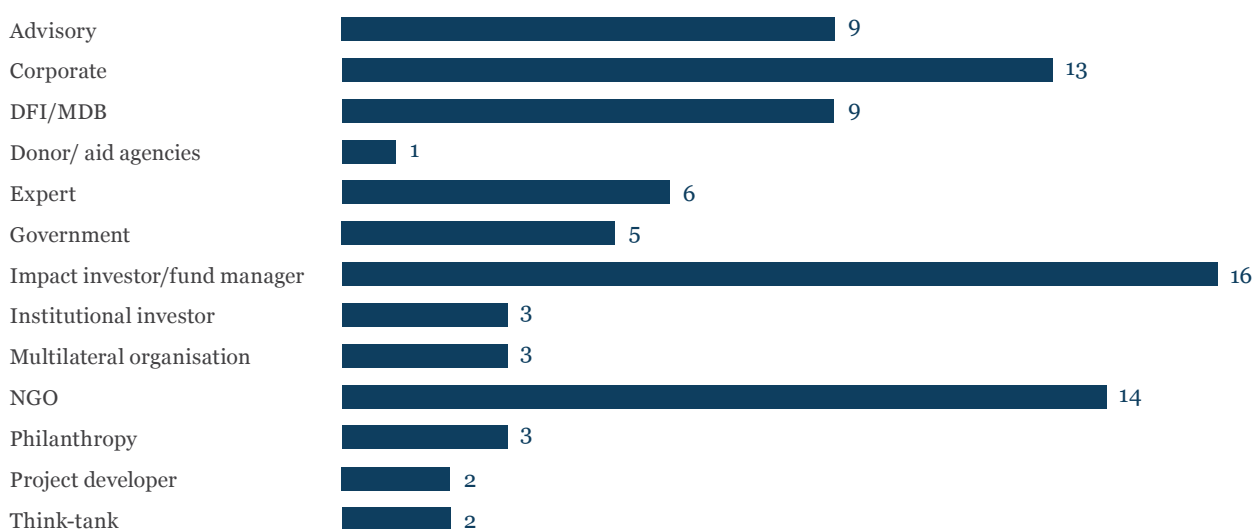
- In the **private sector**, on the supply side, we interviewed 16 impact investors and asset managers, 3 institutional investors and 13 companies (e.g., large food companies, timber processing companies). Some of these organisations are active on the demand side as part of their operations or through a pipeline development entity (often subsidised by philanthropic capital). We have also interviewed 8 advisory firms (e.g., impact investment, environmental strategy, policy implementation, CSR) and 2 project developers.
- In the **public sector**, we have interviewed 5 government bodies (e.g., ministries, initiatives), 9 development banks (MDBs and DFIs) and 3 multilateral organisations.

- In the **philanthropic sector**, we interviewed 14 NGOs (e.g., platforms, initiatives), 3 philanthropic investors and 1 donor agency.
- Other actors included 6 **experts**, such as independent consultants, lawyers and researchers, as well as 1 think-tank.

The interviews were conducted in a semi-structured way. Broad guidelines were drawn based on the organisation's type and the experience of the interviewee, in order to give the interviewee as much freedom as possible while making the conversation as fruitful as possible given the limited time frames.

3. FIELD VISITS IN COLOMBIA AND BRAZIL

Total number of interviewees by type



Our research included two field visits. These enabled us to gain much deeper insights on the SLU opportunities and challenges in each country, as shown by more concrete financial models in Annex E resulting from discussions with experienced actors in the field. The first visit took place in **Bogotá, Colombia**, which is gaining much attention worldwide given the novelty of the peace agreement and the vast opportunities available in SLU as a direct consequence of a 52-year-long war. 16 interviews were conducted in 5 days, with organisations from the private, public and philanthropic sector.

The second field visit took place in **São Paulo, Brazil**, where the sustainable land use sector is more mature and has been addressed by many national and international organisations for years. This enabled us to meet more established organisations in the sector (e.g., timber plantation management companies) and to gain deep insights into the most advanced techniques and the most efficient business models in SLU. Even though the national context and policies have an undeniable role in the initiatives that are

undertaken in each country, Colombia and Brazil face similar challenges (e.g., large swathes of degraded land, land title conflicts, major emissions from cattle ranching and deforestation) which can be tackled by similar and therefore scalable, replicable business models.

We also attended the Preparation Meeting of the Latin American Implementation Dialogues organised by TFA2020 in London, where government representatives of Mato Grosso and Pará, leading supply chain and financial services companies and civil society organisations presented opportunities for investment in the space, with a particular focus on the jurisdictional approach.

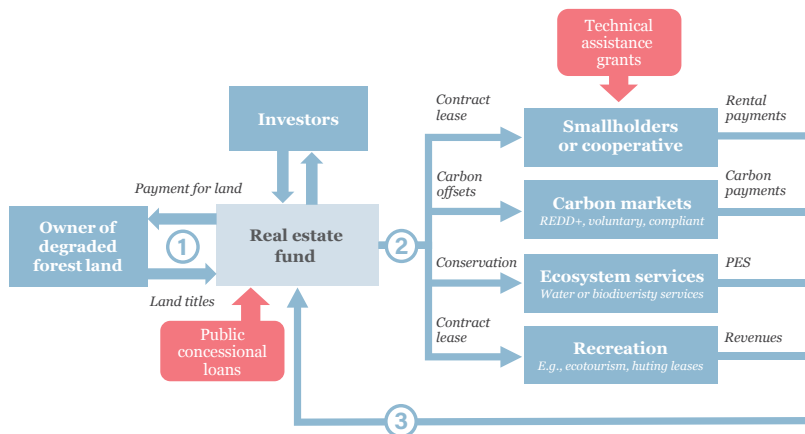
The table below provides an overview of the actors interviewed as described in point 2 and 3:

Interviewee type/country	Global	Colombia	Brazil	TOTAL
<i>Advisory</i>	4	4	1	9
<i>Corporate</i>	9		4	13
<i>DFI/MDB</i>	7	1	1	9
<i>Donor/ aid agencies</i>	1			1
<i>Expert</i>	3	2	1	6
<i>Government</i>	3	2		5
<i>Impact investor/fund manager</i>	12	2	2	16
<i>Institutional investor</i>	3			3
<i>Multilateral organisation</i>	1	2		3
<i>NGO</i>	9	1	4	14
<i>Philanthropy</i>	3			3
<i>Project developer</i>	1	1		2
<i>Think-tank</i>	1	1		2
Total	56	16	13	86

ANNEX B: FINANCIAL STRUCTURES IN SLU

These models illustrate 5 main financial structures that are observed in the SLU landscape to date. Each model includes the different revenue streams that can be generated from each activity, as well as the potential of public and philanthropic actors to provide catalytic funding through different instruments.

ANNEX B.1: REAL ESTATE FUND



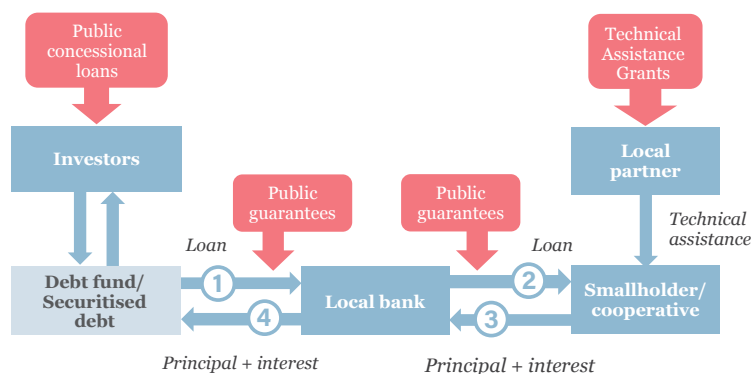
MECHANISM DESCRIPTION:

1 - Land rights are purchased from a land owner and pooled into a real estate fund

2,3 - The real estate fund generates revenues from a diverse set of activities conducted on the land (either by a separate management company or the organisation to which the land is leased), such as:

- Carbon credits generated from forest restoration or conservation are sold to companies seeking to offset their emissions
- Payments by a public institution for upstream watershed services
- Revenues from recreational leasing activities
- Rental payments from smallholder farmers or aggregators

ANNEX B.2: DEBT FUND



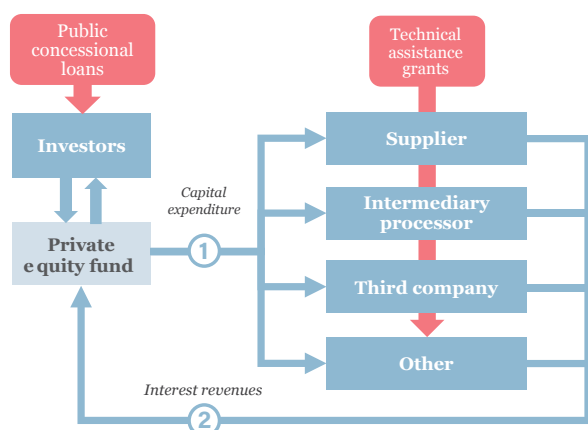
MECHANISM DESCRIPTION:

1,2 - A debt fund provides loans to local financial institutions, which supply credit to smallholders

A local partner provides the necessary technical assistance, training and infrastructure for the farmers to harvest products in a sustainable and intensive way

3,4 - The farmers pay back their loans to the local banks, which in turn pay back their loans to the debt fund

ANNEX B.3: PRIVATE EQUITY FUND

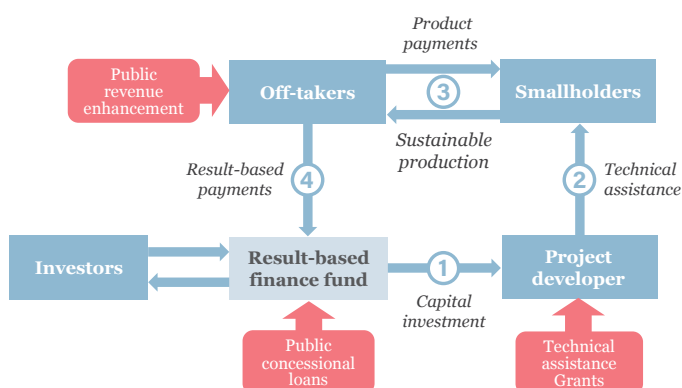


MECHANISM DESCRIPTION:

1 - A private equity fund invests in a local supplier, an intermediary processor, or a company which directly or indirectly produces commodities (e.g., cattle, crops, wood, a combination of these). This company already implements or is willing to adopt sustainable land use management practices, with support from an organisation providing technical assistance.

2 - The invested company pays returns on cash flows back to the fund

ANNEX B.4: RESULT-BASED FINANCE FUND



MECHANISM DESCRIPTION:

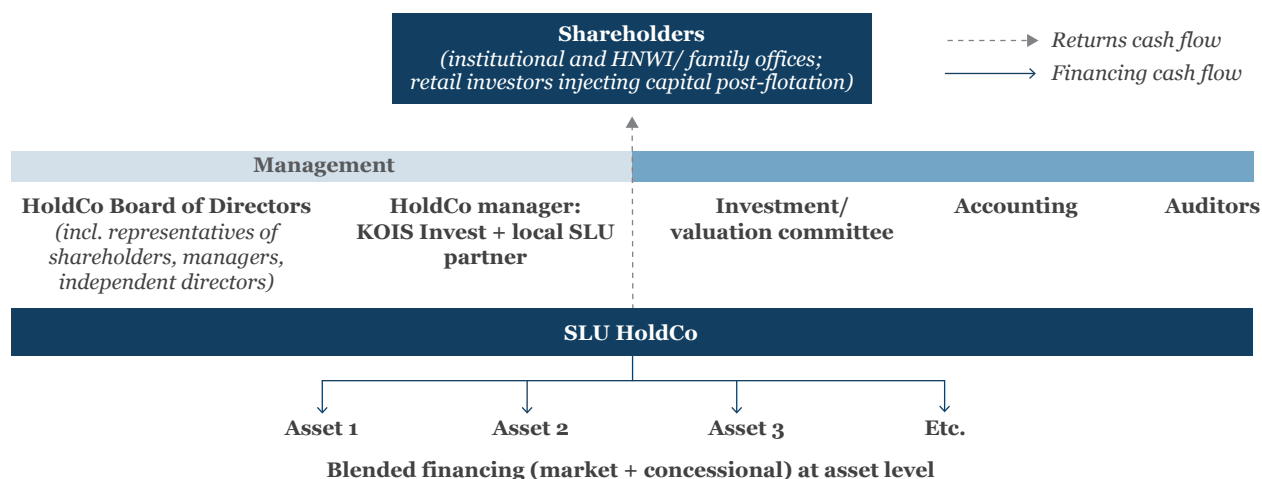
1 - Upfront capital investment in project developers (cooperatives/NGOs)

2 - Project developers provide the necessary training, equipment and technical assistance to smallholder farmers to implement sustainable and intensive agricultural practices

3 - Private investors commit to purchase sustainably-produced raw materials from the trained farmers on a relatively long-term basis

4 - Private and public off-takers make result-based payments to the fund for accessing sustainably-sourced products and for the generation of public good and positive environmental impact. These take the form of premium fees, carbon credit payments, or payment for ecosystem and biodiversity services. The pay-for-success scheme is based upon a set of predetermined commodity-/impact-related metrics.

