The Lab

STRUCTURED FINANCE FOR NATURE

INSTRUMENT ANALYSIS
SEPTEMBER 2024

Structured Finance for Nature (SFN)

LAB INSTRUMENT ANALYSIS
September 2024

DESCRIPTION & GOAL

This financial structure combines green bonds, mezzanine finance, and equity to finance a portfolio of high-quality ecosystem restoration and conservation projects. Grant financing will establish required legal frameworks and a trustee company, to act as a custodian for capital committed to the mezzanine and bond tranches.

SECTOR

Land Use/AFOLU, Forestry, Nature-based Solutions (NbS)

FINANCE TARGET

SFN aims to raise USD 100 million in private capital for ecosystem regeneration, forest conservation, and biodiversity protection in the Philippines and other countries in Southeast and South Asia.

GEOGRAPHY

For pilot phase: Philippines
In the future: Indonesia, Cambodia, and Bhutan

The Lab identifies, develops, and launches sustainable finance instruments that can drive billions to a low-carbon economy. The 2024 Lab cycle targets four thematic areas (mitigation, adaptation, high-integrity forests, and sustainable agriculture and food systems) and five geographic regions (Brazil, East & Southern Africa, India, Latin America & the Caribbean, and the Philippines).

AUTHORS AND ACKNOWLEDGEMENTS

SUMMARY

Intact ecosystems are increasingly under threat. These vital areas, including forests and wetlands, absorb carbon and provide essential ecosystem services and adaptation benefits to nearby communities. These areas are a habitat for many of Earth's eight million species of plants and animals, one million of which now face an unprecedented threat of extinction. Southeast Asia alone lost more than 61 million hectares of forest in the last decade - an area larger than Thailand. This deforestation is driven by economics - from agricultural expansion (palm oil and rubber plantations), logging (both legal and illegal), and fires to clear land.

Environmental markets, including carbon credit projects, hold enormous promise to shift this destructive behavior into regenerative business models. Through this instrument, Structured Finance for Nature (SFN) brings its proven community-based approach to the Philippines, where deforestation and habitat loss are critical concerns, and a solution is needed to drive rural economic development.

Environmental markets face numerous hurdles and uncertainties, restricting the flow of capital. Investors often have heightened expectations of financial returns and are reluctant to commit in the face of market uncertainty. Concerns over the integrity of carbon credits and often small ticket sizes for project investment are additional barriers, resulting in a nature-related financing gap of more than USD 700 billion per year (Paulson Institute, The Nature Conservancy, Cornell Atkinson Center for Sustainability, 2020).

Investor demand is growing, particularly for high-quality forest projects. Green bond options and structured finance opportunities are rare, and a successful model can pave the way for replication and scale. Most importantly, establishing intact ecosystems as an emerging asset class will help guide the flow of capital and the design of financial mechanisms to support global climate action.

Structured Finance for Nature (SFN) tackles these barriers to drive investment into ecosystem conservation and restoration. By establishing a special purpose vehicle (SPV) in Singapore and funding a diversified natural asset portfolio, the instrument will aggregate a range of investors across the risk/return spectrum. The green bond will improve the debt-to-equity ratio and offer options for family offices and development finance institutions. Proceeds from the investment will secure land rights, fund the launch and development of each asset, and build a world-class system for benefit sharing and social safeguards.

SFN meets the four Lab criteria:

- **Innovative**: The instrument tackles challenges in developing a new class of natural assets through a portfolio approach funded by a blended capital stack. This addresses high upfront costs, long return timelines, and small ticket sizes. With rigorous monitoring that ensures integrity and transparency, SFN creates a replicable model to deploy capital and sets a global standard for community benefit sharing.
- **Actionable**: With investors already indicating interest in participating in the equity, mezzanine, and bond tranches, capital will be quickly deployed to secure critical ecosystems, purchase corporate concession rights, and collaborate with Indigenous communities to develop joint projects. In addition to rigorous due diligence on each asset and strategic partnership, SFN's Environmental and Social Management System (ESMS) will ensure its policies are put into action on the ground in accordance with IFC performance standards and other safeguards.

- **Financially Sustainable**: The portfolio strategy strikes a delicate balance between generating revenue from carbon removal and biodiversity protection – ensuring intact ecosystems are not left behind in the push to develop the carbon removal market. By securing a layer of concessionary capital, the instrument can deliver commercial returns to mezzanine investors and equitably share benefits with indigenous and local communities.
- **Catalytic**: Investors are eager to participate in a sector that lacks scale. This opportunity will boost investor interest in natural assets and set a regional example for how environmental markets can shift land use practices. DFI participation enables them to help grow environmental markets and deliver tangible impact with an opportunity of sufficient scale.

After Lab endorsement, SFN will secure anchor investors and engage a law firm to establish a Special Purpose Vehicle (SPV) in Singapore and finalize key documents. Simultaneously, SFN will secure bonds and mezzanine financing and launch the Agusan pilot with an Environmental and Social Management System (ESMS) and Community Development Plan (CDP) for the Manobo Indigenous Peoples.

TABLE OF CONTENTS

CONTEXT

Efforts to protect and restore ecosystems are vital in carbon sequestration and biodiversity conservation but suffer from significant capital constraints.

Forests and wetlands are critical to environmental stability, contributing significantly to carbon sequestration and biodiversity conservation (Watson et al., 2018). However, these vital ecosystems are rapidly deteriorating. In the Philippines, over 93% of the country's forest cover has been lost in the last 500 years, while Southeast Asia has lost nearly 1/6th of its forest cover between 1990 and 2020 (European Parliament, 2020).

Despite the recognized importance of forest conservation, the sector faces numerous challenges. First, creating high-integrity carbon projects is resource-intensive and takes a long time before generating revenue. Second, regulatory uncertainties due to an evolving policy landscape contribute to a lack of investor confidence (Rafiqi and Mentari, 2024). Third, financial returns from high-integrity forest projects often fall short of commercial expectations, deterring potential investors. Finally, the small ticket size of individual projects often fails to justify transaction costs (PwC, 2023).

At the same time, the market for nature-based solutions (NbS) and carbon credits is rapidly growing. Demand for high-quality, nature-based carbon credits is currently outstripping supply. Additionally, the scarcity of bond market options for forest restoration and conservation projects offers forest restoration companies another avenue to access capital as green bond markets grow (Asian Bonds Online, 2023). Moreover, there is a discernible demand-supply gap for large-scale, structured investments.

Recognizing nature, especially intact ecosystems, as an emerging asset class is an ecological imperative. Investors such as family offices, foundations, Development Financial Institutions (DFIs), impact investors, commercial investors, and institutional investors have expressed interest in participating in the sector. However, project developers must overcome reputational risks associated with carbon credits, particularly in emerging markets, and price volatility in voluntary carbon markets (VCMs).

Structured Finance for Nature addresses these challenges by developing a diverse natural asset portfolio using an innovative financial structure to attract different investor classes.

CONCEPT

1. INSTRUMENT MECHANICS

Structured Finance for Nature takes a platform approach to financing restoration and conservation projects in South and Southeast Asia.

Founded in 2010, Forest Carbon has spent more than 14 years advising, developing, and managing restoration and conservation projects in Southeast Asia. With its current portfolio spanning 264,000 hectares of forest, wetland, and marine protected areas across Indonesia, the company has generated over 4.8 million Verified Carbon Units (VCUs) and secured more than USD 46 million in sales to corporate partners on the broader voluntary market. The company has also published multiple peer-reviewed articles on its peatland restoration approach and received top marks from carbon credit rating agencies.

Now, Forest Carbon has an ambitious goal of reaching 1 million hectares under management, which requires a major shift in how the company secures capital. With Lab support, Forest Carbon has developed Structured Finance for Nature (SFN) to pool investments from a broader range of investors. It will use this capital to rapidly secure vulnerable forest and wetland ecosystems that are under threat from logging, mining, and agriculture.

Figure 1: Instrument mechanics
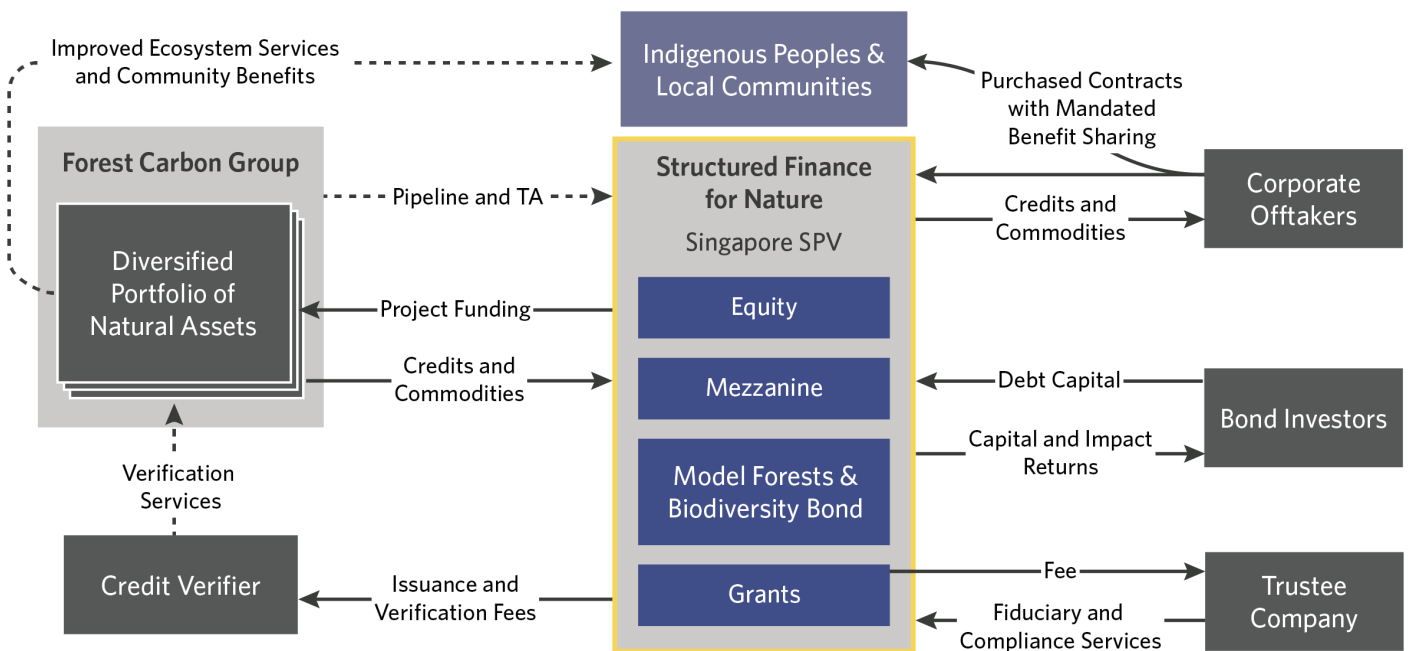
Figure 1 above illustrates the structure and capital flows of the fully scaled USD 100 million SPV, with a capital stack comprising approximately 25% equity, 25% mezzanine, and 50% green bonds. Grant financing will establish a trustee company as a custodian for mezzanine and bond tranches.

