Unlocking private capital for nature-based solutions in emerging and frontier markets

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Introduction

This report is intended to serve as a primer on nature-based solutions and the potential for private investment, with a focus on opportunities and challenges in emerging and frontier markets.

We discuss why nature-based solutions matter in achieving climate and biodiversity impact, why they remain chronically underinvested, and why the time is ripe for investment. Finally, we share four principles and four recommendations for donors and development finance institutions to unlock capital for nature-based solutions and achieve strong impact and financial returns.

Overview: Donors and development finance institutions play critical roles in unlocking private capital for nature-based solutions to achieve climate impact

Perhaps the greatest tragedy of climate change is that those who contributed least to the problem will be most affected by it and have the fewest resources to adapt to it. Rising tides, natural disaster, and food and water insecurity are hitting the most vulnerable communities harder and faster. As climate change picks up, these trends will only continue.

Donors and development finance institutions have mandates that include promoting economic development and reducing poverty. Most also recognize climate change as a cross-cutting issue closely linked to achieving other priority outcomes. Yet, historically, nature-based climate solutions – most notably conservation of forests, mangroves, wetlands, and other ecosystems – have been funded through public and philanthropic sources. In the face of an estimated $700B+ annual funding gap for nature, the need to mobilize private capital is greater than ever. Donors and development finance institutions can play a catalytic role in both crowding in private capital and facilitating deployment of existing pools of capital in more challenging markets.

Earlier this year, the US Development Finance Corporation announced a number of new targets and commitments for climate finance in developing countries, and in April, the US, alongside the UK and Norway, announced the LEAF Coalition to catalyze $1B in financing for tropical forests in emerging markets. At the same time, private investment funds such as HSBC Pollination Climate Asset Management; Mirova’s Land Degradation Neutrality Fund, Althelia Sustainable Ocean Fund, and Althelia Biodiversity Fund Brazil; WWF and South Pole’s Landscape Resilience Fund; Acumen’s Resilient Agriculture Fund, and others are making new private and public capital available for natural climate solutions globally.

Never has there been such focus on climate finance, or so much capital available. Yet, as many in development finance have discovered before, the difficulties of actually deploying capital into nature-based solutions are not to be underestimated. Much of the world’s most precious natural capital is found in some of the most fragile places, where conflict, poverty, and poor governance can make
deploying funds exceptionally challenging. In addition to the potentially high level of real and perceived risk, nature-based solutions can be characterized by a long payback period, low yield, and small ticket sizes. Project implementers are often experts in conservation, land management, and other critical technical fields but lack the financial sophistication and expertise to make projects investment ready.

Despite the many challenges, investing in nature-based solutions has never been more necessary, nor has it held such opportunity. Rapid evolution of carbon markets, coupled with innovations in conservation finance and technologies to measure and monitor ecosystem services, mark a critical inflection point and opportune time for investors, donors, and communities to lean into the potential for significant impact and financial returns from nature-based solutions.

**What are nature-based solutions?**

Nature-based solutions protect, restore, and sustainably manage natural ecosystems. These actions increase the capacity of ecosystems to remove carbon dioxide from the atmosphere; enhance ecosystem services such as water filtration, flood regulation, and pollination; conserve biodiversity; and support human livelihoods. In short, nature-based solutions build natural capital.1