ANNEX B.5: HOLDING COMPANY



ANNEX C: CASE STUDIES

ANNEX C.1: CASE STUDY – NEW FORESTS

	Australia New Zealand Forest Fund (ANZFF)	Tropical Asia Forest Fund (TAFF)	Forest Carbon Partners (FCP) and Carbon Forestry (CFOR)
Description	The three funds invest in a diversified portfolio of hardwood and softwood plantation assets, as well as processing, infrastructure and distribution facilities. These funds provide investors exposure to mature, stable, low-risk timber markets with established forestry management systems and infrastructure.	The fund invests significantly in large-scale rubber plantations and hardwood timber companies, covering a wide variety of timber species, with the goal to transition these assets toward higher value end markets and to service the growing demand for certified, sustainable timber in Asian markets.	Invest in carbon offset projects generating credits for compliance markets created by state and federal regulators, as well as small timberland. After a first small timberland investment in 2016, New Forests is about to launch a large scale timberland investment in January 2018.
Status	3 Launched	1 Launched, 1 Pre-Launch	Launched
Developing organisations	New Forests	New Forests	New Forests
Sector	Forestry	Forestry	Forestry
Sub-sector	Pine, eucalyptus	Acacia, eucalyptus, rubber, etc.	
Year of launch	2010, 2014, 2017 (closing dates)	2012, 2017	
Fund life	10-16 years	10 year close-ended	5+ years
Vehicle class	Real estate fund	Private equity fund	Project finance (FCP, 3rd phase), real estate (CFOR, 2 separate accounts)
Instrument type	Real assets	Equity	Equity/debt and real assets
Target size	AU\$4 billion	US\$170.7 million	US\$280 million (acquisition awaiting settlement)
Capital committed	n/a	n/a	n/a
Capital deployed	n/a	n/a	n/a
Land under (direct or indirect) management (hectares)	547,669	115,225	179,249
Average deal size (US\$)	Varies widely – AU\$30 to 300+ million	30 million	Varies widely - 15 to 250+ million
Geography	Australia, New Zealand	South East Asia (Indonesia, Malaysia, Laos, and more to come)	United States

SLU opportunity			
	ANZFF	TAFF	FCP and CFOR
Market failure/opportunity	Increasing demand from institutional investors to decarbonise their investment portfolios while looking for strong, stable yields.	The fund invests significantly in large-scale rubber plantations and hardwood timber companies, covering a wide variety of timber species, with the goal to transition these assets toward higher value end markets and to service the growing demand for certified, sustainable timber in Asian markets.	Invest in carbon offset projects generating credits for compliance markets created by state and federal regulators, as well as small timberland. After a first small timberland investment in 2016, New Forests is about to launch a large scale timberland investment in January 2018.
Intervention	By investing in forestry-related properties, New Forests is able to generate a combination of cash flow from certified timber sales and capital appreciation from biological growth, leading to strong returns able to attract institutional investors.	Invest in companies which are active in timber (certified), rubber, bioenergy and environmental products. Centered on value creation.	Invest in carbon offset projects generating credits for compliance markets created by state and federal regulators, as well as small timberland.
Targeted IRR	Target 7-8%; actuals are higher	Mid-teens	6-10%
Targeted environmental impact	Increased area under sustainable management strategies; conservation and promotion of High Conservation Values; production of renewable resources for bio-economy.	Increased area under sustainable management strategies; conservation and promotion of High Conservation Values; production of renewable resources for bio-economy; focused research on priority wildlife species.	Climate mitigation; increased area under sustainable management strategies; conservation and promotion of High Conservation Values; production of renewable resources for bio-economy.
Targeted social impact	Stable and attractive livelihoods creation; improved OHS systems; stakeholder engagement; supporting local industry development.	Stable and attractive livelihoods creation; improved OHS systems; stakeholder engagement; supporting local industry development.	Partner with Native American tribes and family landowners when possible; stable and attractive livelihoods creation; improved OHS systems; stakeholder engagement; supporting local industry development.
Targeted economic impact	Increased asset value and cash flow.	Increased asset value and cash flow.	Increase asset value and cash flow; monetise carbon value through emission trading schemes.

Revenue model and financial strcuture			
FINANCIAL STRUCTURE			
Revenue model	Real estate	Debt/equity	Result-based financing
Agriculture/forestry	ANZFF, CFOR	TAFF	
Carbon payments	ANZFF, CFOR	FCP	
PES	CFOR		
Ecotourism			
Technology			
INVESTORS			
Type	ANZFF	TAFF	FCP and CFOR
Pension funds	X	X	X
Insurance companies	X		
DFIs		IFU, FMO, FinnFund	
STAKEHOLDERS AND PARTNERS			
Type	ANZFF	TAFF	FCP and CFOR
Fund manager	New Forests	New Forests	New Forests
Investees	Timberlink Australia, Timberlink New Zealand, Forico	Hijauan Group (Malaysia), Hutan Ketapang Inustri (Indonesia), Mekong Timber Plantations	n/a
Blended finance instruments			
Direct funding	Concessional equity will be used in TAFF II: public/philanthropic investors receive a lower financial return commensurate with impact value delivered instead.		
RATIONALE FOR BLENDED FINANCE			
Economic viability			
Risk-adjusted returns to Investors			
Risk-mitigation tool			
Incentivise higher market performance			
Innovative business models			
Other	X		
Performance to date			
LEVERAGE			
	ANZFF	TAFF	FCP and CFOR
Public to private capital ratio	n/a	20% public DFI capital, 80% private institutional	n/a

EFFECTIVENESS			
	ANZFF	TAFF	FCP and CFOR
IRR and pay-back period	Confidential	Confidential	Confidential
Environmental impact: plantations (hectares)	372,169	23,900	CFOR: 2,702 with additional 170,000 in January 2018; FCP: 15 projects covering 177,000 ha of timberland
Environmental impact: carbon benefit (MtCO₂e)	109.7	0.97	19 (FCP)
Social impact: permanent and contract employees	1941	1644	76
Other social impact	"Shared prosperity". New Forests generates not only value for investors but also for local communities, not only by creating local employment but also by investing in training and education, by addressing land tenure issues, etc.		
Economic impact on local communities	Increased productivity thanks to use of technology supports increasing investment returns in assets. More stable business environment with long-term investment perspective supports local industry through long-term contracts, stability in payments, and access to ongoing training and development. In Asian investments, each project has a community forestry component such as outgrower schemes and joint venture planting areas, which can provide revenue and benefit sharing.		Partnerships with Native American communities provide income via carbon markets and have supported Native American corporations and communities in pursuing long-term land management and ancestral land re-acquisition programs.

SCALABILITY AND REPLICABILITY	
Intra-sector	
Inter-sector	
Geographic	New Forests adapts its mode of entry in each geography according to the legislation (e.g., ease of buying land), maturity and dynamic of the timber market, etc.
Expertise	

ADDITIONAL PERFORMANCE INDICATORS			
Existing track record	3 follow-up funds	2 follow-up funds. Investors in TAFF II include both new and repeated investors from the ANZFF	
Average time to raise capital	18 months	24 months	
Average time to develop project pipelines	ongoing	ongoing	ongoing

KEY SUCCESS FACTORS

- Investor education is key in less established markets such as Asia, for which risk aversion is high, despite maturity of timber market, among institutional investors.

KEY CHALLENGES

- Requirements of institutional investors in terms of geography (e.g., Malaysia was considered to be too undeveloped), asset class, economic, social and governance (ESG) impact.

KEY LEARNINGS

- Blended finance not necessary in mature market such as timber in Australia or the US.
- HoldCo structure made possible thanks to underlying real assets which de-risk investments by their intrinsic value.

ANNEX C.2: CASE STUDY – LYME TIMBER COMPANY LP

	The Lyme Northern Forest Fund (LNFF)	The Lyme Forest Fund (LFF)	The Lyme Forest Fund III (LFF III)	The Lyme Forest Fund IV (LFF IV)
Description of Lyme Timber Company	Lyme Timber is a TIMO that manages and invests in rural real estate and timberland that have high conservation potential. Lyme generates revenues through sustainable timber, recreational leasing, alternative energy supply agreements, carbon offset credits, and mitigation credits.			
Description of funds	High conservation value forestland investments	High conservation value forestland investments, plus mitigation banks		
Status	Completed	Will be completed in early 2018	Launched	Launched
Developing organisations	The Lyme Timber Company LP	The Lyme Timber Company LP	The Lyme Timber Company LP	The Lyme Timber Company LP
Sector	Sustainable forestry/ timber	Sustainable forestry/ timber	Sustainable forestry/ timber	Sustainable forestry/ timber
Sub-sector	Land conservation	Land conservation	Land conservation	Land conservation
Instrument type	Real assets	Real assets	Real assets	Real assets
Year of launch	2002	2006	2010	2014
Fund life	10+ years	10+ years	10+ years	10+ years
Vehicle class	Private equity fund structure and TIMO	Private equity fund structure and TIMO	Private equity fund structure and TIMO	Private equity fund structure and TIMO
Target size (US\$)	50 million	175 Million	150 Million	175 Million
Capital committed (US\$)	64.5 million	190.6 million	160.4 million	250 million
Capital deployed	75%	75%	67%	90%, ongoing
Land under (direct or indirect) management (hectares)	5 properties – 260,000 acres	7 properties – 435,000 acres	12 properties – 230,000 acres	5 properties – 156,000 acres so far
Average deal size (US\$)	n/a	n/a	n/a	n/a
Geography	United States and Canada	United States	United States and Canada	United States

SLU opportunity				
	LNFF	LFF	LFF III	LFF IV
Market failure/opportunity	Increasing demand for innovative, strategic conservation methods for timberland that achieve attractive financial returns; high quality forest assets becoming increasingly important globally.			
Intervention	Lyme first purchased forestland in Northern New Hampshire in partnership with the State of NH, the Nature Conservancy, the Trust for Public Land and the Society for the Protection of NH Forests. A conservation easement – a public-private partnership approach where the proprietor agrees to sell certain land development rights to a public or private entity – was applied to this purchase.	Lyme purchased 278,000 acres from International Paper in 2006. A working forest conservation easement was placed on 211,000 acres in 2007, which added to the 45,000 acres of existing conservation easement with extensive common boundaries with New York State Forever Wild Parkland. Partners included The Conservation Fund and NY State Dept. of Conservation and the Richard King Mellon Foundation.	Lyme purchased 72,500 acres in northwestern Wisconsin from Wausau Paper Company, which included headwaters of the Bois-Brule and St. Croix Rivers, and rare pine barrens habitat and species. In conjunction with The Conservation Fund, The Nature Conservancy, and the WI Dept. of Natural Resources, a conservation easement was placed on 45,000 acres in Phase I and 21,000 acres in Phase II.	Lyme purchased 112,000 acres in northern California, which contains 85% of the Ten Mile River watershed, providing opportunity to improve the entire watershed. Salmon and steelhead habitat restoration is compatible with timber production. Lyme is developing a working forest conservation easement with TNC that would impose restrictive forest management obligations on current and future owners. Restoration activities are ongoing.