The bond element is of particular note: the Model Forests and Biodiversity Bond will provide approximately USD 50 million of low-cost debt financing by stacking bonds for various

investors. Anchored by DFIs on a larger scale, the Model Forest and Biodiversity Bond will also offer options for high-net-worth individuals and family offices in smaller denominations. In this way, SFN provides opportunities for multiple investor types, enabling them to participate in the impact on the ground by supporting high-quality restoration and conservation efforts and ultimately helping establish a new class of assets.

Forest Carbon, shown on the left side, will act as the exclusive service provider to the SPV, contributing significant technical expertise, a pipeline of investments, and cash flow from existing assets that can be used as security for new investors.

Once established, the SPV will generate revenue by selling carbon and other environmental credits. With a target of 30% of revenue from non-carbon sources, the portfolio strategy recognizes that in setting, biodiversity and other payments for ecosystem services are increasingly important to build the next generation of environmental markets.

This effort to progress the market is further supported by client screening. The Forest Carbon team screens all sales to mitigate potential reputation risk and ensure clients take credible action to reduce their emissions beyond purchasing credits. SFN will not sell to companies that engage in net environmental destruction, such as oil and gas.

Revenue from each asset is used to cover ongoing operating expenses, which include rigorous monitoring and reporting. After ongoing operating costs are covered, excess cash flow goes to repay debt investors and is shared with SPV participants. Operating expenses include notable investments for local communities, including payments to establish projects on community-owned land and other health, sanitation, and education investments.

Beyond these immediate benefits, after debt obligations for each project are repaid, communities also receive at least 20% of all equity distributions as part of Forest Carbon's industry-leading commitment to benefit sharing. These funds will be reinvested in community forestry projects to extend the portfolio's impact, setting a new standard for responsible management of nature-based assets across the region.

2. INNOVATION

Structured Finance for Nature is the only instrument in Southeast Asia designed by a company managing and operating nature-based projects on the ground. It leverages multiple asset classes to attract diverse capital toward high-quality forest restoration and conservation projects.

2.1 BARRIERS ADDRESSED: HIGH UPFRONT COSTS, LONG RETURN TIMELINES, SMALL PROJECT SIZE, AND INTEGRITY RISKS

SFN addresses key barriers inhibiting the flow of capital to nature-based assets in Southeast Asia by creating a diversified portfolio that aggregates projects across various regions, sizes, and geographies. It combines bond issuance with debt and equity options to build a blended capital stack while ensuring high-quality carbon credits through rigorous monitoring and verification.

Barrier 1: High upfront costs and long return timelines. Forest restoration and conservation projects in Southeast Asia have high upfront costs to fund the process to secure land rights, due diligence, and community partner engagement. Revenue streams at the early stages are not enough to cover these costs (WEF, 2023). Moreover, projects have a long return timeline, taking 6-10 years to generate positive cash flows, and are largely dependent on a price-volatile carbon market, which has deterred investment (Terraformation, 2022).

Solution 1: A diversified capital stack with a diversified investor pool. Commercial returns are critical to achieving scale but are extremely difficult to deliver from high-integrity projects. More patient capital is needed, and SFN blends concessionary capital with mezzanine finance to lower the overall cost of capital. The first phase of the instrument will secure equity from long-term investors with a high-risk appetite, which funds initial pipeline development. The next phase adds mezzanine finance and bonds targeting high-net-worth individuals, family offices, and Development Finance Institutions to ensure the development of each asset is sufficiently capitalized.

Barrier 2: High perceived risk and small size of individual projects. The perceived risk of investing in individual projects is high due to environmental factors such as the growth and survival of forests, market price fluctuation, and regulatory uncertainty. These assets are also often too small for institutions that require larger-scale investment opportunities (WRI, 2016). Moreover, forest restoration and conservation projects also incur high fixed costs, such as transaction costs (Pan et al. 2022).

Solution 2: A diversified natural asset portfolio to reach scale and diversify risk. SFN aggregates projects that vary in scale and thematic focus, i.e., conservation of intact forests, restoration of degraded areas and biodiversity, and setting payments using a varied set of methodologies to issue environmental credits (see Annex A). This approach addresses market risk and diversifies revenue streams. The aggregation of projects increases the overall size of the portfolio, attracting larger investors that require large-scale ticket sizes. Overall, the diversification and aggregation of projects help spread risks, combat commercial viability issues from the small size of projects, and reduce fixed costs (World Bank, 2022).

Barrier 3: Project integrity risk. A key issue for forest-based carbon projects is ensuring the quantification of impact and the claims companies can make by supporting nature-based projects. Companies have faced criticism for their choice of environmental projects to support, and some have even faced lawsuits. Although media claims are hotly disputed, inconsistencies and questionable additionality of some carbon credit projects have led to pressure and highlighted the need for improvement in the verification layer of the market. A hesitancy to commit capital remains, which only heightens the importance of more stringent adherence to integrity standards and transparency in asset monitoring.

Solution 3: More robust monitoring, reporting, and verification systems. Beyond Verra standards, Forest Carbon has developed its own Environmental and Social Management System adhering to international standards such as the International Finance Corporation's Performance Standards on Environmental and Social Sustainability and the Climate, Community, and Biodiversity Standard. Forest Carbon's ESMS addresses every element of operational planning, including stakeholder identification and engagement systems, which include a grievance mechanism, multiple avenues for dialogue during the project lifecycle, and ongoing free prior and informed consent (FPIC) processes with local and indigenous communities. The portfolio also follows international integrity guidelines supported by ICVCM to ensure the production of high-integrity credits through the selection of leading third-party validation and verification standards such as Verra, ART, and Plan Vivo. Finally, to ensure

transparency, Forest Carbon collects data against these policies and frameworks at each project stage, including on-site identification, initial audit, project implementation, and credit issuance, making all data available through an audit-ready dashboard. Investors, buyers, and third-party rating agencies can access this proprietary technology stack, which monitors over 140 unique data points across each asset, providing access to key project data and real-time insights.

2.2   INNOVATION: CURATING A PIPELINE OF INVESTABLE PROJECTS TO ATTRACT LARGE-SCALE INVESTMENTS

Through an analysis of similar forest restoration-based instruments, we found very few comparable to SFN. In the current forest restoration market, several projects have high potential, but limited capital is being deployed into conservation. Hence, SFN fills this gap by assembling a capital stack and aggregating individual projects grouped as viable investment opportunities for green funds. Overall, it can address a gap in the market by incorporating the needs of financiers and project developers through a replicable instrument.

The instrument's innovative approaches lie in these key features:

- A commitment to allocate 60% of the portfolio to protect intact ecosystems. This aims to ensure we address biodiversity loss and habitat fragmentation while restoring degraded ecosystems for carbon removal.
- A benefit-sharing mechanism sets an industry standard by allocating a portfolio-wide minimum of 20% of all dividends to benefit-sharing for local and Indigenous communities, with 80% of onsite project staff comprised of local and Indigenous communities. For community forestry, SFN aims to use digital and financial payment systems to deliver more robust data on benefit distribution.
- A proprietary dashboard that allows investors to monitor project data in real-time by measuring over 140 key metrics such as species recovery, impact on local community well-being, watershed health, and carbon removed or reduced. Through this dashboard, investors can more directly connect to impact on the ground.
- A commitment to explore alternative revenue options through in-setting agreements and other payments for ecosystem services, as well as collaborating with other specialized actors in the sector to explore potential integration of nature equity and natural capital accounting into their revenue strategy.

Table 1: Comparable instruments

Similar Instruments	Description	Differentiation
IFC Forest Bond	Financing a pre-existing REDD+ project in Kenya's Kasigau Corridor.	• Pre-sale of all carbon credits, resulting in a lock-in of their price at a lower than market rate. • No distribution to Asia.
Nature Conservation Notes (Althelia Climate Fund)	Provides exposure to sustainable agro-forestry and ecosystem	• Does not directly engage in project development • Limited to carbon credits

	conservation-focused funds and a portfolio of selected green bonds.	
The Fund for Nature (2022 Lab class)	Provides project-level finance, offering investors access to a portfolio of high-integrity nature-based carbon projects.	• Does not develop its own projects.
Tropical Landscapes Finance Facility Sustainability Bond	USD 95 million sustainability bond to finance sustainable rubber production in Indonesia, with an offtake agreement with Michelin to buy 75% of future rubber production.	• Limited to Indonesia • Bond limited to a single project and thematic area

2.3 POTENTIAL CHALLENGES TO INSTRUMENT SUCCESS

The financial instrument's success in financing the one-million-hectare portfolio hinges on overcoming several key challenges. This section outlines these challenges and provides solutions to enhance the viability of SFN's model green bond issuance and its effort to raise the envisioned USD 100 million capital stack.