<table>
<thead>
<tr>
<th>Type of project</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Sustainable landscapes</td>
<td>Protecting, restoring, and improving the management of ecosystems including forests, mangroves, wetlands, and oceans in return for sale of carbon credits</td>
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<tr>
<td>Nature-based enterprises</td>
<td>Products and services with business models that support natural ecosystems, such as forest-based products, ecotourism, or clean cookstoves</td>
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<tr>
<td>Green infrastructure</td>
<td>Ecosystem-based rainwater collection and watershed management, natural flood and storm surge protection, and green roofs and walls in cities</td>
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<tr>
<td>Food systems</td>
<td>Climate-resilient agriculture, regenerative agriculture, agroforestry, silvopasture, and sustainable aquaculture</td>
</tr>
<tr>
<td>Enabling technologies &amp; services</td>
<td>Remote earth observation for measuring and monitoring natural carbon stocks, solar drip irrigation systems, etc.</td>
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1 Critically, natural capital has long been excluded from the most influential measure of economic wellbeing: Gross Domestic Product (GDP). As the Dasgupta Report describes, GDP is a flow (not stock) and a gross (not net) measurement, so it does not account for a country’s natural assets or depreciation of those assets. A country can register high GDP growth simply by depreciating its natural capital – hardly a good measure for sustainable development.
While climate finance as a whole is accelerating, nature-based solutions remain massively underinvested

Climate finance is broadly defined, and to date most funding – especially private capital – has gone toward renewable energy and low-carbon transport (Figure 1).\(^1\)

In contrast, nature-based solutions are disproportionately underinvested. **Despite making up more than a third of the climate solutions needed, nature-based solutions receive less than 2% of global climate change mitigation finance today.**\(^{ii, iii}\)

**Figure 1. Landscape of Climate Finance in 2017/2018**

Global climate finance flows along their life cycle in 2017/2018. Values are average of two years’ data, in USD billions.

This imbalance is even more staggering in the context of the concurrent biodiversity crisis, which also calls for nature-based solutions.

While most climate investments address climate through either (1) emissions reduction, (2) CO\(_2\) removal, or (3) adaptation, investments in nature-based solutions can address climate change through **all three pathways**, as well as help slow or reverse biodiversity loss.
Nature-based solutions achieve climate impact through emissions reduction, CO₂ removal, and climate adaptation

When it comes to climate change mitigation, nature-based solutions factor into two sides of the carbon equation: CO₂ emissions reductions and CO₂ removal.¹

A common analogy is that of a bathtub that is filling with water and close to overflowing, where the water is our atmospheric CO₂ budget. First and foremost, we need to slow the water flowing from the tap – i.e., reduce emissions across the board. Second, and now also necessary, we need to drain water from the tub – i.e., remove CO₂ that is already in the atmosphere.

Nature-based solutions do both:

- **Reduction or Avoidance:** Today, approximately a quarter of global emissions are from food, agriculture, and land use change – mostly cutting down forests, which releases carbon that was stored as biomass as trees are burned or decompose. Avoiding deforestation that would have otherwise occurred reduces emissions against the historical baseline.

- **Removal:** At the same time, only about 60% of new CO₂ emissions remain in the atmosphere. A full 40% are absorbed into land (24%) and ocean (17%) sinks (Figure 2). Con serving mature forests and planting new trees, along with maintaining other natural carbon sinks, is critical for the continued or accelerated net removal of CO₂ from the atmosphere.

**Figure 2. Emissions Sources and Natural Sinks**


¹ CO₂e, or carbon dioxide equivalent, is used to denote carbon dioxide plus the equivalent CO₂ impact of other greenhouse gases such as methane. In this article, we use “CO₂,” “CO₂e,” and “carbon” interchangeably.
Carbon aside, nature-based solutions have an equally important role in climate adaptation, helping cool the local environment, prevent soil erosion, address water shortages, protect coasts from flooding and hurricanes, and more. This dual impact on climate change mitigation and adaptation is important because only about 7% of climate finance today goes toward adaptation, with most funding from public sources including development finance institutions.\textsuperscript{v}

### Nature-based solutions are also critical for addressing biodiversity loss

Even if we solve climate change, if we don’t also solve biodiversity loss, the existential threat to life on earth remains. In addition to substantial climate impact, forests and other natural ecosystems underpin livelihoods for billions of people worldwide, provide an abundance of “ecosystem services” such as water filtration and pollination, and support biodiversity of land and sea life. Beyond the inherent value of preserving the diversity of life on earth, biodiversity is also critical for human wellbeing; the World Economic Forum estimates that half of global GDP – $44T – is moderately or heavily dependent upon nature.\textsuperscript{vi}