Revenue model and financial structure			
FINANCIAL STRUCTURE			
Revenue model	Real estate	Debt/equity	Result-based
Agriculture/forestry	X	X	
Carbon payments	X	X	
PES	X	X	
Ecotourism			
Technology			

INVESTORS				
Type	LNFF	LFF	LFF III	LFF IV
Pension funds & insurance companies		X	X	X
Governments	X			
NGOs	X		X	
Aid agencies	X	X	X	X
Family offices	X	X	X	X
Colleges/universities	X	X	X	X

STAKEHOLDER AND PARTNERS				
Fund manager	Lyme Timber			
Off-takers				
Advisors				
Investees				
Beneficiaries				
Blended finance instruments				
Risk mitigation				
Direct funding				
Result-based				
RATIONALE FOR BLENDED FINANCE				
Economic viability			X	
Risk-adjusted returns to investors			X	
Risk-mitigation tool				
Incentivise higher market performance			X	
Innovative business models			X	
Performance to date				
BLENDED LEVERAGE				
Public to private capital ratio	Confidential			
EFFECTIVENESS				
IRR	~6%	6.9%	22.8% to date	11.2% to date
Pay-back period	n/a	n/a	n/a	n/a
Environmental impact	260,000 acres of timberland conserved	412,000 acres conserved	221,000 acres conserved to date	73,000 acres conserved to date
Social impact	Strengthen rural economies by boosting employment in forestry, logging and other recreational activities on conservation easement land			
Economic impact	Local/regional employment stabilised/increased			
SCALABILITY AND REPLICABILITY				
Intra-sector				
Inter-sector				
Geographic	US	US	US/Canada	US/Canada
Expertise				
Comments				
ADDITIONAL PERFORMANCE INDICATORS				
Existing track record	Lyme Timber has strong track record in land conservation– it has scaled its model to three additional funds of US\$150-200 million each			
Approx. time to raise capital	n/a	n/a	n/a	n/a
Approx. time to develop project pipeline	n/a	n/a	n/a	n/a

ANNEX C.3: CASE STUDY – THE TROPICAL LANDSCAPE FINANCE FACILITY (TLFF)

Directions: The TLFF provides affordable longer dated loans to enhance smallholder farmer livelihoods, rehabilitate degraded land, and provide cleaner electricity, through mobilising international capital markets for projects with financial, environmental, and social returns. A loan facility and a grant fund help to develop early stage projects develop using credit-enhancing instruments to leverage private finance.

Status	Launched	Fund life	Evergreen structure
Developing organisation	ADM Capital and BNP Paribas	Target size	US\$1 billion
Sector	Agriculture and renewable energy	Capital committed	TBC
Sub-sector	Smallholder agriculture, e.g., cocoa, palm, rubber	Capital deployed	TBC
Vehicle class	Loan facility and grant fund	Average deal size	US\$10-50 million
Instrument type	Debt and technical assistance	Leading partners	UNEP, ICRAF
Year of launch	2016	Geography	Indonesia

SLU opportunity

Market failure/ opportunity	Although extreme poverty rates have been decreasing over the years, Indonesia still counts 28 million people in rural areas living below the poverty line. The agricultural sector plays an important role in developing rural livelihoods as it constitutes a major source of national income (14% of GDP, a significant share of which is generated by smallholder farmers). Smallholder farmers lack access to long-term financial capabilities to increase supply chain transparency/efficiency as well as training to avoid unsustainable land use management practices.
Intervention	In its landscapes program, TLFF will provide loans for smallholder farmers to improve efficiencies and revenues, together with training in sustainable land use practices and cash flow management to decrease debt interest burden. This will help reduce poverty rates and increase market access as well as improve supply chain transparency.
Targeted IRR	10-18%
Targeted environmental impact	Initial deal pipeline targets land restoration, forest and biodiversity protection >90,000 hectares
Targeted social impact	Initial deal pipeline targets > 42,000 rural farmers
Targeted economic impact	Increase crop yields by >50%, increase average annual income by >30%, contribute to raise electrification rate in Indonesia to 99%

Revenue model and financial structure

FINANCIAL STRUCTURE			
Revenue model	Real estate	Debt/equity	Result-based
Agriculture/forestry		X	
Carbon payments			
PES			
Ecotourism			
Technology			
Other		X	

INVESTORS			
Type	Names	Instrument	Amount (US\$)
DFIs, MDBs		Credit, guarantees, long-term debt	
Pension & insurance companies		Long-term debt	
Aid agencies, donors		Credit guarantees, grants	

STAKEHOLDERS AND PARTNERS	
Type	Names
Fund manager	ADM Capital for the Loan Facility; BNPP arranging and selling MTN notes; UNEP and ICRAF for the Grant Fund
Off-takers	Corporates
Advisors	ADM Capital Foundation (ESG advisory), NGOs
Investees	Smallholder cooperatives and energy project developers
Beneficiaries	Smallholder farmers and local communities

Mechanism description

The TLFF consists of a Tropical Landscapes Loan Facility (TLLF) and a Tropical Landscapes Grant Fund (TLGF). Long-term loans are issued through the TLFF Loan Facility, managed by ADM Capital, to sustainable agriculture and renewable energy projects. TLFF projects are funded by note issuances, arranged by BNPP and credit risk is shared through contingent funding commitments of development investors for some projects. TLFF intends to build two funds, one for renewables and a second for sustainable agriculture, possibly with DFI credit enhancement. Once the projects reach maturity and generate sustainable cash flows, the latter can be aggregated and repackaged as notes sold by BNPP to patient capital investors in tranches according to risk capacity (sector and/or region) with limited recourse to the underlying project(s). This structure helps to recycle loan capital for further lending activity. The Grant Fund works with the pipeline of investable projects by providing technical assistance and co-funding early stage development costs, offering an opportunity for philanthropic corporations and private foundations to leverage their funding with private finance.

Blended finance instruments

Risk mitigation	Guarantee offered by development investors to support loans extended by TLFF; project-specific guarantees or other risk-mitigating agreements by philanthropic/private capital
Direct funding	Loans to project developers or local banks; Grants for early-stage development costs, technical assistance
Result-based	N/A

RATIONALE FOR BLENDED FINANCE

Economic viability	X
Risk-adjusted returns to Investors	X
Risk-mitigation tool	X
Incentivise higher market performance	
Promoting innovative business models	X

Performance to date	
LEVERAGE	
Public to private capital ratio	50-100% (deal-dependent)
EFFECTIVENESS	
IRR	10-20%
Pay-back period	5-15 years (deal-dependent)
Environmental impact	Restored degraded land, forest and peat fire prevention, forest and biodiversity protection
Social impact	Improved rural livelihoods, job growth, financial education
Economic impact	Increased crop productivity and revenues for smallholder farmers
SCALABILITY AND REPLICABILITY	
Intra-sector	n/a
Inter-sector	Plantation component for smallholder farmers
Geographic	Other Asian emerging markets
Expertise	Broadening the team size can increase our reach to other geographies and projects, by leveraging existing expert skill set and relationships
ADDITIONAL PERFORMANCE INDICATORS	
Existing track record	US\$100 million deals closed by 2017 year-end (expected)
Approx. time to raise capital	6-12 months
Approx. time to develop project pipeline	12-18 months
KEY SUCCESS FACTORS	
<ul style="list-style-type: none"> Securing strong security packages (e.g. off-taker agreements, corporate/DFI guarantees, hard asset collateral, share pledges, cash over-collateralisation). 'Tacit support' from government incentivises private actors to take action. 	
KEY CHALLENGES	
<ul style="list-style-type: none"> Organisational capacity: small team given limited financial capital resources to hire professionals without completed transactions Lack of grant funding: grant funding would be helpful to develop projects or infrastructure peripheral to projects, to a point where they are operational and ready to deploy capital and/or are revenue-generating. No evergreen fund raised yet: raising capital after the project is ready for funding delays timing of the project and risks their potential involvement in the project being sabotaged by a competitor financier. 	
KEY LEARNINGS	
<ul style="list-style-type: none"> Donor-based finance used in early stage. Institutional actors invest in mature projects that need further capital to develop, but already generate sustainable cash flows; fulfills their expectation in terms of liquidity. 	

ANNEX C.4 CASE STUDY – &GREEN FUND

Directions: The &Green Fund aims to protect 5 billion hectares of Tropical Forests and trigger 1.6 billion of private investment by 2020, by providing concessional loans directly or indirectly to large companies involved in deforestation-free commodity production.

Status	Launched	Fund life	Evergreen
Developing organisation	IDH (Incorporator) and Sail Ventures B.V. (Investment Advisor)	Target size	US\$400 million by 2020 (capitalisation goal) to trigger US\$1.6 billion private capital in the longer-term
Sector	Forestry and Agriculture	Capital committed	US\$100 million
Sub-sector	Priority for palm oil, livestock, rubber, and plantation forestry	Capital deployed	0
Vehicle class	Debt fund	Average deal size	Average size targets US\$5 million, can range from US\$5-50 million
Instrument type	Subordinated loan under flexible terms	Leading partners	NICFI
Year of launch	July 2017	Geography	Tropical forest countries

SLU opportunity	
Market failure/opportunity	There is a substantial lack of capital channelling into forest conservation, restoration of degraded land, and high-productivity supply chains. Risks on medium and long-term financing are often too high for financial institutions and companies.
Intervention	The Fund seeks to compensate financial institutions for the additional risk perceived in financing sustainable and intensive agricultural production; to compensate commodity producers for the positive externality generated with forest conservation not yet priced by regulatory regimes (i.e., opportunity cost); to promote deforestation-free intensification practices to demonstrate to regulators the potential to achieve economic growth, poverty reduction and forest conservation at the same time; provide risk capital for innovative production systems; encourage improved regulations by providing credit facilities to approved jurisdictions only.
Targeted IRR	n/a
Targeted environmental impact	Protection of 5 million hectares of tropical forests and peatlands by 2020
Targeted social impact	Improve livelihoods of 0.5 million people; inclusion of smallholder farmers in supply chains
Targeted economic impact	n/a

Revenue model and financial structure			
FINANCIAL STRUCTURE			
Revenue model	Real estate	Debt/equity	Result-based
Agriculture/forestry		X	
Carbon payments		(X)	
PES			
Ecotourism			
Technology			
INVESTORS			
Type	Names	Instrument	Amount (US\$)
Governments	NICFI	Grant	US\$100million committed
DFIs, donors	n/a		
Corporate	n/a		
Commercial banks	n/a		
STAKEHOLDERS AND PARTNERS			
Type	Names		
Fund manager	Sail Ventures B.V.		
Off-takers	n/a		
Advisors	Innpact		
Investees	Landowners and managers (production companies) and/or intermediaries (including supply chain managers, financial institutions and SPVs)		
Beneficiaries	Smallholder farmers and supply chain companies		
Mechanism description			
<p>The fund will provide direct or indirect funding to companies using concessional/subordinated loans to stimulate co-investment from the private sector in projects generating increased agricultural productivity while protecting forests, peatlands and biodiversity. The Fund will apply the principle of 'additionality' by funding projects for which market players perceive a high level of risk and in which they would therefore not invest without the lending intervention from the Fund. This mechanism enables companies to invest directly in their supply chains and fulfill their commitments to source deforestation-free products, while limiting their risk exposure. In addition, the Fund will only finance projects that are within eligible national or sub-national areas according to the Fund, that is, areas which are making progress on policies and measures to reduce deforestation.</p>			
Blended finance instruments			
Risk mitigation	n/a		
Direct funding	Concessional loans through lower interest rates, extended tenor and/or subordination to commercial investors including DFIs, at fund and project level		
Results-based	n/a		

RATIONALE FOR BLENDED FINANCE	
Economic viability	
Risk-adjusted returns to investors	X
Risk-mitigation tool	X
Incentivise higher market performance	
Innovative business models	X
Performance to date	
LEVERAGE	
Public to private capital ratio	Targets maximum leverage of 1:4
EFFECTIVENESS	
Targeted IRR	n/a
Environmental impact	n/a
Social impact	n/a
Economic impact	n/a
SCALABILITY AND REPLICABILITY	
Intra-sector	n/a
Inter-sector	n/a
Geographic	n/a
Expertise	n/a
ADDITIONAL PERFORMANCE INDICATORS	
Existing track record	n/a
Approx. time to raise capital	Ongoing
Approx. time to develop project pipeline	Ongoing
KEY SUCCESS FACTORS	
<ul style="list-style-type: none"> ▪ Leveraging capital ▪ Structure of funding ▪ Direct link between environmental and financial conditions ▪ Landscape-level protection 	
KEY LEARNINGS	
<ul style="list-style-type: none"> ▪ The jurisdictional approach acts as a reputational risk-mitigating tool for multinationals and development banks, and thereby enables the local or regional governments to attract investments given their eligibility in accordance with the Fund's criteria. 	

ANNEX C.5 CASE STUDY – THE LIVELIHOODS FUND FOR FAMILY FARMING (L3F)

Directions: The L3F is a mutual investment fund launched by Danone and Mars, and later joined by Veolia and Firmenich, to invest along more sustainable supply chains in agriculture in developing countries to reduce poverty in rural communities as well as greenhouse gas emissions.