2.3.1 PIPELINE IDENTIFICATION/PROJECT ACQUISITION

SFN's forest conservation and ecosystem regeneration projects are robust, yet the lack of capital makes it difficult to close on current opportunities. The high cost and intricacy of securing new projects is amplified by the rapid conversion of forests to agriculture, often driven by unsustainable practices like slash-and-burn farming, which exacerbates deforestation, particularly in the Philippines (Philchm; Manila Bulletin, August 2019).

Effective project identification and acquisition are fundamental and require significant upfront financing. Forest Carbon begins this process by engaging local stakeholders to evaluate potential sites, considering ecological significance and legal and socio-economic contexts, and conducting preliminary assessments. Rigorous due diligence follows to verify land tenure rights, assess biodiversity values, and ensure alignment with conservation objectives.

2.3.2 CARBON PRICE VOLATILITY AND DEMAND FLUCTUATIONS

As indicated previously, the carbon credit market is growing but experiencing price fluctuation, with demand driven by changes in national policies and media criticism. This volatility has inhibited the flow of capital, and Southeast Asia's markets are especially vulnerable due to emerging regulatory frameworks. Countries like the Philippines and Indonesia face additional uncertainty as they develop their carbon market infrastructure.

However, a significant development occurred in 2023 when the Climate Change Commission of the Philippines and Maharlika Carbon Technologies signed a memorandum of cooperation to advance both voluntary and sovereign carbon credits[1]. Despite these initiatives, the challenges of carbon price volatility and demand fluctuations remain.

SFN mitigates risks by diversifying its assets across various geographies, ecosystems, and revenue models, lessening fluctuations' impact in any single context. By focusing on voluntary markets, SFN benefits from greater flexibility and fewer regulatory constraints compared to compliance markets. Selling to reputable international companies outside the

Philippines allows SFN broader market access and potentially faster revenue. Additionally, advanced purchase agreements for carbon credits can potentially provide a more predictable revenue stream. The instrument also provides additional security through the cash flows from other projects, which act as a buffer against volatility.

SFN will integrate conditional pass-through terms into bond agreements to mitigate further volatility in carbon markets. By specifying price thresholds and an agreed window to execute sales, portfolio managers can adjust sales strategy to market conditions with flexible repayment schedules. This allows the instrument to better manage expectations around payment timings and amounts, ensuring a more resilient green bond that maintains investor confidence.

2.3.3   LEGAL COMPLEXITY FOR BOND ISSUANCE AND MARKETING

Issuing green bonds through an SPV in Singapore for investors in North America and Europe presents significant cross-border legal complexity. Compliance with Singaporean regulations requires rigorous documentation, ongoing reporting, and requirements from North America and Europe. For these markets, the bond must adhere to U.S. and European regulations, including stringent transparency and investor communication criteria.

To address these issues, SFN will secure pro-bono legal support to refine the legal structure of the Model Bond for target markets. Additionally, the team continuously engages with family offices, high-net-worth individuals, NGOs, and institutional investors in these regions to ensure the bond meets their specific sustainability and financial returns criteria.

MARKET TEST AND BEYOND

3. IMPLEMENTATION PATHWAY

Immediate opportunities exist to conserve the 1 million hectares and implement projects across Southeast Asia. The Structured Finance for Nature pilot in the Philippines has the potential to scale these efforts and serve as a model for replication in other countries.

Structured Finance for Nature prioritizes projects with significant carbon potential while exploring opportunities in biodiversity and other natural asset revenue streams. The goal is to establish a diversified portfolio that mitigates deal, execution, management, and country risks. Each project is designed to address local environmental challenges while maximizing financial returns and community benefits in the Philippines (the location of the pilot project), Cambodia, Bhutan, and Indonesia, as reflected in the target market map on the left side.

Figure 2: Target Markets

Agusan Pilot: The Agusan pilot aims to protect and restore 91,000 hectares of forest in Agusan del Sur, Mindanao, near the Agusan Marsh Wildlife Sanctuary, which has lost 12,000 hectares of forest since 2001. The project is complicated by land rights under the Indigenous Peoples Rights Act (IPRA) of 1997, which recognizes the Agusanon Manobos' ancestral domains. Forest Carbon has engaged a leading environmental safeguard and land rights specialist firm for stakeholder consultations and is working with a leading law firm to help secure Indigenous land rights. Forest Carbon secures land rights through community collaboration agreements or the acquisition of companies that own high biodiversity land concessions, seeking to balance ecological impact with community interests for long-term sustainability.

Future Pipeline: Following this, additional projects are planned in Cambodia, Bhutan, and Indonesia. In Cambodia, 123,000 hectares of primary forest in the Aural Wildlife Sanctuary will be preserved, generating 175,000 avoidance credits annually. In Bhutan, the portfolio will conserve 2.68 million hectares of forest, aiming for 275,000 avoidance credits annually under ART TREES3, supporting Bhutan's national forest and carbon strategies. Discussions are ongoing to potentially secure MIGA carbon insurance for Cambodia and Bhutan projects to manage political and regulatory risks. In Indonesia, projects include West Papua (170,000 hectares), Aceh (97,907 hectares), and Kapuas Hulu (16,995 hectares), with details in Annex B and the full rationale for country selection for pilot and details of upcoming projects are found in Annex C.

3.1   TIMELINE

As shown in Figure 3 below, the SPV raises capital in three phases. In the first phase, USD 25 million is raised through equity commitment. The first project in the Philippines begins, involving community investment, consultations, and collaboration agreements.

In the second phase, USD 75 million is secured with green bonds and mezzanine financing to secure additional areas and finance operations. In the pilot project in the Philippines, Forest Carbon will implement its Environmental and Social Management System (ESMS) and prepare the Community Development Plan for the Manobo Indigenous Peoples. It will also start carbon credit production and develop operational plans for community development and forest management.

Figure 3: Implementation timeline of the pilot project
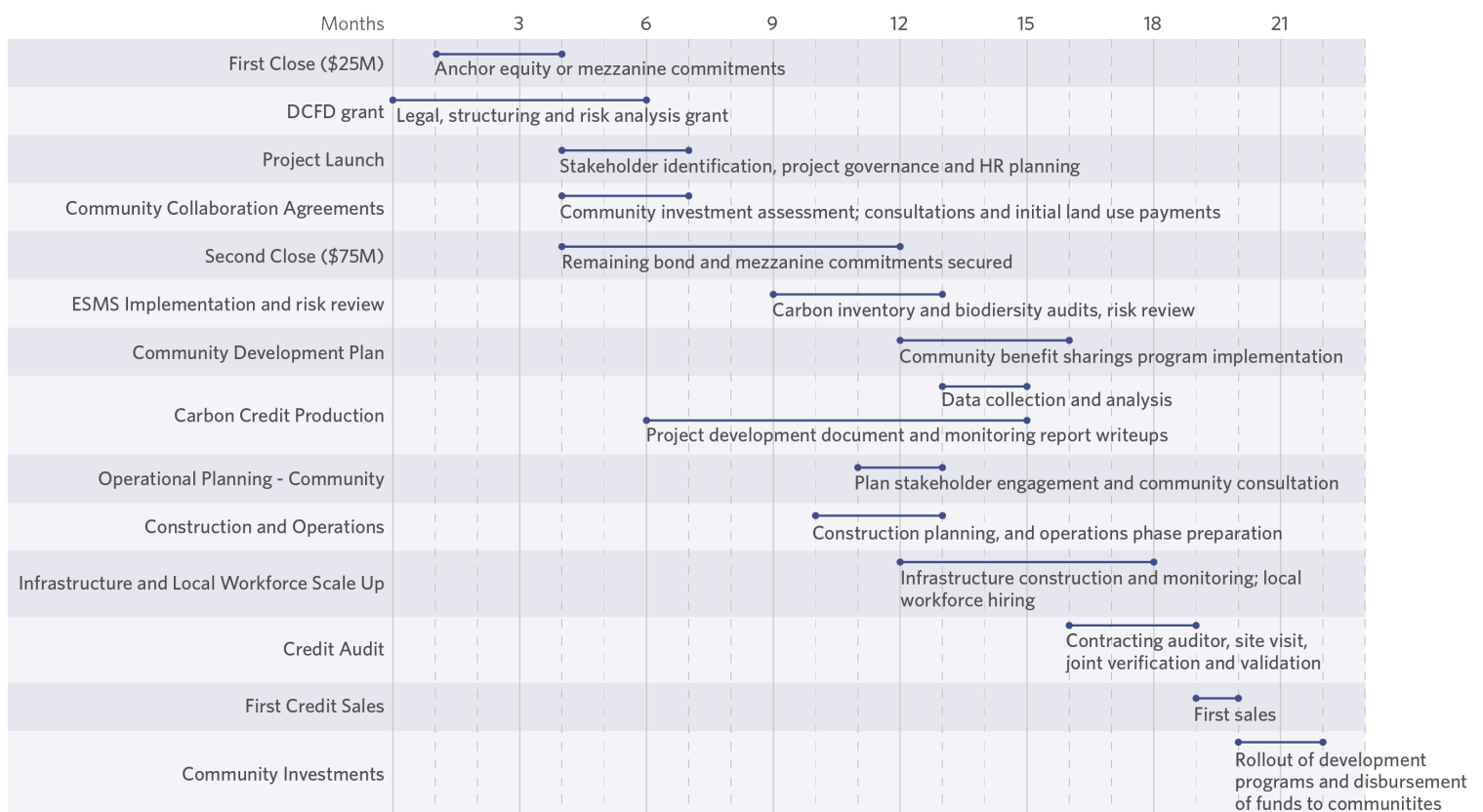
In the Agusan project, community efforts will address the needs and aspirations of the Manobo Indigenous Peoples (IPs) surrounding the area, ensuring that their rights and cultural heritage are integrated into project planning and execution. Carbon credit production,

starting 2-3 years after the first close, will involve generating and selling a combination of avoided unplanned deforestation and forest restoration credits, which provide a financial mechanism to support project goals and reward climate mitigation results delivered by community partners.