And so it is particularly alarming that alongside the historic increase in atmospheric CO\textsubscript{2}, the Living Planet Index records a nearly 70% decrease in populations of mammals, birds, amphibians, reptiles, and fish over the last five decades globally – and a staggering 94% decline in Latin America and the Caribbean (Figure 3). The number one driver across the board is land use change, including habitat loss and degradation. This is hardly surprising, as three quarters of land has been significantly altered, and 85% of wetlands already lost – leaving one million species of plants and animals threatened with extinction in the coming decades.\textsuperscript{vii}

**Figure 3. The Global Living Planet Index: 1970 to 2016**

Average abundance of 20,811 populations representing 4,392 species monitored across the globe declined by 68%. The white line shows the index values and the shaded areas represent the statistical certainty surrounding the trend (range: -73% to -62%). Source - WWF/ZSL (2020).\textsuperscript{viii}

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<tr>
<td>Global Living Planet Index</td>
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<td>Confidence limits</td>
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Source: The Living Planet Index, WWF

Nature-based solutions are critical to addressing the twin challenges of climate change and biodiversity loss. They should be prioritized and funded accordingly.
Nature’s positive externalities are undervalued, leading to misallocation of resources

Despite the clear positive benefits of nature to both climate and biodiversity, deforestation and other ecosystem destruction continues. Even in 2020, at the height of the pandemic, primary rainforest destruction was up 12% over the previous year, and deforestation in the Brazilian Amazon reached a 12-year peak.

Why is this? The simplest explanation is that nature is not properly valued, either because its benefits are positive externalities that accrue to society at large, or simply because these positive benefits are difficult to measure and attribute.

For example, while the immediate value of timber may belong to a single landowner, the value of the trees for carbon sequestration and water cycle management belongs to a much broader swathe of the local and global community. However, no one is measuring or paying for these positive externalities, and so they won’t factor into the landowner’s decision-making. This results in a market failure.

If, instead, the full value of the natural ecosystem is properly measured, attributed, and compensated, deforestation is less likely to be the optimal outcome.

Practically speaking, however, resources and expertise are required to monetize nature’s value, and so disadvantaged communities can be rich in natural capital yet unable to capture the value they create as stewards of the ecosystem.

The location of a significant proportion of natural capital in emerging and frontier markets can also make capital allocation more challenging due to higher or uncertain risks, information asymmetry, a potentially less friendly investment climate, and lack of accompanying market and physical infrastructure.

The good news is that there are strong tailwinds enabling the measurement and pricing of nature’s positive externalities and improving the risk-return profiles of nature-based projects.

Carbon credits offer a new revenue stream for nature-based solutions, improving prospects for private investment

In just the last decade, there has been enormous improvement in technology to measure and monitor ecosystem services. Most critically, with new high-resolution satellites as well as advances in machine learning algorithms and computing power to process these new inputs, we can reliably estimate carbon sequestration from forests at scale for the first time in history.
However, the challenge remains: who will pay?

Historically, nature-based solutions have been funded by governments and charitable organizations. Today, 86% of nature-based solutions are publicly funded, and there is an estimated $700B+ per year funding gap for nature over the next decade.\textsuperscript{ix, x}

But there is also a growing role for private capital when a payer for nature’s services can be identified. Global carbon markets are the best example. Corporations – either because of government mandates or voluntary commitments – are paying to offset the portion of CO\textsubscript{2} emissions which is difficult or impossible to reduce, such as air travel. This in turn creates a reliable new revenue stream for projects that remove carbon from the atmosphere or can prove avoided emissions.

For a community, company, or government that owns a forest, there are only a few possible ways to generate revenue. They can sell timber. They can sell forest-based products such as honey or resin. They can establish ecotourism operations. They can cut and clear for agriculture use. Until now, that was about it. Carbon markets add a new potential revenue stream: carbon credits.