Status	Launched	Fund life	Evergreen structure
Developing organisation	Livelihoods Venture	Target size	€120 million
Sector	Smallholder agriculture	Capital committed	n/a
Sub-sector	Smallholder agriculture, e.g., cocoa, palm, rubber	Capital deployed	n/a
Vehicle class	Result-based financing	Average deal size	€2-5 million
Instrument type	Technical assistance/ capacity-building	Leading partners	Danone, Mars, Veolio, Firmenich
Year of launch	2016	Geography	Asia, Africa, Latin America

SLU opportunity

Market failure/ opportunity	Food production needs to double by 2050 to accommodate the rising global population, however natural resources are shrinking due to unsustainable practices and climate change exacerbates environmental degradation. Food security remains a major issue for three-fourths of the 500 million smallholder farmers around the world, who produce about 70% of the global food supply.
Intervention	The Livelihoods Fund initiative will provide smallholder farmers training and equipment to restore ecosystems and improve the productivity of their crops, thereby improving their livelihoods. This Fund will be financed by impact and development investors who are hoping to generate a positive social and environmental impact.
Targeted IRR	Break-even
Targeted environmental impact	Land restoration via replantation or sustainable cultivation
Targeted social impact	200,000 farmers, 2 million people impacted
Targeted economic impact	Increased revenues for smallholder farmers

Revenue model and financial structure

FINANCIAL STRUCTURE			
Revenue model	Real estate	Debt/equity	Result-based
Agriculture/forestry			X
Carbon payments			X
PES			X
Ecotourism			
Technology			

INVESTORS			
Type	Names	Instrument	Amount (US\$)
Governments	n/a	n/a	n/a
DFIs, donors	n/a	n/a	n/a
Corporate	Danone, Mars, Veolia, Firmenich	n/a	n/a
Commercial banks	n/a	n/a	n/a

STAKEHOLDERS AND PARTNERS	
Type	Names
Fund manager	Livelihood Venture
Off-takers	Danone, Mars, Veolia, Firmenich
Advisors	n/a
Investees	NGOs, farmer cooperatives
Beneficiaries	Smallholder farmers and their local communities

Mechanism description

The L3F provides upfront capital to project developers to train, assist and provide equipment to smallholder farmers to implement sustainable agricultural practices. Farmers improve their agricultural productivity while restoring ecosystems. Companies commit to purchase raw materials from the trained farmers for 10 years. The fund is financed by result-based payments made by off-takers, which include: 1. companies for access to sustainably-sourced raw materials 2. governments/ institutions for public good and environmental impact (e.g., carbon credits, water savings, improved biodiversity and livelihoods). Off-takers pay for success based on predetermined KPIs (e.g., quantity, quality, impact). The cash flows are used to pay back investors and the remaining is reinvested in the fund.

Blended finance instruments

Result-based Fee payments are made by private and public off-takers when specific commodity or impact-related KPIs are met

RATIONALE FOR BLENDED FINANCE	
Economic viability	X
Risk-adjusted returns to investors	X
Risk-mitigation tool	
Incentivise higher market performance	
Promoting innovative business models	

Performance to date	
LEVERAGE	
Public to private capital ratio	n/a
EFFECTIVENESS	
IRR	Break-even, positive returns
Pay-back period	n/a
Environmental impact	The 10 projects so far count about 9 million tons of CO ₂ sequestered, (about 32,000 hectares of land restored from 6 projects)
Social impact	175,000 farmers/households received training/technical assistance/equipment improving their livelihoods (includes 6 out of the 10 projects)
Economic impact	Increased revenues (2-3x), access to network and market
SCALABILITY AND REPLICABILITY	
Intra-sector	
Inter-sector	
Geographic	Possible once the business model for a specific commodity stabilises
Expertise	Extensive knowledge of market and social dynamics needed
ADDITIONAL PERFORMANCE INDICATORS	
Existing track record	Strong reputation and positive track record from previous Carbon Investment Fund (increased from €40 million to €120 million, from 2 to 9 investors)
Approx. time to raise capital	n/a
Approx. time to develop project pipeline	Usually > 1 year. Trial and error basis for selection of project developers. No general rules
KEY SUCCESS FACTORS	
<ul style="list-style-type: none"> ▪ Aggregation at investee level rather than beneficiary ▪ Return in-kind from farmers more impactful than financial ▪ Landscape approach and value generated for every stakeholder ▪ Public-private coalition 	
KEY CHALLENGES	
<ul style="list-style-type: none"> ▪ Mismatch between timing on fund provision and expected returns by DFIs 	
KEY SUCCESS FACTORS	
<ul style="list-style-type: none"> ▪ Large-scale projects, possibly using existing pilots ▪ Sophisticated result-based payment framework (KPIs) and impact measurement enabling impact investors to cite specific impact ▪ Value-seeking corporates more adapted than institutional investors given long-term generated liquidities 	

ANNEX C.6: CASE STUDY – ROOT CAPITAL

Directions: Root Capital is a nonprofit social investment firm providing loans and financial management training to small and growing agribusinesses in poor, environmentally vulnerable places in Africa, Latin America and Indonesia to help them access global markets and improve the livelihoods of smallholder farmers. Thanks to capital and knowledge, these agribusinesses are able to become reliable suppliers in international value chains with sustainably produced crops of better quality.

Status	Launched	Fund life	Evergreen structure
Developing organisation	Root Capital	Target size	Outstanding balance of US\$104.8 million and loan disbursements of US\$137.9 million in 2016
Sector	Smallholder agriculture	Capital committed	US\$75 million
Sub-sector	Coffee, cocoa, nuts, rice, grains, non-perishables (like honey and oils)	Capital deployed	US\$1.2 billion loans disbursed since 1999
Vehicle class	Debt fund	Average deal size	<US\$500,000
Instrument type	Loans and technical assistance	Leading partners	OPIC
Year of launch	1999	Geography	Latin and Central America (~2/3); East and West Africa (12 countries, ~1/3); Indonesia (small)

SLU opportunity

Market failure/opportunity	Small and medium agricultural businesses lack access to credit as they are too large for microfinance, however they lack formal collateral and track records to access credits from conventional commercial banks. Given the high uncertainty in the agricultural sector linked to poor infrastructure, low efficiency of farm practices, climate risk and more, these businesses struggle to become reliable players in international supply chains and to pay producers higher prices, which keeps millions of smallholder farmers in the developing world trapped in a cycle of poverty.
Intervention	Root Capital provides credit and financial management training (among other capacity-building) to enable small and growing rural businesses to access global markets and create sustainable livelihoods for small-scale farmers. With greater capital and knowledge, small agriculture businesses are able to increase the volume, quality and consistency of their crops and thereby build long-lasting relationships with international buyers, while paying smallholder farmers higher, more stable prices, which improves their living conditions, and train them to become more environmentally responsible farmers, which improves their resiliency and protects vulnerable ecosystems. Root Capital invests in farmers cooperatives and private businesses, which are active in export value chains or local supply chain, mostly at processing and post-harvesting handling stages.
Targeted IRR	2% for senior noteholders with partial operating subsidy to allow fund to continue serving early stage enterprises in risky environments.
Targeted environmental impact	Root Capital provides agronomic assistance on sustainable farming and processing practices and helps farmers and businesses to adopt clean technologies for production and processing, in order to receive and comply with international certifications, and sustain the environment. In addition, Root Capital only lends to businesses that have passed our environmental screen for sustainable practices and policies.
Targeted social impact	Increased crop productivity, quality and sustainability for which global buyers are willing to pay a premium, thereby increasing the revenues of agribusinesses and farmers and giving them access to green markets.
Targeted economic impact	Improved livelihoods and food security of millions of small-scale producers living below the poverty line.

Revenue model and financial structure			
FINANCIAL STRUCTURE			
Revenue model	Real estate	Debt/equity	Result-based
Agriculture/forestry		X	
Carbon payments			
PES			
Ecotourism			
Technology			
INVESTORS			
Type	Names	Instrument	Amount (US\$)
DFIs/MDBs	IDB, MIF, OPIC	Senior debt	US\$20 million
Philanthropic capital	Ikea Foundation, Mastercard Foundation, Small Foundation, Wagner Family Foundation, Noorda Foundation, Mulago Foundation, among others, including individual donors	Grants	US\$13 million
Philanthropic capital	Skoll Foundation, Silicon Valley Community Foundation, Waterloo Foundation, Mitsubishi Foundation, institutions in addition to individual investors	Subordinated debt	US\$9.5 million
Philanthropic capital	Family foundations	Senior debt	US\$22.6
Aid agencies	USAID (Development Credit Authority)	Guarantees	n/a
Private/impact investors	Individual accredited investors	Senior debt	US\$18 million
Corporates	Starbucks, General Mills and others	Senior debt	US\$16 million
STAKEHOLDERS AND PARTNERS			
Type	Names		
Fund manager	Root Capital		
Off-takers	120 global companies, including Starbucks, General Mills, Equal Exchange, The Body Shop, Keurig Green Mountain, Pier1 Imports, and Whole Foods Market		
Advisors	n/a		
Investees	Half are farmer-owned associations or cooperatives and the other half are private enterprises sourcing from smallholder farmers		
Beneficiaries	Smallholder farmers and their families		

Mechanism description

Root capital provides mostly working capital loans to small and medium agribusinesses in export value chains through a triangulation model. Root Capital pre-finances smallholders using purchase orders (60-70% of the amount) from international buyers, which will make the payment to the fund once the goods are exported. Root Capital pays the revenues back to the smallholders and deducts loan principal and interests as a way of lending to businesses that lack formal collateral and track record – purchase orders are taken as informal form of collateral.

Blended finance instruments

Risk mitigation	Subordinated debt and guarantees mitigate the risk of default by small businesses for private investors
Direct funding	Philanthropic grants cover about 30% of the annual operational costs
Result-based	n/a

RATIONALE FOR BLENDED FINANCE

Economic viability	X
Risk-adjusted returns to investors	
Risk-mitigation tool	X
Incentivise higher market performance	
Promoting innovative business models	X
Other	Create more social impact

Performance to date

LEVERAGE

Public to private capital ratio	1:3
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EFFECTIVENESS

IRR	1.25-2.75% annual coupon for senior debt; 1.25-3% for subordinated debt
Pay-back period	1-5 year tenor for senior debt; 7-10 year tenor for subordinated debt
Environmental impact	1.8 million hectares under sustainable cultivation (1999- to 2017)
Social impact	1 million producers reached directly and 5.7 million household members (1999-2017)
Economic impact	US\$6 billion revenue generated by small and growing businesses and US\$4.5 billion payments to producers (1999-2017); returns of smallholder farmers are improved by 15% on average

SCALABILITY AND REPLICABILITY

Intra-sector	Medium – blended finance model for smaller loans in riskier geographies requires public investment to allow for scale
Inter-sector	Medium – blended finance model for smaller loans in riskier geographies requires public investment to allow for scale
Geographic	High – Root Capital has exported the model from South America to Africa and is currently exploring opportunities to develop in Indonesia
Expertise	Medium – Root Capital, as a thought leader and field-builder, contributes to strengthening the sector through best practices, knowledge-sharing, standard-setting, and the development and sharing of tools

ADDITIONAL PERFORMANCE INDICATORS

Existing track record	n/a
Approx. time to raise capital	n/a
Approx. time to develop project pipeline	n/a

KEY SUCCESS FACTORS

- Hybrid revenue model from retained earnings and philanthropic capital enables Root Capital to make loans of smaller sizes and in riskier geographies (e.g., DRC). If they had to break even, they would need to cut a portion of their portfolio (largely these smaller-sized loans in riskier geographies), which serve those who need it the most
- Strong partnerships with global off-takers seeking sustainably-produced products
- Local private businesses act as aggregators for smallholder farmers and enable Root Capital to reach millions of smallholders

KEY CHALLENGES

- High transaction costs
- High risks in small-scale agriculture, especially in areas with weak infrastructure

ANNEX C.7: CASE STUDY – THE CLIMATE-SMART LENDING PLATFORM (CSLP)

Directions: The Climate-Smart Lending Platform partners develop climate-smart lending investments, typically with blended funds, which are opportunities for investment in landscape restoration in productive agricultural landscapes.