Operational plans will be developed to ensure meaningful and ongoing engagement with the Manobo communities, incorporating their traditional knowledge and ensuring their active participation in the project. The phase will also include detailed planning for construction and operational activities, infrastructure development, and scaling up the local workforce. All social and IP safeguards processes will be carried out in close partnership with MFC Ltd. based on IFC Performance and CCB Standards.

Revenue from carbon credits will repay debt and support the Manobo communities and SPV equity holders, ensuring equitable financial benefits and project sustainability. Concurrently, the SPV will replicate the structure of the Agusan pilot with other projects.

4. FINANCIAL IMPACT AND SUSTAINABILITY

4.1   QUANTITATIVE MODELING

4.1.1   SPV MODEL OVERVIEW

SPV modeling reflects ten projects, with costs and revenue sources indicated in Table 2.

Table 2: SPV Model overview

Project	Total Hectares	Project Costs	Credits Produced
Agusan Pilot (Philippines)	91,000	~$6,000,000	REDD+, ARR
Projects 1-9	909,000	~$94,000,000	REDD+, ARR, IFM, and WRC
Totals:	**1,000,000**	**$100,000,000**	

4.1.2   PROJECT-LEVEL STRESS TESTING

For the instrument analysis report, Lab analysts focused stress testing on the Philippines Agusan pilot as it is the most advanced pipeline opportunity in terms of due diligence completed, meaning that the project-specific assumptions such as size, feasible credit types, and assumed annual operating costs are likely the most accurate. Still, given that due diligence is still required (and currently underway), monitoring, reporting, and verification (MRV) costs were estimated to be between USD 600,000 and USD 800,000 annually. These details are summarized in Table 3.

Table 3: Financing assumptions for agusan project-level stress testing

Capital Type	Terms & Notes	%	Low MRV Costs ($600k/yr)	High MRV Costs ($800k/yr)
Bond	7% coupon, principal repaid in year 10	50%	USD $2,750,000	USD $3,250,000
Mezz.	7% interest, principal repaid in year 3, 15% senior claim on free cashflows for full	25%	USD $1,375,000	USD $1,625,000

	project life up to USD $3 million cap			
Equity	Contributed by Forest Carbon and other partners	25%	USD $1,375,000	USD $1,625,000
Total Upfront Capital Required for the first 3 years:			**USD $5,500,000**	**USD $6,500,000**

Modeled over the same 10-year project timeline, the low MRV scenario results in a projected equity IRR of **22.24%**; for the high MRV scenario, the equity IRR is **17.87%.**

Delving deeper, Table 4 below compares the resulting equity IRRs for both scenarios across a range of possible REDD+ credit prices (the credit type providing the majority of project revenues) and interest rates charged on debt capital (bond and mezzanine). Unsurprisingly, reductions in the price for REDD+ credits sold have a major impact on equity IRR, but the impact of this change on the project's overall feasibility depends significantly on the op-ex assumed. In the low op-ex scenario, credit prices could drop to USD 14, and if interest rates remained at 7%, the project can still afford to repay all debt obligations as planned – most notably, the mezzanine principal repayment occurs in Y3. Credit prices could drop to USD 10, and although the project would not have sufficient cash to cover the mezzanine principal repayment in Y3, revenues in later years could likely cover this principal and the additional interest required.

This is not the case for the high MRV scenario – in this case, even with credit prices at USD 15 or USD 16, interest rates increasing just 1-2% above the base case of 7% makes Y3 mezzanine repayment impossible. If credit prices drop to USD 11 or below, the project cannot afford this repayment at any point. These findings suggest that proponents should aim to ensure suitably high prices for REDD+ credits, particularly if project MRV expenses end up at the higher end of current estimates.

Table 4: Impacts of credit price & interest rate on equity IRR in low MRV vs high MRV scenarios

Low-MRV Scenario: USD $600K/year

		REDD+ Credit Price*						
		$16	$15	$14	$13	$12	$11	$10
Interest Rate	**5%**	22.84%	21.04%	19.19%	17.04%	14.46%	11.23%	6.83%
	6%	22.54%	20.71%	18.81%	16.59%	13.91%	10.50%	5.76%
	7%	22.24%	20.36%	18.41%	16.12%	13.32%	9.73%	4.60%
	8%	21.94%	20.01%	18.00%	15.63%	12.71%	8.90%	3.30%
	9%	21.63%	19.65%	17.58%	15.12%	12.07%	8.02%	1.83%
	10%	21.31%	19.28%	17.14%	14.59%	11.39%	7.06%	0.15%
	11%	20.98%	18.90%	16.69%	14.04%	10.67%	6.02%	-1.83%
	12%	20.64%	18.50%	16.23%	13.46%	9.91%	4.88%	-4.26%
	13%	20.30%	18.10%	15.74%	12.86%	9.10%	3.61%	-7.40%
	14%	19.95%	17.68%	15.24%	12.22%	8.23%	2.19%	-11.97%

High-MRV Scenario: USD $800K/year

		REDD+ Credit Price*						
		$16	$15	$14	$13	$12	$11	$10
Interest Rate	**5%**	18.68%	16.81%	14.62%	11.97%	8.61%	3.92%	-4.15%
	6%	18.28%	16.34%	14.07%	11.29%	7.70%	2.54%	-7.27%
	7%	17.87%	15.86%	13.49%	10.57%	6.72%	0.97%	-11.76%
	8%	17.44%	15.36%	12.89%	9.80%	5.64%	-0.86%	-20.39%
	9%	17.00%	14.85%	12.25%	8.98%	4.46%	-3.06%	NV**
	10%	16.54%	14.31%	11.59%	8.10%	3.15%	-5.82%	NV**
	11%	16.07%	13.74%	10.88%	7.15%	1.67%	-9.59%	NV**
	12%	15.58%	13.15%	10.13%	6.11%	-0.04%	-15.71%	NV**
	13%	15.07%	12.53%	9.33%	4.98%	-2.07%	NV**	NV**
	14%	14.54%	11.88%	8.48%	3.73%	-4.55%	NV**	NV**

- Viable IRR; all planned debt commitments payable
- Mezzanine principal repayment not possible in Y3, but feasible in later years
- Mezzanine principal repayment not possible, project unviable

* Credit prices assumed at Y0, with 2% YoY increase
** Indicates non-viable (non-calculable) IRR

4.2 PRIVATE FINANCE MOBILIZATION AND REPLICATION POTENTIAL

Forest Cabon aims to raise USD 100 million to finance one million hectares of forest and wetland ecosystems portfolio while generating significant financial returns for debt and

equity providers. A USD 100 million cost to protect or restore one million hectares implies a per-hectare investment requirement of USD 100.

To assess the potential for replicating and scaling the instrument, either with Forest Carbon or through other conservation and restoration organizations that might adopt a similar approach, it is useful to consider the staggering rates of ecosystem loss occurring worldwide. According to World Research Institute (WRI) data, 2023 saw the deforestation of approximately 2.6 million hectares of tropical forest in Southeast Asia alone. These vital forest areas – whether already deforested or vulnerable to deforestation in the coming years – can reasonably be considered potential targets for regenerative business models funded by environmental markets, using the approach promoted by Forest Carbon and the Structured Finance for Nature instrument. Assuming an annual pipeline of 2.6 million hectares, along with an approximate investment requirement of USD 100 per hectare, there is immediate potential to deploy USD 260 million of investment – on an annual basis – in Southeast Asia alone.

Furthermore, as previously mentioned, a key component of the SFN capital structure is the Model Forests and Biodiversity Bond, which - as a bond transaction – naturally lends itself to replication. Keen to operate as a market enabler and deeply committed to the conservation of intact ecosystems, Forest Carbon intends to actively promote and share materials, frameworks, and learnings related to the pilot issuance to encourage replication by other actors in the space. In doing so, Forest Carbon and its instrument can play a critical role in providing an investment-worthy alternative to the astonishing levels of ecosystem degradation and destruction today.

5. ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACT

Structured Finance for Nature (SFN) is designed to deliver substantial environmental and socio-economic benefits, extending beyond carbon removal to enhance community resilience and mitigate climate change impacts.

The environmental and socio-economic impacts of SFN's projects will vary depending on their location, size, and scope. A key initiative is the Agusan pilot in the Philippines, which focuses on restoring a 91,000-hectare community forest in Agusan del Sur. This forest is strategically situated as a crucial buffer around the globally significant Agusan Marsh Wildlife Sanctuary, playing a vital role in preserving the region's biodiversity and ecological balance. This project anchors a portfolio that will protect and restore critical areas of primary forest, freshwater wetlands, peatland areas, and degraded forest areas with high biodiversity, reaching over one million hectares.

5.1 ENVIRONMENTAL IMPACT

SFN's environmental impact encompasses the Agusan pilot and pipeline projects across multiple countries.

5.1.1 AGUSAN PILOT

The project aims to reduce approximately 296,000 tCO_2e emissions and remove 6,400 tCO_2e annually. This estimate is based on a conservative approach, assuming a 3% annual

deforestation rate, satellite biomass data from Avitable (2016), and long-term average carbon stock projections over 58 years beginning from 2018 (backdated vintage years). Standard tree regrowth rates per IPCC guidelines are considered for afforestation, reforestation and revegetation (ARR), or carbon removal estimates. Total credit projects have considered a 20% non-permanence risk buffer. The project is expected to achieve approximately 256,000 tCO_2e in emissions removals from restoring degraded areas and 11,840,000 tCO_2e in avoided emissions from forest conservation over the 40-year lifetime, or about 12 million tCO_2e.