Status	Scaled demonstration	Fund life	Evergreen structure
Developing organisation	Partnership between F3 Life, Financial Access, IUCN, Climate Policy Initiative	Target size	Phase 1 (2017-2021): US\$39 million (US\$27 million debt, US\$12 million grant) Phase 2 (2019-2016): US\$207 million Phase 3 (2022-2026): US\$220 million
Sector	Smallholder agriculture	Capital committed	n/a
Sub-sector	-	Capital deployed	n/a
Vehicle class	Debt fund and grant fund	Average deal size	n/a
Instrument type	Loans for fixed assets, working capital, social needs of aggregated groups	Leading partners	Dutch government
Year of launch	2017	Geography	Developing countries

SLU opportunity

Market failure/opportunity	Agricultural credit does not price-in externalities associated with unsustainable farming practices. F3 Life provides tools to price-in this externality, and other partners of the Climate-Smart Lending Platform collaborate to create larger investment opportunities which price-in these externalities and also seek to reduce credit defaults linked to unsustainable farming practices.
Intervention	The goal of the platform is to provide farmers access to lending capital under the condition that they adopt climate-smart agriculture (CSA) practices. These boost the crop productivity and reduce the credit default risk of farmers, and therefore improve the lenders' portfolio resilience to climate change and debt coverage ratio. As smallholder farmers comply with the climate-smart requirements of their loans, they are provided with a score which boosts their credit score and gives them access to larger loan sizes at a decreased interest rate charged by a financial institution.
Targeted IRR	Deal-dependent
Targeted environmental impact	Restore 1.5 million hectares by 2026
Targeted social impact	Improve livelihoods of 1 million farmers by 2026
Targeted economic impact	Scientific evidence suggests two to four times higher returns under adverse weather conditions compared to less resilient farmers, resulting in increased farmer income and reduced defaults associated with farmer lending.

Revenue model and financial strcuture			
FINANCIAL STRUCTURE			
Revenue model	Real estate	Debt/equity	Result-based
Agriculture/forestry			
Carbon payments			
PES			
Ecotourism			
Technology		X	
INVESTORS			
Type	Names	Instrument	Amount (US\$)
Governments	Dutch Government	Grant	
Donors	FONERWA	Debt/grant	1.3 million
Commercial banks	Deutsche Bank AATIF	Debt	Under discussion
STAKEHOLDERS AND PARTNERS			
Type	Names		
Fund manager	GCF Accredited Entity for Debt Fund, IUCN for Grant Fund		
Investees	Traditional and non-traditional local lenders		
Beneficiaries	Smallholder farmers		
Other	Tool developers and TA providers (both FI and farmers)		
Mechanism description			
<p>The CSLP develops climate-smart lending deals involving local lenders and their farming clients, where these clients adopt sustainable and climate resilient agricultural practices that boost crop yields while protecting the environment. The CSLP would roll out in three phases. In the pilot phase, a combination of TA and concessional loans is provided to financial institutions, which will in turn provide financial access and support on sustainable land use practices to 45,000 farmers. The resulting decreased default risk increases the interest incomes, which strengthens the balance sheet of local lenders. In the mainstreaming phase, the CSLP aims to crowd-in increasing sums of private capital from third-party investors in the form of first loss guarantees to FIs, while increasing the size of TA grants to support 500,000 farmers. In the final commercial scaling phase, the CSLP is built on knowledge and does not rely on TA grants anymore. The capital is sourced from local lenders and private investors exclusively and the platform provides loans to 1 million farmers.</p>			
Blended finance instruments			
Risk mitigation	First loss guarantees in mainstreaming phase		
Direct funding	Grants (for project origination, coordination, cooperation and improvement) and concessional loans in pilot phase		
Result-based	n/a		

RATIONALE FOR BLENDED FINANCE	
Economic viability	X
Risk-adjusted returns to investors	
Risk-mitigation tool	X
Incentivise higher market performance	
Promoting innovative business models	X
Performance to date	
LEVERAGE	
Public to private capital ratio	Phase 1: mostly concessional; Phase 2: 1:3; Phase 3: move towards full private
EFFECTIVENESS	
IRR	n/a
Pay-back period	n/a
Environmental impact	n/a
Social impact	n/a
Economic impact	n/a
SCALABILITY AND REPLICABILITY	
Intra-sector	Developing scaled-up demonstrations for 15,000 farmers across Ghana, Rwanda and Kenya
Inter-sector	
Geographic	SSA but scaling to Central and South America and SE Asia
Expertise	Finance, smallholder finance, smallholder agriculture
ADDITIONAL PERFORMANCE INDICATORS	
Existing track record	
Approx. time to raise capital	Not yet completed
Approx. time to develop project pipeline	Not yet completed
KEY SUCCESS FACTORS	
<ul style="list-style-type: none"> Make use of existing lending, climate and agricultural program and funds 	
KEY CHALLENGES	
<ul style="list-style-type: none"> Modeling the decreased interest rates that would be charged to farmers, as they increase the lending amounts and become more and more climate resilient 	
KEY LEARNINGS	
<ul style="list-style-type: none"> Environmental interest rates' incentivise smallholder farmers to adopt CSA practices while providing access to increasing amounts of capital to become increasingly climate resilient 	

ANNEX D: ENABLING ENVIRONMENT

Policy influence	Brazil	Indonesia	Colombia
Education⁵³	<ul style="list-style-type: none"> Brazil has compulsory education from ages 4-17 and 95% of 5-14-year-olds are enrolled in school. Performance of students is significantly better in cities than in rural areas. Recent policies have focused on improving teacher quality and increasing the number of children from poor rural backgrounds attending schools which has increased enrolment rates. WEF ranks Brazil 96/137 (score: 5.4) in health and primary education and 79/137 (score: 4.20) in higher education and training. 	<ul style="list-style-type: none"> President Joko Widodo has significantly increased expenditure on education. Since 2015, 12 years of education is mandatory from the age of 7. Enrolment rates are 98.6% for 7-12-year-olds, however, these numbers mask a large regional divide. WEF ranks Indonesia 94/137 in health and primary education (score: 5.4) and 64/137 in higher education and training (score: 4.5). 	<ul style="list-style-type: none"> The Colombian government spends US\$3,245 per student on education and 5.8% of the country's GDP. 22% of 25-64-year olds have obtained a tertiary degree. WEF ranks Colombia 88/137 in health and primary education (score: 5.5) and 66/137 in higher education and training (score: 4.5).
Land tenure and usage rights⁵⁴	<ul style="list-style-type: none"> CAR: rural registration system of land ownership through satellite imaging and voluntary registration. Legal reserves: portions of land that need to be set aside in habitat. Landowners who deforested more than allowed under the legal reserve must act to afforest or compensate. Implementation has been delayed several times and is currently planned for 2018. 58th on the IPRI and 69th in WEF secure property rights index. 	<ul style="list-style-type: none"> OneMap initiative: an initiative to digitally document and synchronise information regarding land use, coverage and boundaries. Recent reforms allowed for the formalisation of Community Based Forest Management as Hutan Desa (Village Forest) or Hutan Kemasyarakatan (Community Forest). 68th on the IPRI and 50th in WEF secure property rights index. 	<ul style="list-style-type: none"> Land ownership in Colombia is highly inequitable with 0.4% of the population owning 62% of the country's best land. Land tenure is mostly informal, disorganised and insecure.⁵⁵ Peace negotiations with the FARC resulted in agreement on Comprehensive Rural Reform which includes propositions on formalising land ownership of small and medium properties. 62nd on the IPRI and 99th in WEF secure property rights index.
Environmental rights	Environmental rights are included in the Brazilian constitution.	Environmental rights are included in the Indonesian constitution.	Environmental rights are not included in the Colombian constitution.
Emissions trading	Brazil currently does not have an Emissions Trading Scheme (ETS) in place. However, both the national government as well as Rio de Janeiro and São Paulo are considering implementing ETS. The introduction of ETS is significantly delayed by political opposition but a voluntary pilot is currently running.	Indonesia has not implemented an Emission Trading Scheme nor an explicit carbon tax.	In 2016, Colombia launched the Colombian Voluntary Carbon Market Platform (CVCMP), a voluntary carbon initiative which will make the implementation of mandatory emission-reduction initiatives easier.

Policy influence	Brazil	Indonesia	Colombia
Financial / tax incentives⁵⁶	<ul style="list-style-type: none"> At the state-level, 26 states have introduced ecological fiscal transfers (ICMS-e). Moreover in a number of states, tax exemptions are available for companies recycling PET bottles. On an individual level, tax exemptions are available for less polluting vehicles and real estate which considers the environment. At the federal level, up to 50% of expenses on afforestation and reforestation are tax deductible. Incentives are also available for the production and consumption of biofuels. Fossil fuels continue to enjoy tax and budgetary subsidies. Effective Carbon Rate US\$3.4/tCO₂e. 	<ul style="list-style-type: none"> Indonesia continues to provide subsidies for fuel though they have decreased from 14% (2014) to 3% (2015) of total public spending. Indonesia also continues to provide incentives to attract GHG-intensive investments. Effective carbon rates only for fuels used in transport road. 	<ul style="list-style-type: none"> Fiscal measures to support a green economy remain rather weak. Though environmental tax revenue has been rising, it only accounted for 3.7% of total taxes in 2011. Taxes on transportation and fuel have been introduced and there are tax exemptions for eco-tourism, renewable energy and other environmental investments. Colombia has made efforts to eliminate subsidies on fossil fuels but is struggling to completely eliminate subsidies due to the political opposition.
Infrastructure⁵⁷	<ul style="list-style-type: none"> Under the accelerated growth programme (PAC) some investments in infrastructure have been made but infrastructure is still inferior compared to similar countries. Brazil ranks 73/137 on infrastructure in WEF global competitiveness report. Total score: 4.1. 	<ul style="list-style-type: none"> Infrastructure development is difficult and costly due to Indonesia being a mountainous archipelago. Previous government policies have not been aligned, causing large development gaps with rural areas being scarcely developed (i.e., no access to electricity and telephone land lines). Indonesia ranks 52/137 on infrastructure in WEF global competitiveness report. Total score: 4.5. 	<ul style="list-style-type: none"> In 2013, Colombia launched its Fourth Generation (4G) road infrastructure program, targeting US\$70 billion by 2035 across 47 projects through public-private partnerships. Colombia ranks 87/137 on infrastructure in WEF global competitiveness report. Total score: 3.8.
Monitoring systems	Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM) includes a pillar on monitoring and control.	Monitoring and enforcement is handled by the Ministry of Environment (MOE) together with various other agencies but monitoring of deforestation remains challenging.	National Environmental System (SINA) aims to decentralise environmental management. Colombian scientists in collaboration with Carnegie have developed maps of the carbon stocks located in 40% of the Colombian Amazon. ⁵⁸

Policy influence	China	India	Mexico
Education	<ul style="list-style-type: none"> 3% of 25-64-year olds have obtained a tertiary degree. WEF ranks China 40/137 in health and primary education (score: 6.2) and 47/137 in higher education and training (score: 4.8). 	<ul style="list-style-type: none"> The Indian government spends US\$872 per student on education. 10% of 25-64-year olds have obtained a tertiary degree. WEF ranks India 91/137 in health and primary education (score: 5.5) and 75/137 in higher education and training (score: 4.3). 	<ul style="list-style-type: none"> The Mexican government spends US\$3,703 per student on education and 5.4% of the country's GDP. 15% of 25-64-year olds have US\$872 obtained a tertiary degree. WEF ranks Mexico 76/137 in health and primary education (score: 5.7) and 80/137 in higher education and training (score: 4.1).
Land tenure and usage rights	<ul style="list-style-type: none"> China has frequently overhauled its land tenure legislation, complicating long-term projects and programs. Theoretically, all land belongs to the people and cannot be owned privately. Instead use rights allocate lands to private actors, typically for 30-70 years. For the last 30 years, land use rights have been increasing, slowly heading towards privatisation though the term is not used due to political and ideological reasons.⁵⁹ 52nd on the IPRI and 53rd in WEF secure property rights index. 	<ul style="list-style-type: none"> The current system of land tenure is based on the assumption that the individual who tills the land is the one owning the land. Land reforms have often ignored land rights of tribal people and land disputes are pervasive in India due to long-standing inter-community, ethnic conflicts. Land ownership is also particularly difficult for women, who only own approximately 10% of all land in India. 54th on the IPRI and 65th in WEF secure property rights index. 	<ul style="list-style-type: none"> From 1917 to 1992 Mexico implemented a large-scale reform allocating farm lands to groups of households organised in ejidos (collective holdings) and indigenous groups in communities. From 1992 Mexico allowed privatisation and transfer of ejido rights. This reform has been limited by inadequate registration and certification and a lack of credit and market mechanisms. 67th on the IPRI and 93rd in WEF secure property rights index.
Environmental rights	Environmental rights are not included in the Chinese constitution.	Environmental rights are recognised in the Indian constitution.	Environmental rights are recognised in the Mexican constitution.
Emissions trading	Five municipalities and two provinces have emissions trading systems in place. China also plans to implement a national Emissions Trading System in 2017 following a pilot which has been running in the past three years.	<ul style="list-style-type: none"> Perform Achieve Trade (PAT): a market based emissions trading scheme. Renewable Energy Certificate (REC) trading system, which is a non-ETS, market-based mechanism. 	Mexico has not implemented an Emissions Trading System yet but plans to put a national carbon market in place in 2018.