The Agusan pilot will also protect more than 6 critically endangered species, and 34 endangered and vulnerable species listed by the International Union for Conservation of Nature (IUCN). The climate mitigation and adaptation impact of the Agusan pilot are explained in more detail below:

- **Climate Mitigation.** The project will not only sequester CO2 but also prevent further emissions through long-term habitat protection. Reforestation efforts are expected to capture hundreds of thousands of tons of CO2 over the project's lifespan. The project will also protect critical biodiversity hotspots around the Agusan Wildlife Sanctuary and enhance the forest's role in maintaining ecological balance. This approach not only mitigates climate change but also supports ecosystem services crucial for long-term ecological stability and community resilience.
- **Climate Adaptation.** The project aims to boost local resilience to climate change by actively managing a large forest and wetland area. Restoration will enhance watershed health, mitigating risks of flooding and soil erosion, which is vital due to the region's vulnerability to extreme weather. Reforestation will stabilize microclimates, regulate temperature, and improve the forest's ability to support agricultural livelihoods and forest-dependent communities.

5.1.2   PORTFOLIO COMPOSITION AND FUTURE PIPELINE

Once fully funded, the SFN portfolio assets will span the Philippines, Cambodia, Bhutan, Malaysia, and Indonesia, reaching one million hectares. This portfolio will collectively avoid approximately 2.5 million tCO_2e annually and remove over 200,000 tCO_2e, totaling 2.7 million tCO_2e in annual emissions reductions. If scaled to 100 million hectares, these projects could reduce emissions by 86 million tons annually, which is 1.6 times the annual emissions of New York City (2022 data). The portfolio will also protect around 400 endangered and vulnerable species. Annex D summarizes the estimated environmental impacts of projects in the Philippines, Cambodia, Bhutan, and Indonesia.

SFN will use Rio Markers[4] to assess and categorize development projects based on their contributions to climate change adaptation, mitigation, and biodiversity conservation. Annex E illustrates how SFN assesses Rio Marker scoring, which aligns with expectations from the anticipated anchor bond investor FMO.

5.2 SOCIAL AND ECONOMIC IMPACT

SFN is designed to deliver significant socio-economic benefits, as reflected in its benefit-sharing vision and strategy, which are found in Annex F.

5.2.1 AGUSAN PILOT

The pilot project in the Philippines will invest a minimum of 20% share of all equity distributions over the life of the project – estimated to deliver approximately USD 13 million into community forestry for local and indigenous communities. In addition to funding community forestry, community-identified benefits will support education, healthcare, infrastructure, and sustainable land use practices. The anticipated impacts on beneficiaries and job creation are detailed in Table 5. The total number of beneficiaries is inclusive of people provided with employment, livelihood support, and access to healthcare and education.

Table 5. Pilot project's number of beneficiaries and job distribution by gender

Socio-economic Indicator	Number of Beneficiaries/Jobs
Total Beneficiaries	4,000
Total Jobs Created	630
Jobs Created for Males	315
Jobs Created for Females	315

Annex G shows preliminary estimates based on demographic data and the pilot project's geographic scope. This suggests a total community benefit averaging USD 3,250 per person. Accurate figures will require further site surveys and socioeconomic analysis in the coming months.

5.2.2 WIDER PORTFOLIO AND ANTICIPATED PIPELINE

All projects in the pipeline across the Philippines, Cambodia, Bhutan, and Indonesia will have a substantial socio-economic impact, benefiting over 20,000 individuals and creating about 5,000 jobs through employment and skill development, as detailed in Annex H.

SFN's benefit-sharing mechanism is projected to deliver approximately USD 480 million to local and indigenous communities over the 40-year portfolio lifespan. Because women are disproportionately affected by climate change due to their reliance on natural resources for food, water, and fuel and are more vulnerable to climate-related health risks, SFN projects will incorporate a gender-sensitive approach, ensuring that women are equitably represented and benefit from all stages of project design, implementation, monitoring, and evaluation. This includes providing employment opportunities and capacity-building in forest management and data collection areas.

All estimates of environmental and socio-economic impacts are based on country and project-specific assumptions detailed in Annex I. These estimates will be validated through surveys conducted at each project site.

Sustainable Development Goals (SDGs). The projects in the pipeline advance multiple SDGs by enhancing economic stability and reducing inequalities (SDGs 1, 10), improving food

security and gender equality (SDGs 2, 5), generating local employment (SDG 8), and contributing to climate action and biodiversity (SDGs 13, 15), as detailed in Table 6 below:

Table 6. SDGs targeted

SDG	Description
1: No Poverty	Community benefits sharing and capacity building enhance economic stability for marginalized groups.
2: Zero Hunger	Job creation and capacity building contribute to reducing food insecurity in the community.
5: Gender Equality	SFN will enhance livelihood opportunities specifically for women.
8: Decent Work and Economic Growth	The project will generate local employment and provide shared community benefits.
10: Reduced Inequalities	SFN will uplift and empower impoverished and marginalized communities.
13: Climate Action	SFN will finance projects that generate verified carbon credits to combat climate change.
15: Life on Land	ARR and REDD projects will support biodiversity and mitigate climate change impacts.

Impact Measurement and Monitoring. SFN will tailor the impact outcomes to each unique ecosystem asset in the portfolio and monitor them accordingly. The performance indicators and the proposed measurement are found in Annex J.

NEXT STEPS

After Lab endorsement, the SFN will hire an international law firm with expertise in drafting bond issuance documents and establishing a trustee company in Singapore. The firm will advise on private placement offerings and marketing in key jurisdictions (e.g., the US, Europe, Japan, etc.) and finalize key investment agreements.

Once documentation is in place, Forest Carbon will close the bond and mezzanine tranches of the instrument, securing USD 75 Million to complement equity from the first close. Proceeds will support the project development of the initial pipeline and support securing additional identified ecosystem protection and restoration assets. During the second close, Forest Carbon will begin operations for the Agusan pilot and implement a comprehensive Environmental and Social Management System (ESMS) and Community Development Plan (CDP) tailored to the Manobo Indigenous Peoples, focusing on managing environmental impacts and promoting community engagement.

REFERENCES

Paulson Institute, The Nature Conservancy, Cornell Atkinson Center for Sustainability. 2020. Financing Nature: Closing the Global Biodiversity Financing Gap. Paulson Institute. Available from: https://www.paulsoninstitute.org/conservation/financing-nature-report/

Asian Bonds Online 2023. Seeking Certification or Recognition. Factsheet 9. Available from: https://asianbondsonline.adb.org/green-bonds/gbfactsheet9.html

PwC. 2023. Accelerating Finance for Nature: Barriers and recommendations for scaling private sector investment. The Case for a Nature Finance Accelerator. Available from: https://www.pwc.com/gx/en/nature-and-biodiversity/nature-fin-accelerator-mode.pdf

UNESCO World Heritage Centre. 2024. Permanent Delegation of the Philippines to UNESCO. Agusan Marsh Wildlife Sanctuary. Available from: https://whc.unesco.org/en/tentativelists/6716/

Ilham Diwi Rafiqi and Nikmah Mintari. 2024. Comparison of Carbon Trading in Asean Countries: An Explanation from a Policy Perspective. Available from: https://doi.org/10.37253/jlpt.v9i1.9044

Watson JE, Evans T, Venter O, Williams B, Tulloch A, Stewart C, et al. 2018. The exceptional value of intact forest ecosystems. *Nature Ecology & Evolution*. Available from: https://doi.org/10.1038/s41559-018-0490-x

World Economic Forum. 2023. What does it take to restore forests at scale?. Available from: What does it take to restore forests at scale? | World Economic Forum (weforum.org)

Terraformation. 2023. Financing Forests: How to unlock capital for large-scale restoration. Available from: New Innovation in Forest Finance Needed to Deliver Global Climate Goals | Terraformation Blog

World Resources Institute. 2016. 3 Steps Toward Growing the Funds for Restoration. Available from: 3 Steps Toward Growing the Funds for Restoration | World Resources Institute (wri.org)

Chunyu Pan, Anil Shrestha, John L. Innes, Guomo Zhou, Nuyun Li, Yeyun He, Chunguang Sheng, John-O. Niles and Guangyu Wang. 2022. Key challenges and approaches to addressing barriers in forest carbon offset projects. *Journal of Forestry Research*. Available from: Key challenges and approaches to addressing barriers in forest carbon offset projects | Journal of Forestry Research (springer.com)

Von Hedemann N, Wurtzebach Z, Timberlake TJ, Sinkular E, Schultz CA. 2020. Forest policy and management approaches for carbon dioxide removal: forest policy and management for CDR. Available from: Forest policy and management approaches for carbon dioxide removal - CDR Law

World Bank. 2022. Scaling Up Ecosystem Restoration Finance: A Stocktake Report. Available from: Scaling Up Ecosystem Restoration Finance: A Stocktake Report (worldbank.org)

London School of Economics and Political Science. 2023. The Verra scandal explained: Why "avoided deforestation" credits are hazardous. Available from: The Verra scandal explained: Why "avoided deforestation" credits are hazardous | LSE International Development

Verra registry. 2019. Verified Carbon Standard Project 1899. Available from: Verra Search Page

European Parliament. 2020. Forests in south-east Asia: Can they be saved? Available from: https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/652068/EPRS_BRI(2020)652068_EN.pdf

Convergence. 2019. TLFF Sustainability Bond Case Study. Available from:
Convergence_TLFF_Sustainability_Bond_Case_Study_2019_1_.pdf (ctfassets.net)

The Global Innovation Lab for Climate Finance. 2022. The Fund For Nature. Available from: The Fund for Nature | The Global Innovation Lab for Climate Finance (climatefinancelab.org)