Policy influence	China	India	Mexico
Financial/ tax incentives	<ul style="list-style-type: none"> • In January 2018 a new national law comes into force charging a levy to polluting businesses. This law replaces the current system where fees are collected at the local level. • Fossil fuels, coal in particular, continue to receive tax exemptions, direct budget and R&D support. • Effective Carbon Rate US\$2.1/tCO₂e. 	<p>India does not impose an explicit carbon tax. Its subsidies have been decreasing since 2010 however, subsidies and budgetary support continue to be available for fossil fuels.</p>	<ul style="list-style-type: none"> • Recently, Mexico has stepped away from subsidies on fossil fuels and imposed taxes instead. • Mexico imposes taxes on both road and off-road transportation but has limited taxes on emissions in other sectors. • Effective Carbon Rate US\$0.3/tCO₂e.
Infrastructure	<ul style="list-style-type: none"> • China recognises the importance of infrastructure for economic development and treats it as a top priority. In the 13th Five-Year Plan (2016-2020) China plans to spend US\$2.17 trillion on transportation and infrastructure project including high speed rail and roads.⁶⁰ • China ranks 46/137 on infrastructure in WEF global competitiveness report. Total score: 4.7. 	<ul style="list-style-type: none"> • In 2016, the Indian government set a target of investing US\$377 billion in infrastructure in the next three years. However, infrastructure is a bureaucratic process as it is presumed a state matter, subject to federal approval.⁶¹ • India ranks 66/137 on infrastructure in WEF global competitiveness report. Total score: 4.2. 	<ul style="list-style-type: none"> • In 2013 Mexico launched the New Infrastructure Programme 2014-2018 which aimed to invest a total of US\$596 billion in 743 programs and projects. However, not all projects are likely to be completed within the timespan.⁶² • Mexico ranks 62/138 on infrastructure in WEF global competitiveness report. Total score: 4.3.
Monitoring systems	<ul style="list-style-type: none"> • The China National Environment Monitoring Center carries out environmental analyses. By 2030, China wants to create a comprehensive environmental monitoring system. • China also publishes the emissions of around 13,000 enterprises. 	<p>The state of Maharashtra has implemented a Star Rating Program which publicly rates plants based on the environmental pollution they cause.</p>	<p>Procuraduría Federal de Protección al Ambiente (PROFEPA) is the administrative body responsible for monitoring the implementation of and compliance with environmental laws.</p>

ANNEX E: CASE STUDY ON CONCEPTUAL MODELS IN COLOMBIA

Colombia concept overview

Colombia case study concept	Real estate/PE fund with rent-to-buy scheme and holding company wrapper in Colombia
Revenue models	Sustainable commodity production Carbon credits and payment for ecosystem services
Stage of development	Early concept (though with identified potential partners)
Financial instruments	Public: grants, guarantees, concessional capital, result-based financing Private: equity, debt, result-based financing
Climate action	Mitigation
Sector	Agriculture, forestry
Countries	Colombia
Other countries	Brazil, and potentially scalable/replicable to other emerging markets with large degraded land areas and smallholder populations

THE SLU CHALLENGE AND OPPORTUNITY IN COLOMBIA

Deforestation is a significant issue in Colombia. Over 6 million hectares have been deforested over the past 25 years. In 2015, 46% of the >124,000 deforested hectares⁶³ were in the Amazon, which is the world's most biodiverse tropical forest, and most important carbon sink. **Over five decades of conflict – and its effect on rural livelihoods – has exacerbated this problem.** Over 58% of the deforestation took place in areas where the conflict was most prevalent; and 48% of these cover natural protected areas.⁶⁴ Indeed, the displacement of over seven million people, poor rural development and lack of economic opportunities, and unequal land access have increased deforestation of natural forests by local communities in pursuit of new lands and (unfortunately unsustainable) livelihoods, in addition to illicit crop and mining activities of the armed groups.

The post-conflict era and commitment to rural development opens a unique opportunity to create change – indeed, it is essential to building a lasting peace. There is a pressing need to bolster rural development through sustainable land use and the protection of natural resources on which livelihoods depend (i.e., high-quality soil, water, forests) in the areas most affected by the conflict. **The public and private sectors need to act together to bring about systemic environmental and social change.** The Colombian government has estimated the cost of rural development at

COP110.6 trillion (US\$37.2 billion)⁶⁵—national and sub-national governments are expected to fund the large majority of these costs through major rural infrastructure and development initiatives, though an estimated COP7 trillion⁶⁶ (US\$2.4 billion) will still be required from the private sector. **Fortunately, many SLU investment opportunities with long-term growth potential for private capital in Colombia do exist – the time to act is now.**

Primary SLU investment risks and mitigants

Risks	Mitigants
Lack of ‘investable’ pipeline and financing given mismatch between long-term development lead times (uncertain/riskier revenues) and short-term pay-back expectations of private investors	Unprecedented potential at scale: significant scale of land area (~38 million hectares in Colombia); national and sub-national commitment to post-conflict rural development; strengthened land registries and regulatory frameworks.
	Proven business models and innovative financial structures to deliver quick-wins and long-term returns: an integrated approach that leverages opportunities with early cash flows (i.e., cattle intensification) can subsidise longer-term development of agroforestry and reforestation initiatives.
	Innovative structures leveraging blended finance for de-risking and returns enhancement for catalytic effect: through blended finance instruments (including grants for project development in early stages, guarantees on returns and concessional capital), risk-return profiles can be brought in line with private investors with higher risk tolerance and mandates for impact.
	Growing interest from early-stage investors with patient capital: impact-oriented HNWI/family offices and impact investment funds with environmental, social and financial returns objectives.
Poor enabling environment: political uncertainty; poor infrastructure and regulatory and legal frameworks; tenuous land rights; plot can be fragmented	Focus on working with national and sub-national actors committed to SLU to maximise actionability: despite political uncertainty related to elections in August 2018, there is significant momentum across many national and sub-national actors to commit to climate change mitigation and rural development (e.g., carbon tax, post-conflict rural development financing). A focus on a jurisdictional approach in regions with committed actors (e.g., Orinoquia) can strengthen the necessary enabling environment to support SLU.
	Primary focus on regions with stronger land rights to mitigate land tenure risks: only purchase lands that have stronger ‘formal’ titles (or at least indisputable command and control rights) in states with strong commitment to jurisdictional approaches. Contractual agreements to transfer formal land ownership to local smallholders will additionally ensure local buy-in and reduce dispute claims around traditional land rights.
	Focus on regions in Savannah area with larger plots: start in regions where larger plots of land are available given complex regulations on maximal land tenure according to the land productivity.

Concrete investment opportunities for the private and public sector

Time horizon	Revenue model	Financial return	Environmental and social impact
Quick wins 0-5 years	Sustainable production intensification on large degraded lands; value-added processing; ecotourism	6-12% IRR	Avoided deforestation; reduced methane gases
Medium-term 5-15 years	Integrated agroforestry; sustainable smallholder commodity production	10-15% IRR	Sustainable smallholder livelihoods; avoided deforestation; reduced methane gases
Long-term 10-20+ years	Reforestation/conservation through sustainable timber, non-timber natural forest products and conservation revenues	10-20% IRR	Reforestation; avoided deforestation of natural forests

INTEGRATED FINANCIAL STRUCTURES AND CONCEPTS

Real estate/PE fund with rent-to-buy scheme (partially convertible to debt fund)

Innovation: High

Catalytic effect: Medium-High

Actionability: Medium

PHASE 1: REAL ESTATE/PE FUND WITH RENT-TO-BUY SCHEME

The purchased land is divided in three areas, each generating different revenues over different time horizons.

LEGEND

Economic impact



Increased crop productivity, yields and revenues



Increased revenues from cattle intensification



Increased revenues from new activities

Social impact



Improved livelihoods of farmers and communities

Environmental impact



Decreased GHG emissions from SAMP

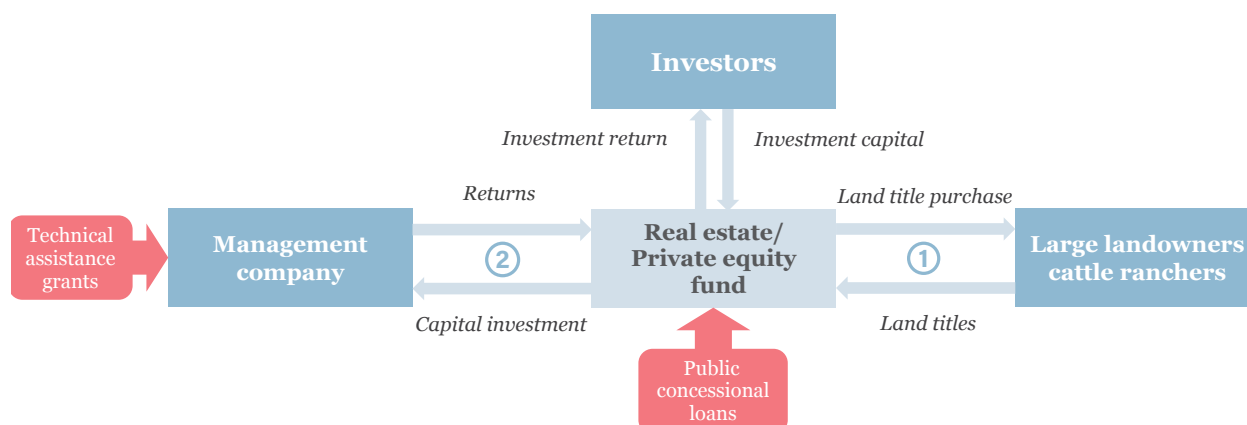


Improved biodiversity



Improved water services

Quick-win: cattle ranching system through management company on reduced area of degraded pasturelands



FINANCIAL MECHANISM

- 1 - Land title purchase in real estate fund
- 2 - Private equity revenues from sustainable cattle production

REVENUE MODEL

- Quick cash flows from cattle intensification on a reduced portion of land using silvopastoral agroforestry practices (i.e., integration of livestock with tree plantation);
- Potential intermediary revenues in the first year from crop cultivation (e.g., rice) which prepares the conversion of land to cattle

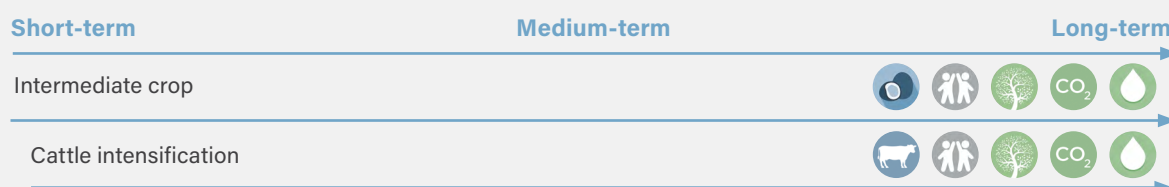
BLENDED FINANCE

- Concessional financing at the fund level to purchase the real estate;
- Technical assistance grants for pipeline and project development, though these quick wins have the greatest likelihood of being developed entirely through private capital. Indeed, the early cash flows from these investments could support the longer-term development of the other projects within the fund portfolio

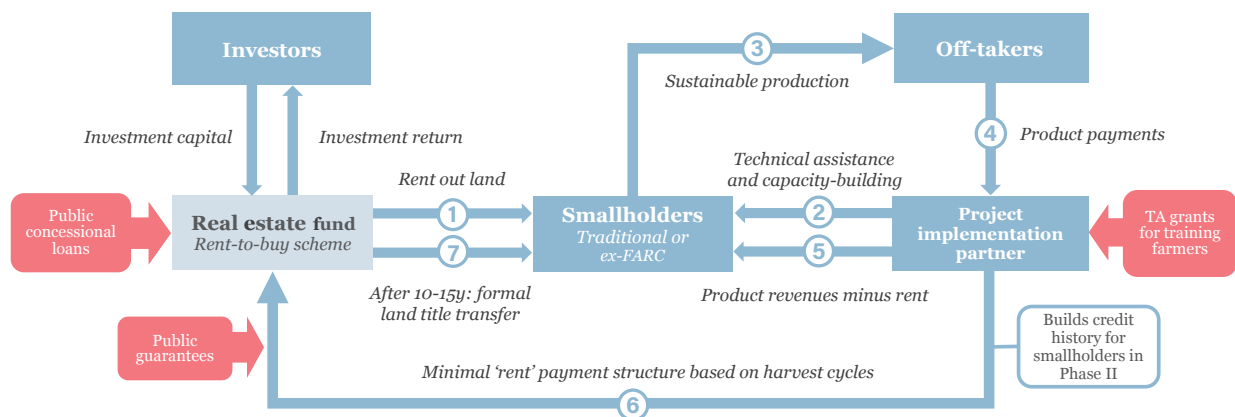
IMPACT

- **Reduced greenhouse gas emissions** from intensified cattle ranching ("i.e., reduced slaughter age, improved weight and quality of carcass at slaughter)
- **Avoided deforestation** from intensive livestock production
- **Increased employment opportunities** in rural areas

REVENUE AND IMPACT TIMELINE



Medium-term: 'rent-to-buy' scheme with landless local communities and smallholder farmers to develop integrated agroforestry on pasturelands



FINANCIAL MECHANISM

- 1** - Rent-to-buy land from the real estate fund to smallholders
- 2** - Technical assistance on sustainable and efficient farm practices
- 3, 4** - Long-term off-taker agreement to purchase of sustainably-sourced commodities from a project implementation partner
- 5,6** - Profit-sharing agreement tied to harvest cycles, with a built-in minimum 'rental' payment as part of the rent-to-buy scheme
- 6** - Formal transfer of land ownership at the end of renting period

REVENUE MODEL

- Short/medium-term cash flows from **sustainable agriculture** with **increasing yields** over time from efficient farm practices
- Diversification of revenues with **agroforestry** (i.e., integration of tree plantation with crop cultivation) on the medium-term

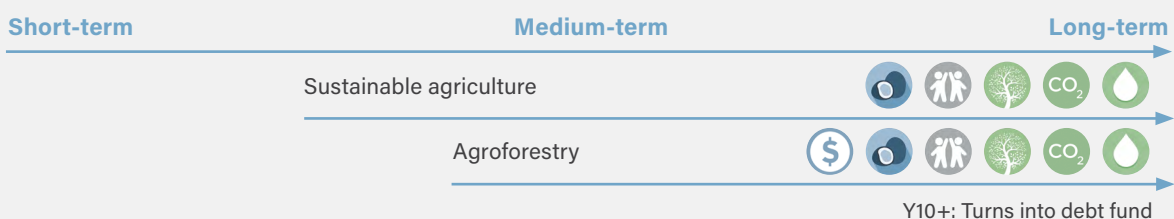
BLENDED FINANCE

- **Upfront grant funding** for pipeline and project development (i.e., technical assistance and capacity-building) and securing land tenure
- **Guarantees** on 'rental' payments in the event that smallholders have poor harvests and default on rental payments
- **Concessional loans** for initial land title purchase

IMPACT

- Buy-in from local communities to **sustainable land management practices and avoided deforestation**
- 'Rental' payments build up **formal credit history** for smallholders over the years, making local credit markets accessible in the long run
- Access to **formal land ownership** reduces the fear of farmers to be evicted from their land and incentivises them to develop **sustainable businesses and livelihoods**
- Off-taker agreements provide farmers access to market and create **long-term relationship with large buyers**
- Jurisdictional engagement ensures a **collective effort from local stakeholders** to commit to sustainable land use and avoid counterbalancing efforts

REVENUE AND IMPACT TIMELINE



Long-term: reforestation/conservation areas for sustainable timber, non-timber natural forest production or conservation revenues (as part of real estate/PE fund structure)

FINANCIAL MECHANISM

Similar flow chart to model 1 with private equity revenues from forestry (i.e., reforestation, afforestation, forest conservation)

REVENUE MODEL

- Private equity revenues from traditional forestry activities (e.g., sustainable timber products) in the medium-term
- Long-term revenues from unconventional sources, such as recreation (e.g., eco-tourism, hunting leases), payment for ecosystem or biodiversity services and/or carbon credits

BLENDED FINANCE

- **Concessional loans** from patient capital investors for initial land purchase and deployment of plantation/processing facilities

IMPACT

- **Environmental impact** from avoided deforestation, forest regeneration and wildlife habitat protection and carbon sequestration
- Increased **employment** opportunities in rural areas

REVENUE AND IMPACT TIMELINE

Short-term

Medium-term

Long-term

Sustainable timber



Recreational activities



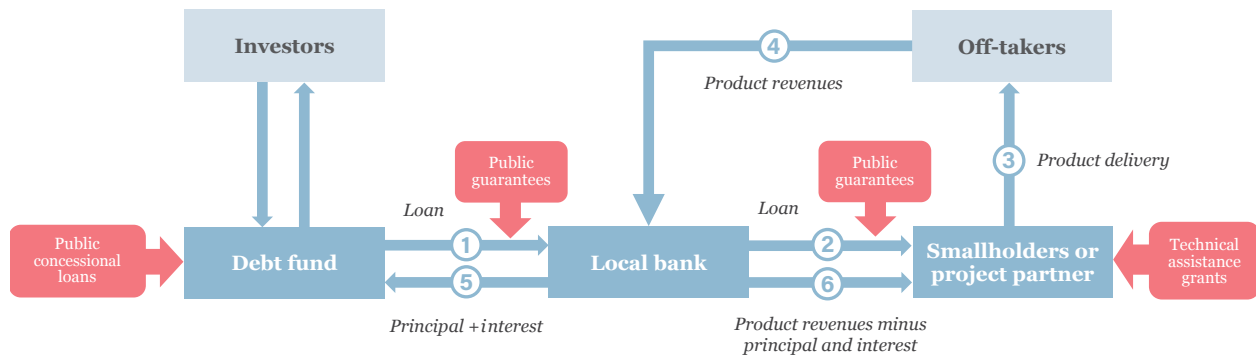
PES, carbon credits



Over the years, the land turns into an integrated production system with livestock, crop and forest components in rotation, combination or succession in the same area. New sources of revenues such as carbon offsets or payment for ecosystem services add up to the multiple production revenue streams.

PHASE 2: DEBT FUND

After land rights titles have been transferred to the smallholders, the real estate fund turns into a debt fund. This could be a standalone financial structure in case land tenure rights are already secured (similar to Root Capital model).



FINANCIAL MECHANISM

- 1** - The real estate fund rolls out into a debt fund providing loans to local banks, which will supply credit to smallholders
- 3,4** - Off-takers continue to purchase sustainably-sourced commodities from smallholder farmers
- 5,6** - The local bank pays the production revenues to the smallholder farmers, minus the principal and interest which are used to finance the fund

REVENUE MODEL

- Interest payments by smallholders from **increased agricultural productivity** and **new revenue streams from agroforestry practices** (e.g., sustainable timber, new crops) in the long run

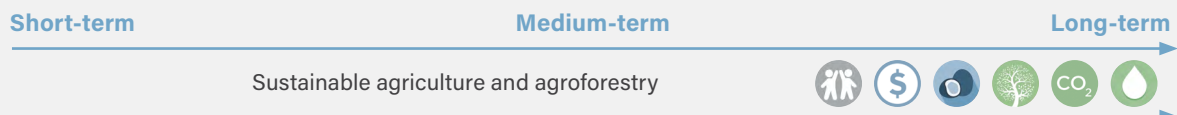
BLENDED FINANCE

- **Guarantees** to the local financial institutions in the event that smallholders have poor harvests, or to the fund in case local financial institutions default
- **Grant funding** to maintain/develop the sustainable land use practices of the farmers (i.e., technical assistance)

IMPACT

- Smallholders gain access to formal credit markets as they formalize land titles and **build credit histories and proven reliable cash flows** throughout the rent-to-buy scheme
- Creating this **local credit market** is also key to ensuring that local financial systems can grow and scale to support future projects
- Access to capital enables smallholders to **increase production, revenues and raise living standards** while sustaining the learned **deforestation-free practices**
- Land restoration and soil **regeneration appreciates land value** and opens opportunities for other land uses

REVENUE AND IMPACT TIMELINE



HOLDING COMPANY WRAPPER

As many SLU revenue models generate cash flows in the longer-term (not suitable for traditional fund structures with 5-7 year exits), a permanently-capitalised vehicle/evergreen fund structure may be more relevant for SLU investments. This evergreen structure is similar to what is currently being explored by TIMOs in more developed markets to provide stable, long-term cash flows for its investors and preserve long-term impact. This wrapper can contractually include a pre-defined wind-down if certain long-term return thresholds are not met in order to provide private sector investors with liquidity event/exit protections.

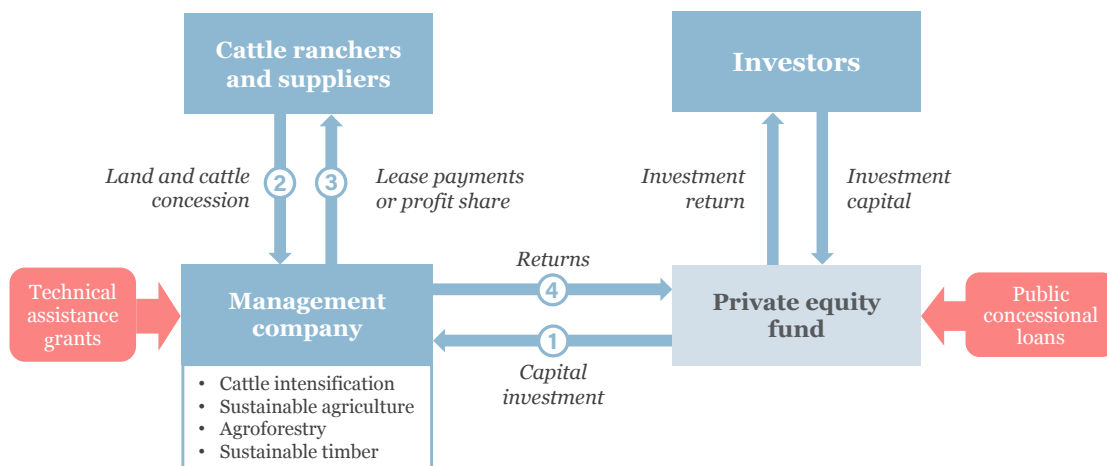
OTHER POTENTIAL FINANCIAL STRUCTURES

PE fund without real estate assets (similar to PECSA)

Innovation: Medium

Catalytic effect: High

Actionability: High



FINANCIAL MECHANISM

- 1 - Capital investment in a management company
- 2,3 - Cattle ranchers and suppliers lease their land and cattle against leasing payments or through a profit-sharing agreement
- 4 - Over the years, returns result from a combination of sustainable forestry, livestock and agricultural intensification activities

BLENDED FINANCE

- **Concessional loans** at fund level to pay the leasing costs
- **Technical assistance grants** to the management company to train and provide the necessary equipment to the cattle ranchers, suppliers and farmers

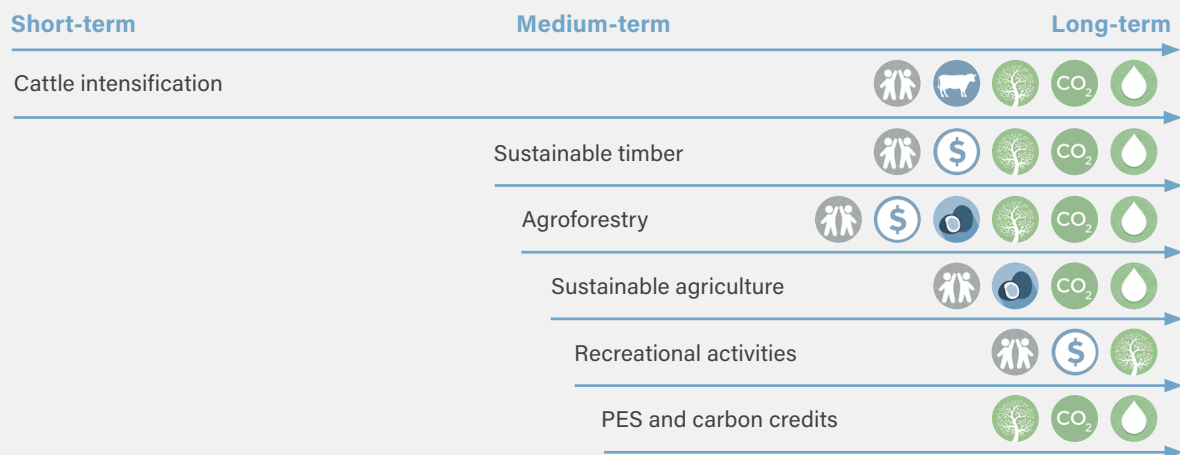
REVENUE MODEL AND TIMELINE

- Quick cash flows from cattle intensification on a part of the land
- Forest restoration on another part of land for sustainable timber in the medium-term or conservation in the long-term
- Diversification of revenues through agroforestry and sustainable agriculture in the medium-term
- Revenues from forest conservation in the long run, such as recreation, carbon credits and payment for ecosystem services