International Finance Corporation. 2023. IFC Issues Innovative $152 Million Bond to Protect Forests and Deepen Carbon-Credit Markets. Available from:
https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=25834

Conservation International. IFC Forest Bond Factsheet. Available from:
https://www.conservation.org/docs/default-source/peru/forests-bond_factsheet.pdf?Status=Master&sfvrsn=867eadb8_3

ANNEX A

Methodologies and standards for the issuance of environmental credits

- **High Quality Carbon Removals - Forest Restoration (40%)**
    - Tropical Forest Restoration: Verra VM0047 (ARR: Afforestation, Reforestation, and Restoration)
    - Jurisdictional Forest Restoration, Bhutan: ART TREES 2.0 (Jurisdictional enhancement of carbon stocks)
    - Community agroforestry: (Open Forest Protocol and Plan Vivo)
- **Carbon Reduction - Conservation of High Biodiversity and Intact Forest Areas (30%)**
    - Improved Forest Management (IFM): Verra logged to protected (VM0010)
    - Avoided Unplanned Deforestation: Verra's new methodology with jurisdictional baselines for forest areas with community-driven degradation - VM0048
    - Avoided Degradation from Peatland Fires: Verra's new standalone Peatland methodology that will be released in 2025
    - Avoided Planned Deforestation: Prevention of government approved conversion to pulp/paper, palm oil, mining, or rubber plantations - VM0007
- **Intact Ecosystems (30%) - Biodiversity or In setting Payments (30%)**
    - Verra's new [Nature Frameworks](#) for AFOLU and Marine conservation (note FC is running the first pilot for this in SE Asia)
    - ART TREES - High Forest Low Deforestation (HFLD)
    - WCS HiFor (for applicable areas that meet their definition)
    - LandBanking Group - Natural Capital Accounts
    - Intrinsic Exchange - Natural Asset Accounting Framework
    - Payments for ecosystem services on a per-hectare basis

ANNEX B

Rationale for Country Selection

Philippines

- **Country Context**. The Philippines ranks #8 globally for forest loss, experiencing a significant decline of 252,000 hectares annually from 2010 to 2020. It possesses 8 million hectares of forests and 560,000 hectares of rubber plantations, making it suitable for Integrated Forest Management (IFM) strategies.
- **Justification**. The project in Agusan Community Forest aims to restore a 91,000-hectare area to combat deforestation caused by logging and agriculture, particularly safeguarding the Agusan Marsh Wildlife Sanctuary. This particular site is a prime candidate for its project additionality, with the involvement of existing indigenous communities for community-based forest management, protection of a high-sequestering carbon sink with significant biodiversity value, and large enough to act as a buffer in mitigating impacts of climate change.

Cambodia

- **Country Context**. Cambodia's Aural Wildlife Sanctuary project targets an area with 98% forest cover, including primary forests hosting endangered species. Cambodia

also has a robust NBS Sector and has obtained an MoU that allows it to sell credits to the Singaporean compliance market.

- **Justification**. By protecting 123,000 hectares around Phnom Aural, the project contributes to biodiversity conservation and aligns with Cambodia's national strategy, generating 350,000 REDD credits annually.

Bhutan

- **Country Context**. Bhutan maintains 2.68 million hectares of intact forest, covering 69% of its land, with minimal deforestation rates. The constitution of Bhutan mandates that at least 60% of forest cover is maintained in perpetuity. It has experienced no significant forest loss between 2019 -2023. Additionally, in 2018, Bhutan for Life (BFL) was established - the first Project Finance for Permanence (PFP) in Asia with a $43 million fund, which aims to bolster and fund the country's network of Protected Areas for the purposes of conservation, social well-being, and climate resilience. Under BFL, the Royal Government of Bhutan collaborated with WWF on a project to improve the implementation of Community Based Forest Resource Management (CBFRM) for improved livelihoods. Per 2023, more than 800 CBFRM groups were established over 100,000 ha of Forest Area.
- **Justification**. The High Forest, Low Deforestation project aims to preserve Bhutan's high-integrity forests, expecting to generate 300,000 ART TREES credits annually and reinvest in community-based restoration efforts. 62% of Bhutan's population is rural and dependent on the forest for their livelihoods, providing a significant opportunity for sustainable forest management interventions to decrease forest emissions. There exists about 66,000 ha of fallow land that can be targeted for ARR.

ANNEX C

Detailed Description of the Pilot and Other Projects in the Pipeline

Pilot Project: AGUSAN COMMUNITY FOREST, PHILIPPINES

- **Location**: Agusan del Sur, Mindanao, Philippines
- **Project Overview**: Restores a 91,000-hectare community forest to mitigate threats such as logging, watershed degradation, and industrial agriculture. The project forms a protective buffer around the globally significant Agusan Marsh Wildlife Sanctuary.
- **Impact**: Over the past decade, 12,000 hectares of the forest have been deforested.
- **Carbon Credits**: The project anticipates significant revenue from carbon credits, which will fund initiatives to grant Indigenous Peoples community land rights.
    - **Size**: 91,000 hectares
    - **First Credits**: Projected in 2026
    - **Annual Average Removal Credits**: 8,000
    - **Annual Average Avoidance Credits**: 370,000
    - **Total Credits Projection (40 years)**: 12 million

Other Projects in the Pipeline

1. **Project: AURAL WILDLIFE SANCTUARY, CAMBODIA**
- **Location**: Aural Province, Cambodia

- **Project Overview**: Protects 123,000 hectares surrounding the Phnom Aural wildlife preserve, establishing a critical buffer zone around Cambodia's highest mountain.
- **Environmental Context**: The area boasts 98% forest cover, including significant primary forests hosting endangered species.
- **Government Integration**: Fully integrated into Cambodia's national strategy, ensuring jurisdictional alignment.
- **Carbon Credits**: The project anticipates generating 350,000 REDD credits annually under VM0048.
  - **Size**: 123,195 hectares
  - **First Credits**: Projected in 2026
  - **Annual Average Removal Credits**: 2,000
  - **Annual Average Avoidance Credits**: 175,000
  - **Total Credits Projection (30 years)**: 5,310,000
  - **Annual Average Credits**: 177,000
- **Land Cover**:
  - Forest: 98%
  - Non-Forest: 2%
1. **Project: HIGH FOREST, LOW DEFORESTATION IN BHUTAN**
- **Location**: Bhutan, covering 2.68 million hectares of intact forest
- **Project Overview**: This initiative aligns with Bhutan's national strategy to preserve high-integrity forests. The project focuses on generating jurisdictional credits that reward the government for maintaining forest integrity.
- **Financial Strategy**: Funds generated from credits will be reinvested into community-based restoration efforts, leveraging a proven model to enhance carbon removal capabilities.
- **Carbon Credits**: The project anticipates generating 300,000 credits annually under ART TREES with a High Forest Low Deforestation (HFLD) designation.
  - **Size**: 2.68 million hectares, with an estimated 500,000 hectares crediting area
  - **First Credits**: Projected in 2026
  - **Annual Average HFLD Credits**: 275,000
  - **Annual Average Removal Credits**: 41,600
  - **Total HFLD Credits (20-year project lifetime)**: 5,500,000
  - **Total Removal Credits (40-year project lifetime)**: 1,664,000
  - **Annual Average Credits**: Approximately 310,000
- **Land Cover**:
  - Forest: 69.7% (2.68 million hectares)
  - Non-Forest: 30.3% (1.31 million hectares)

3. **Project**: **ESPN**

Location: West Papua, Indonesia

Project Overview: The project aims to protect a 170,000 hectare logging concession in Kaimana, West Papua.
- **Critical Conservation Asset:** The site is at the center of a globally important terrestrial and marine conservation area
- **Old Growth Forest Under Threat:** 18,000 hectares have already been logged (143,000 m3) - creating a path for further degradation

- **Potential the next flagship:** Securing this area with environmental markets would position our company as a global leader in protecting intact forests

  Financial Strategy:
- **Carbon Credits:**
  - **Size**: 170,000 ha
  - **Restoration (ARR) Credits:** 500,000
  - **IFM Credits:** 35,900,000
  - **Total Credits (40 years project lifetime):** 36,400,000
  - **Annual avg Credits:** 900,000
  - **Annual avg per ha:** 5.2
- **Land Cover:**
  - **Forest:** 96%; **Non Forest:** 4%

4. Project: ANNIE

Location: Aceh Besar, Pidie, Indonesia

Project Overview:
- The large project area has high biodiversity values due to its proximity to major protected areas.
- It borders 3 protected areas:

  ○ Pocut Meurah Intan Grand Forest Park

  ○ Jantho Nature Recreation Park

  ○ Jantho Pine Nature Reserve

- High chances of Sumatran orangutans, elephants, and tigers inhabiting the area.
- **Carbon Credits:**
  - **Size**: 97,907 ha
  - **Restoration (ARR) Credits:** 3,417,143
  - **REDD Credits:** 1,720,205
  - **WRC Credits:** -
  - **Total Credits (30 years project lifetime):** 5,137,348
  - **Annual avg Credits:** 171,245
  - **Annual avg per ha:** 1.75
- **Land Cover:**
  - **Forest:** 19%; **Non Forest:** 81%

5. Project: JELLO

Location: Kapuas Hulu, West Kalimantan, Indonesia

Project Overview:
- Located along the Kapuas Hulu river, the longest river in Indonesia the site has high conservation values both for biodiversity and community.
- The project will give benefits to the surrounding Dayak tribe communities.
- High-quality forest with a material restoration component, small manageable area.
- **Carbon Credits:**
  - **Size**: 16,995 ha
  - **Restoration (ARR) Credits:** 878,940

- o **REDD Credits:** 2,316,003
- o **Total Credits (30 years project lifetime):** 3,194,942
- o **Annual avg Credits:** 135,796
- o **Annual avg per ha:** 6.27
- **Land Cover:**
  - o **Forest:** 59%; **Non Forest:** 41%

ANNEX D

Estimated environmental impact of all projects in Philippines, Cambodia, Bhutan, and Indonesia

Environmental Indicator	Philippines	Other Pipeline Projects	Total
Area of land under improved management (Ha)	91,000	909,000	1,000,000
Reduction in GHG Emissions (Avoidance) - Annual Average (tCO2e)	370,000	2,138,750	2,508,750
Reduction in GHG Emissions (Removals) - Annual Average (tCO2e)	8,000	248,200	256,200
Total Annual GHG Emissions Reductions (ERs)	**378,000**	**2,386,950**	**2,764,950**
Annual Average Avoidance Credits (VCUs)	296,000	1,785,000	2,081,000
Annual Average Removal Credits (VCUs)	6,400	203,600	210,000
Total Credits Generated over 20/30/40-year project lifetime (VCUs)	**12,096,000**	**72,274,000**	**84,370,000**
IUCN Critically Endangered species within project boundaries (# of species)	6	59	65
IUCN Endangered or Vulnerable species within project boundaries (# of species)	34	293	327

ANNEX E

SFN's Rio Marker Scoring

The Rio Markers are a set of criteria developed by the Organization for Economic Co-operation and Development (OECD) to assess and categorize development projects based on their contributions to climate change adaptation, climate change mitigation, and biodiversity conservation. The markers help track how different projects contribute to these environmental goal

SFN scores potential projects with either a 1 (a significant objective) or 2 (the principal objective) of the action for the following three Rio Markers, including:

1. Climate Change Adaptation – 1

2. Climate Change Mitigation – 2

3. Biodiversity – 2

Detailed information on how the portfolio supports the scoring below:

Biodiversity (score of 2)

SFN aims to dedicate 60% of the capital deployed to the following principles, all of which support the Rio Marker for Diversity. The remaining 40% of the portfolio will also prioritize high biodiversity areas for restoration, justifying the score of 2.

1. Habitat Protection by Focusing on Intact Ecosystems. SFN is actively targeting preventable habitat fragmentation by allocating more than half of the capital across intact ecosystems. This is contrary to the current flow of capital in the SPV's sector.

2. Inclusion of tropical peatlands, coastal mangroves and freshwater wetlands. Wetlands serve as vital carbon sinks and support rich biodiversity particularly for birds. These ecosystems are under threat from deforestation, unsustainable agricultural practices and coastal degradation. By protecting and prioritizing these areas, the SPV can hit a greater combination of all three markers.

3. Prioritization by IUCN listed species. Areas with the highest biodiversity value in the portfolio get ranked at the top of SPV's pipeline list – not those with the highest IRR.

4. Progressing the Market. There is significant pent up capital to deploy to prevent further biodiversity loss without a clear vision of how to make it work. The SPV aims to generates30% of the revenue across the portfolio from a business model other than carbon credits, to enjoy a wider valuation of ecosystem services. This may or may not take the form of biodiversity credits.

Climate Change Mitigation (Score of 2)

SFN marks 2 for this Rio Marker as the projects aim to both prevent the loss of current sinks while increasing removal capacity.

- **Carbon Sequestration through Wetlands:** Peatland and other wetlands are critical for carbon sequestration. These assets prevent substantial greenhouse gas (GHG) emissions by stopping fires and further degradation.

- **Restoration of Critical Sinks:** The portfolio includes large-scale restoration projects in peatlands, mangroves, and rainforests, which are among the most carbon-rich ecosystems on the planet, and absorb critical gasses like methane.

- **Community Land Use Improvement:** Our community-based initiatives include sustainable agriculture and forestry management, reducing the pressures on forests from expansion of smallholder or commercial agriculture. This boosts our efforts to simply maintain the carbon storage potential of our current forests.

- **Avoidance of GHG Emissions:** Avoided emissions focus on credible threats to ecosystems that can be verified through straightforward assessments. Projects aim to prevent the conversion of large forest areas into palm oil, pulp and paper, rubber, or selective logging plantations, thereby avoiding the accelerated release of stored carbon into the atmosphere.

Climate Change Adaptation (Score of 1)

- **Improving Ecosystem Resilience to Climate Shocks:** Our projects focus on climate adaptation strategies that mitigate the impacts of climate shocks. For example, coastal mangrove restoration projects act as natural barriers against sea-level rise and coastal erosion, while peatland rehabilitation reduces the risk of fires exacerbated by climate change.
- **Transition away from unsustainable agriculture:** Our restoration projects support transitions away from unsustainable agriculture and fishing practices by introducing climate-smart livelihoods. These initiatives not only protect the environment from further degradation but also provide economic stability, particularly by offering alternative opportunities during uncertain rainy seasons, thus reducing reliance on resource-depleting activities.
- **Economic and Social Buffers:** Through sustainable land use and ecosystem management, our projects generate multiple co-benefits, improved well-being, health, education and economic outcomes. By providing jobs and income sources, such as sustainable fisheries and agroforestry, we address both the environmental and socio-economic aspects of climate resilience.

ANNEX F

SFN's Benefit Sharing Vision and Strategy

SFN's Vision: We believe that our community relationships will require more data, better monitoring, and more transparency to support the next generation of environmental markets. Overall, we're seeking to lead the industry on benefit sharing by:

- **A portfolio wide commitment:** Our financial models and investment agreements allocate a minimum of 20% of all free cash flow (earnings before tax and interest) to benefit sharing. We strive to go beyond this minimum commitment wherever possible.
- **A robust team:** We have a dedicated ESMS manager and a dedicated community lead for each asset. We hire a supermajority (70-80%) of local staff onsite to ensure we have strong connections with Indigenous and local community members.
- **New and emerging technologies:** For community forestry, we are looking into digital and financial payment systems for off-grid communities to provide more robust and transparent data on benefit distribution and impact.
- **Catalytic capital:** We avoid unconditional cash payments, as we believe this does not position the project for long-term success. If benefits are not tied to the ecological (and therefore financial) progress of the project, there is no aligned incentive for a deep partnership that properly values the ecological value of the land. While we do fund basic health, education and employment initiatives, these efforts can often be funded for far less than the total 20% of free cash flow available. The balance is deployed into initiatives that expand the overall area under management and can generate additional revenue streams for communities, like in the Kepayang community forest example above. We believe it is critical that the benefit sharing mechanism aligns incentives for a regenerative economic model. By doing so we establish a real value for ecosystem services within these communities and ensure long-term ecosystem protection.

For capital deployed from the SPV:

The benefit sharing strategy is highly contextual and depends on the entity that holds the land rights. Thus, we have established a set of core principles that are well aligned with leading standards and FMO's principles. These are:

- **Deep Diligence on the Land and Ownership Rights:** This is a core part of the earliest stages of our due diligence and the process to audit and issue environmental credits from new projects. This is critical to ensure we establish the right relationship, manage risks and design benefit sharing mechanisms effectively. This process helps us evaluate pre-investment risk and establish an early stakeholder map. All documented and potential land rights claims are evaluated at this stage, validated by an external assessment to ensure we have correctly identified all relevant stakeholders.
- **Ensuring Free and Prior Informed Consent (FPIC):** In line with our policies and vision above, we view FPIC as an ongoing process, not just something that is conducted at the beginning of the project.
- **Transparency and Inclusivity**: Our benefit sharing interventions are developed through participatory processes involving consultations with all relevant stakeholders, including vulnerable groups and indigenous peoples. We make all project decisions publicly available, including through frequent community meetings for individuals that cannot read or write.
- **Regular Monitoring and Reporting:** We ensure compliance and address any issues that arise, as part of the broader monitoring and evaluation framework within the ESMS. Evidence communities are fairly benefiting is tracked from through a community well-being survey that ensures we capture the overall effect of the project on communities over time compared with a baseline. This is coupled with frameworks that ensure benefits are distributed equitably and requirements to

monitor individual interventions to ensure that they are having their intended outcome.

- **A Tailored Approach**: During due diligence on new projects, we spend significant time and resources to tailor the benefit sharing agreements to the specific needs and contexts of the communities involved, outlining the distribution of benefits derived from the carbon credits. Therefore, we do not have a "one size fits all" agreement that we apply across our portfolio. Much depends on the entity that holds the land rights for the project area, and whether the areas are privately held or community owned.

ANNEX G

Estimation of Total Beneficiaries and Job Creation by Demographic Group

Total Beneficiaries. The conservative estimate of 4,000 beneficiaries is derived from the fact that the population directly reliant on the Agusan Marsh Wildlife Sanctuary is approximately 15,000 people. Given that the project covers less than 10% of the province's total area and considering that most settlements are outside the project boundaries but within a 20-50 km radius, the total number of beneficiaries is estimated at around 4,000. This number represents about 1% of the total population of Agusan del Sur (739,367), adjusted to reflect the project's geographical and demographic focus.

Jobs Created for Males. The estimate of 315 jobs for males is based on the number of people that can be provided with employment either directly for the project or indirectly, projected based on the size of the site area and compared to the employment numbers on the current portfolio. Indirect employment include jobs created for community facilities built through the project's community investment, and capacity building such as through training and livelihood support. This figure is aligned with the percentage of males in the working-age group (20-64), which is 194,599 out of the total population, and accounting for the project's scale and geographic reach.

Jobs Created for Females. Similarly, the estimate of 315 jobs for females is based on projected figures for direct and indirect employment in relation to the size of the project. This figure is aligned with the percentage of females in the working-age group (ages 20-64), which is 174,308 out of the total population, and with the project's objective to offer employment opportunities that reflect the demographic distribution.

ANNEX H

Estimated number of beneficiaries and jobs created for subsequent projects in Cambodia, Bhutan and Indonesia.