IMPACT

- **Reduced emissions and avoided deforestation** from intensive cattle ranching
- Increased profitability and diversification of revenues builds **sustainable businesses and livelihoods** in rural areas
- **Carbon sequestration** through reforestation
- Land restoration and soil regeneration appreciate land value

REVENUE AND IMPACT TIMELINE

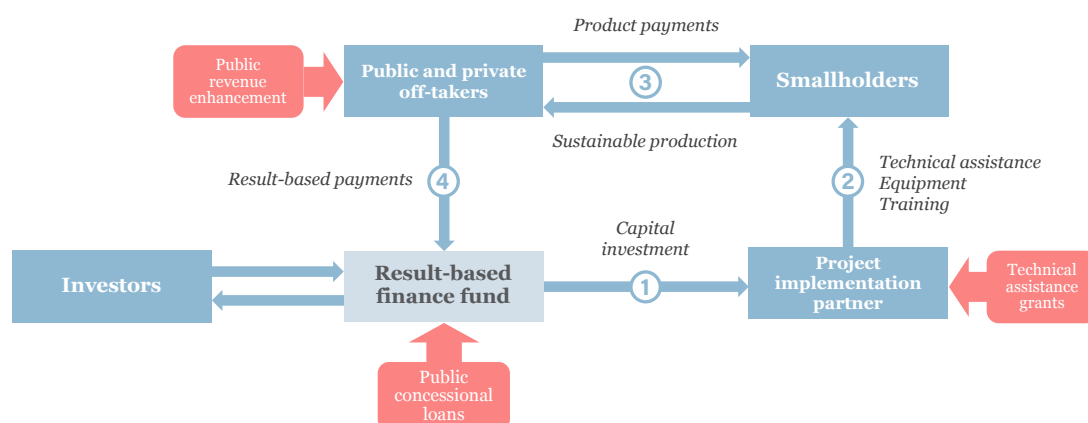


Result-based financing (similar to Livelihoods Venture)

Innovation: High

Catalytic effect: Medium

Actionability: Medium



FINANCIAL MECHANISM

- 1 - Capital investment in project developers (cooperatives/NGOs)
- 2 - Project partners provide technical assistance to smallholders
- 3 - Commitment to purchase of sustainably-sourced commodities
- 4 - Result-based payments to the fund based upon a set of predetermined volume-/quality-/impact-related metrics

REVENUE MODEL AND TIMELINE

- Revenues from **sustainable agriculture** (and agroforestry in the longer run) through long-term off-taker agreements
- **Premium fee** from **private off-takers** for accessing sustainably-sourced products
- Payment by **public off-takers** for the generation of public good and positive environmental impact

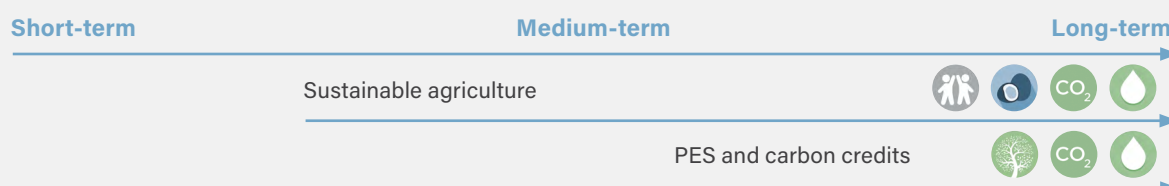
BLENDED FINANCE

- **Grant funding** to support local project developers for technical assistance, equipment and training on sustainable agriculture management practices
- **Concessional loan** to finance the upfront capital provided to project implementation partners

IMPACT

- Buy-in from local communities to **sustainable land management practices** and **avoided deforestation** from agriculture expansion as well as **water contamination** from intensive use of degrading chemicals
- Smallholders also increase their productivity and profitability from increased prices which contributes to **sustainable businesses and rural livelihoods**
- Off-taker agreements provide farmers **access to market** and create **long-term relationship with large buyers**

REVENUE AND IMPACT TIMELINE



ANNEX F: INTERVIEWEES LIST

Organisation	Name	Position
ADM Capital	Lisa Genasci	CEO
AgDevCo	Chris Isaac	Director of Investments and Business Development
Amata	Dario Guarita Neto	CEO
B.O.T.	Juan Pablo Jimenez	Partner
CDC Group	Etienne Haddad	Investment Manager, Industrial Businesses
CEBDS	Carla Branco	Institutional Relations Manager
Chatham House	Rob Bailey	Research Director, Energy, Environment and Resources
CIFF	Ana Yang	Portfolio Manager, Climate Change
CIFOR	Steven Lawry	Research Director, Forest and Governance
CIFOR	Josh van Vianen	Co-founder and Director
Climate Focus	Simon Koenig	Executive Director
Climate Focus	Juan Pablo Castro	Senior Manager, Latin America
Climate Policy Initiative	Angela Falconer	Associate Director
ClimateWorks Foundation	Shilpa Patel	Director of Mission Investing
CLUA	Daniel Lerda	Brazil Initiative Coordinator
Commonland	Willem Ferwerda	CEO
Conservation Finance Network	Allegra Wrocklage	Program Coordinator
Conservation Finance Network	Leigh Whelpton	Program Director
Daemeter	Michal Zrust	Regional Manager South East Asia
Department for Business, Energy and Industry Strategy (UK)	Thomas Alpe	International Climate Fund Manager, Forests and Land Use
Department for Business, Energy and Industry Strategy (UK)	Mandar Trivedi	Senior Scientist
Department for International Development (UK)	Neil Scotland	Senior Forestry Adviser
E3 Asesorias	Claudia Martinez	Executive Director
Ecotierra	Etienne Desmarais	CEO
Ecotrust Forest Management	Amrita VK Vasal	Managing Director, Business Development
Enclude	Alexandra Korijn	Associate, Capital Advisory Services
Enclude	Laurie Spengler	President and CEO
Enclude	Steven van Weede	Managing Director
Equilibrium Capital	David Chen	Founder and CEO
European Development Finance Institutions	Nanno Kleiterp	Chairman
European Development Finance Institutions	Søren Peter Andreassen	General Manager
European Development Finance Institutions	Frederik Jan van den Bosch	Managing Director

Organisation	Name	Position
F3 Life	Mark Ellis-Jones	CEO
Fauna & Flora International	Paul Herbertson	Programme Director, Environmental Markets
Finnfund	Ilkka Norjamäki	Investment Manager of Forestry, Environment and Renewable Energy
Fondo Colombia Sostenible	Marcela Huertas	Fund Coordinator
Fondo Colombia Sostenible	Sebastian de los Rios	Rural Development Specialist
Fondo Colombia Sostentible	Catalina Restrepo Prado	Independent Consultant
Forest Trends	Michael Jenkins	Founder and CEO
Global Green Growth Institute	Carolina Jaramillo	Country Representative
Good Energies	Johannes van de Ven	Managing Director
Green Invest Asia	Christy Owen	Chief of Party
IDH Sustainable Trade	Violaine Berger	Senior Manager, Learning and Innovation
IFC	Tania Kaddeche	Global Manager, Agribusiness and Forestry in Latin America
IFC Brazil	Diogo Bardal	Investment Analyst
IFC Brazil	Hector Gomez	Country Manager
Imaflora	Isabel Garcia Drigo	Project Coordinator in Climate Agri-food Supply Chains and Forests
Inter-American Development Bank	Amal-Lee Amin	Head of Climate Change and Sustainable Investment
Livelihood Ventures	Guillaume Bouculat	Director of Development
Lyme Forest Fund	Peter Stein	Managing director
Maraé	Murilo Menezes	Institutional Relations Manager
Maraé	Pedro Villares	Project Director
Mars	Kevin Rabinovitch	Global Director of Sustainability
McKinsey & Company	Alicia Moya Sierratta	Engagement Manager
Miro Forestry	Andrew Collins	CEO
Mov Invetimentos	Paulo Bellotti	Founder and Executive Director
Munich Re	Thomas Lallinger	Head of Financial Risk
Munich Re	Christian Petternkofer	Executive Director Capital Relief Transactions
National Univeristy of Colombia	Hernan Perez	Researcher
Nestlé	Duncan Pollard	Head of Stakeholder Engagement Sustainability
New Forests	MaryKate Bullen	Associate Director, Sustainability and Communications
Norway International Climate and Forest Initiative	Elise Christensen	Counsellor for Climate Change and Forests
Norway International Climate and Forest Initiative	Per Fredrik Pharo	Director
Observatorio do Clima	Carlos Rittl	Executive Secretary
Omidyar Network	Peter Rabley	Venture Partner

Organisation	Name	Position
PECSA	Laurent Micol	Director of Governance and Investments
Permian Global	Gerry Elias	Chief of Business Development and Marketing
Permian Global	Stephen Rumsey	Chairman
Pragma Patrimônio	Luis Guerra	Investment Manager
Rabobank	Bas Ruter	Director of Sustainability
Root Capital	Brian Milder	Executive Vice President of Strategy, Advisory and Innovation
Sonen Capital	Rick Weyerhaeuser	Director
South Pole Group	Diana Rodriguez	Project Manager and Forest Climate Change Policy Expert
Suzano	Gustavo Selayzim	Director of Corporate Finance
Suzano	Guilherme Hirata	Executive Director of Corporate Finance
Swiss Re	Reto Schnarwiler	Strategic Advisor and Board Mandates
Symbiosis	Bruno Mariani	CEO
SYSTEMIQ	Salvador Guzman	Project Manager Indonesia
Terra Blanca	Gustavo Bernal Torres	Founder
The BC.lab	Luc Lapointe	Founder
The Climate Trust	Kristen Kleiman	Director of Investments
The Nature Conservancy	Jack Hurd	Deputy Director Asia-Pacific
The Nature Conservancy	Valérie Dourdin	Director of Philanthropy and Public Funds NASCA
The Nature Conservancy	Marcio Sztutman	Critical Lands Manager
The Nature Conservancy	Anna Lucia Horta	Business and Investment Officer
The Nature Conservancy	Andres Felipe Zuluaga	Expert in Sustainable Land Use
Uma Gota no Oceano	Stela Herschmann	Lawyer
UNIQUE Forests	Duncan Gromko	Consultant in Climate Division
United Nations Development Programme	Pierre Bardoux Chesneau	Portfolio Manager
United Nations Development Programme	Charles O'Malley	Senior Partnerships Advisor at Green Commodities Programme
Wide Open Agriculture	Anthony Maslin	Chairman
World Resources Institute	Tim Searchinger	Senior Fellow
World Resources Institute	Ed Davey	Project Director
World Wildlife Fund	Katharina Serafimova	Head of Finance Sector Engagement
	Wendy Arenas Wightman	Senior Advisor to the High Commissioner for Post-Conflict on Environmental and Sustainability Issues
	Bulbul Gupta	Innovative Finance Consultant

ENDNOTES

- 1 The Food and Agriculture Organization of the United Nations (FAO) defines deforestation as the “conversion of forest to other land uses or the permanent reduction of the tree canopy cover below the minimum 10% threshold” (FAO. “Definitional issues related to reducing emissions from deforestation in developing countries.” *FAO Corporate Document Repository*, 2007. Retrieved from: <http://www.fao.org/docrep/009/j9345e/j9345e00.htm>), degradation as “the long-term reduction of the overall potential supply of benefits from the forest, which includes carbon, wood, biodiversity and other goods and services” (Ibid.), and climate-smart agriculture as “agricultural practices that sustainably increase productivity and system resilience while reducing greenhouse gas emissions” (FAO. “*Climate-Smart Agriculture: Policies, Practices and Financing for Food Security, Adaptation and Mitigation*, 2010. Retrieved from: <http://www.fao.org/docrep/013/i1881e/i1881e00.pdf>).
- 2 Adapted from: ClimateWorks Foundation. *Forests & Land Use Portfolio*. Retrieved from: <http://www.climateworks.org/portfolios/forests-land-use>, and Griscom, Bronson W., et al., “Natural climate solutions.” *PNAS*, 2017. Retrieved from: www.pnas.org/cgi/doi/10.1073/pnas.1710465114.
- 3 SLU can also address issues relating to infrastructural expansion and mining which are not included in this report.
- 4 EPA. “Global Emissions by Economic Sector.” *Global Greenhouse Gas Emissions Data*. Retrieved from: <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>.
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