Beneficiaries/Job Creation	Philippines	Other Pipeline Projects	Total
Total Beneficiaries	4,000	19,600	23,600
Total Jobs Created	630	4,640	5,270
Jobs Created for Males	315	2,252	2,567
Jobs Created for Females	315	2,176	2,491

ANNEX I

Country and Project-Specific Assumptions for Impact Estimates in Philippines, Cambodia, Indonesia and Bhutan

Philippines		
Impact Indicator	**Estimated Impact**	**Notes/Assumptions**
Area of land under improved management (Ha)	91,000	Mapping of site boundary
Reduction in GHG Emissions (Avoidance) - Annual Average (tCO2e)	370,000	Technical Assessment based on carbon stock data
Reduction in GHG Emissions (Removals) - Annual Average (tCO2e)	8,000	Technical Assessment based on carbon stock data
VCUs Generated (Avoidance) - Annual Average (VCUs)	296,000	20% risk buffer applied
VCU/ha/yr (Avoidance) (VCUs)	3.35	Avoidance VCUs per total Ha Forest
VCUs Generated (Removals) - Annual Average (VCUs)	6,400	20% risk buffer applied
VCU/ha/yr (Removals) (VCUs)	2.34	Removals VCUs per total Ha of non-forest
Total VCUs per hectare per year (VCUs)	5.69	Total VCU/ha/year avoidance and removals
Total VCUs over 40-year project lifetime (VCUs)	12,096,000	Total estimated credits generated by project
Number of people employed by the project (# of people)	180	1 person per 500 hectares (conservative estimate extrapolated from current portfolio); number rounded down
Number of people provided with employment, trainings, and livelihood support (# of people)	459	1 person per 200 hectares (conservative estimate extrapolated from current portfolio); number rounded down
Total Job Creation for Males (# of people)	315	50% of total jobs created, based on male female ratio according to population data
Total Job Creation for Females (# of people)	315	50% of total jobs created, based on male female ratio according to population data
Total number of beneficiaries (inclusive of no 7. and 8, in addition to other benefits such as clean water access and healthcare) (# of people)	4,000	Derived from Agusan population data from Philippines Govt Website, publicly available information on number of people dependent on Agusan Marsh Sanctuary.
IUCN Critically Endangered species within project boundaries (# of people)	6	IUCN Red list data
IUCN Endangered or Vulnerable species within project boundaries (# of people)	34	IUCN Red list data

CAMBODIA		
Impact Indicator	**Estimated Impact**	**Notes/Assumptions**
Area of land under improved management	123,195	Mapping of site boundary
Reduction in GHG Emissions (Avoidance) - Annual Average	218,750	Conservative Estimate
Reduction in GHG Emissions (Removals) - Annual Average	2,500	Conservative Estimate
VCUs Generated (Avoidance) - Annual Average	175,000	Conservative Estimate, with 20% buffer applied
VCU/ha/yr (Avoidance)	1.45	Avoidance VCUs per Ha Forest
VCUs Generated (Removals) - Annual Average	2,000	Conservative Estimate, with 20% buffer applied
VCU/ha/yr (Removals)	0.81	Removals VCUs per total Ha non-forest
Total VCUs per hectare per year	2.26	Total VCU/ha/year avoidance and removals (in line with the conservative estimates based on other projects in the country which has VCUs/ha/year ranging from 1.78 - 3.2)
Total VCUs over 30-year project lifetime	5,310,000	Total estimated credits generated by project
Number of people employed by the project	240	1 person per 500 hectares (conservative estimate extrapolated from current portfolio); number rounded down
Number of people provided with employment, trainings, and livelihood support	430	1 person per 200 hectares (conservative estimate extrapolated from current portfolio); number reduced by 30% due to position of project far from settlement areas
Total Job Creation for Males	207	50% of total jobs created, based on male female ratio according to population data
Total Job Creation for Females	223	50% of total jobs created, based on male female ratio according to population data
Total number of beneficiaries (inclusive of no 7. and 8, in addition to other benefits such as clean water access and healthcare)	9,000	Derived from provincial population data on the Cambodia government national statistics website; Aural cuts across three provinces: Pursat, Kampong Speu, and Kamong Chnnang; 1% of total population from all three provinces, number further reduced by 50% due to position of project far from settlements
IUCN Critically Endangered species within project boundaries	4	IUCN Red list data
IUCN Endangered or Vulnerable species within project boundaries	12	IUCN Red list data

INDONESIA		
Impact Indicator	**Estimated Impact**	**Notes/Assumptions**
Area of land under improved management (Ha)	285,000	Total area across current pipeline (multiple sites)
Reduction in GHG Emissions (Avoidance) - Annual Average (tCO2e)	1,630,000	Combined estimate for avoidance (IFM + REDD) across different sites
Reduction in GHG Emissions (Removals) - Annual Average (tCO2e)	195,000	Combined estimate for removals across different sites
VCUs Generated (Avoidance) - Annual Average (VCUs)	135,000	Combined estimate for avoidance across different sites, done through technical assessment using carbon stock and aboveground biomass data
VCU/ha/yr (Avoidance) (VCUs)	0.70	Avoidance VCUs per Ha Forest area (192,000 Ha)
VCUs Generated (IFM) - Annual Average (VCUs)	1,200,000	From our West Papua old growth forest site (170,000 Ha)
VCU/ha/yr (IFM) (VCUs)	7.06	Avoidance VCUs per Ha IFM area
VCUs Generated (Removals) - Annual Average (VCUs)	160,000	Combined estimate for removals across different sites, done through technical assessment using carbon stock and aboveground biomass data
VCU/ha/yr (Removals) (VCUs)	1.72	Removals VCUs per total Ha of non-forest area (93,000 Ha)
Total VCUs per hectare per year (VCUs)	8.78	Total VCU/ha/year avoidance and removals
Total VCUs over 30/40-year project lifetime (VCUs)	59,800,000	Total estimated credits generated by multiple sites in Indonesia
Number of people employed by the project (# of people)	570	1 person per 500 hectares (conservative estimate extrapolated from current portfolio)
Number of people provided with employment, training, and livelihood support (# of people)	1,400	1 person per 200 hectares (conservative estimate extrapolated from current portfolio)
Total Job Creation for Males (# of people)	985	50% of total jobs created, based on male female ratio according to population data
Total Job Creation for Females (# of people)	985	50% of total jobs created, based on male female ratio according to population data
Total number of beneficiaries (inclusive of no 7. and 8, in addition to other benefits such as clean water access and healthcare) (# of people)	2,800	1 beneficiary per 100 ha of project area
IUCN Critically Endangered species within project boundaries (# of species)	10	IUCN Red list data (minimal estimate)
IUCN Endangered or Vulnerable species within project boundaries (# of species)	50	IUCN Red list data (minimal estimate)

BHUTAN		
Impact Indicator	**Estimated Impact**	**Notes/Assumptions**
Area of land under improved management (Ha)	2,680,000	Country's total forest area
Crediting Area (Ha)	~500,000	Conservative Estimate
Reduction in GHG Emissions (HFLD) - Annual Average (tCO2e)	290,000	Conservative Estimate
Reduction in GHG Emissions (Removals) - Annual Average (tCO2e)	50,700	Conservative Estimate
VCUs Generated (HFLD) - Annual Average (VCUs)	275,000	Conservative Estimate, with 5% buffer applied
VCU/ha/yr (HFLD) (VCUs)	0.11	Avoidance VCUs per Ha HFLD area
VCUs Generated (Removals) - Annual Average (VCUs)	41,600	Conservative Estimate, with 18% buffer applied
VCU/ha/yr (Removals) (VCUs)	3.47	Removals VCUs per total Ha ARR area
Total VCUs per hectare per year (VCUs)	3.57	Total VCU/ha/year avoidance and removals
Total HFLD VCUs over 20-year project lifetime (VCUs)	5,500,000	Total estimated HFLD credits generated by the project
Total ARR VCUs over 40-year project lifetime (VCUs)	1,664,000	Total estimated ARR credits generated by the project
Number of people employed by the project (# of people)	~500-1000	ART TREES HFLD Projects are done in collaboration with the national government, project employment will depend highly on the agreed upon operational plan
Number of people provided with employment, trainings, and livelihood support (# of people)	~1000-2000	ART TREES HFLD Projects are done in collaboration with the national government, job creation will depend on the agreed upon operational plan
Total Job Creation for Males (# of people)	53% of jobs created (according to country male population percentage)	ART TREES HFLD Projects are done in collaboration with the national government, job creation will depend on the agreed upon operational plan
Total Job Creation for Females (# of people)	47% of jobs created (according to country male population percentage)	ART TREES HFLD Projects are done in collaboration with the national government, job creation will depend on the agreed upon operational plan
Total number of beneficiaries (inclusive of no 7. and 8, in addition to other benefits such as clean water access and healthcare) (# of people)	7,800	Based on Bhutan's total population of 782,455 in 2022, the project aims to benefit at least 1% of the population
IUCN Critically Endangered species within project boundaries (# of people)	20	IUCN Red list data
IUCN Endangered or Vulnerable species within project boundaries (# of people)	100	IUCN Red list data

The tables above are based on six projects identified in the Philippines, Cambodia, Bhutan, and Indonesia. The impact figures for additional projects are extrapolated using the data from these six projects.

ANNEX J

SFN's Impact Measurement and Monitoring

SPV Indicators:

We will tailor the portfolio KPIs to each unique ecosystem financed by the SPV. We currently plan to track several key performance indicators across the portfolio, including:

- % Change in community well-being through a participatory baseline survey.
- Percentage and total amount of funding dedicated to benefit sharing.
- Hectares of intact ecosystems under management
- Hectares of degraded forest under restoration
- % increase in forest cover over time
- Number of IUCN list species present at the site, a universal method to track increase/decrease
- Number of tons of carbon reduced
- Number of tons of carbon removed
- Total beneficiaries
- Jobs created for Males
- Jobs created for Females