With the rapid rise in demand from voluntary and compliance markets, the price of carbon has seen a dramatic increase over the last year. Many investors anticipate that this trend will continue as the market flips from oversupply to undersupply of carbon credits.\textsuperscript{x} The need to scale supply is significant, with the Taskforce for Scaling Voluntary Carbon Markets (TSVCM) estimating that the volume of high-integrity credits in the voluntary market alone will need to grow by 15x by 2030.

Purchasing carbon credits is just one way that businesses are making more serious commitments around carbon reduction as well as nature and biodiversity outcomes. As of 2020, around a third of Fortune Global 500 companies had made public commitments to a significant climate milestone by 2030 (Figure 4).

\textbf{Figure 4. Percentage of Fortune Global 500 companies that have made a public commitment that they are, or will be by 2030: carbon neutral, meeting an RE100, SBT, or net zero target}

\begin{figure}
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\caption{Percentage of Fortune Global 500 companies that have made a public commitment that they are, or will be by 2030: carbon neutral, meeting an RE100, SBT, or net zero target}
\end{figure}

Source: Natural Capital Partners
The Science Based Targets initiative (SBTi) is enabling companies to set science-based emissions reduction targets, while the Task Force on Climate-related Financial Disclosures (TCFD) and Taskforce on Nature-related Financial Disclosures (TNFD) are developing global frameworks to enable businesses and investors – including those without an explicit impact focus – to better assess risks and allocate capital accordingly. For example, nature-based solutions can help businesses reduce risks related to climate change, and they can help institutional investors diversify their portfolios with assets that are largely uncorrelated with the broader market.

Taken together, there has never been more opportunity for private investment in nature-based solutions.

Nature-abundant communities in emerging and frontier markets are key partners for nature-based solutions

Critically, the tropical and coastal regions of developing countries that are so often the locus of the blunt force impact of climate change also tend to be nature-abundant. These countries and communities are critical partners for nature-based solutions.

As a particularly dramatic example, the world’s largest tropical peatlands were discovered in 2017 in the Congo Basin (Figure 5). Shielded for decades by conflict and distance, the area is estimated to contain 30 billion tons of carbon below ground, about 3x annual global fossil fuel emissions. If the forests sitting atop the peatland is cleared, this incredibly potent source of carbon will be released into the atmosphere, materially impacting global emissions targets for years.

Focusing efforts on protecting high-risk, high-impact carbon sinks like the peatlands in the Congo Basin is critical for achieving global climate goals.

In these more challenging geographies, donors and development finance institutions, along with their on-the-ground partners, play a key role in facilitating investments into nature-based solutions.
Recommendations

This brings us to the “how?” Financing nature-based solutions requires collaboration across a diverse set of partners: the public sector, corporates, landowners, conservation organizations, commercial and impact investors, intermediaries, standard-setting organizations, donors, and more.

As we venture together into this evolving space, we offer four guiding principles and four recommendations for donors and development finance institutions for catalyzing private investment in nature-based solutions to maximize climate, biodiversity, and community impact, while generating meaningful returns for investors.

Guiding principles for developing high-impact, high-integrity nature-based solutions

1. **Address biodiversity alongside climate.** We are not only in a climate crisis, but also a biodiversity crisis, and investing in nature-based solutions can address both challenges simultaneously. As a case in point, not all forests are equal: a primary forest and a monoculture forest may both sequester an equivalent amount of carbon on paper, but the more biodiverse primary forest is more resistant to pests and disease, performs better at various ecosystem services functions, has more nutrient-rich soil, and, of course, preserves the natural habitat critical to many other species’ survival.

2. **Focus on protecting “irrecoverable carbon” which cannot be recovered on timescales relevant for avoiding climate disaster.** Natural ecosystems vary greatly in their ability to store carbon and recover it after destruction. Globally, high-risk ecosystems contain at least 260 billion tons of irrecoverable carbon, or 30 years’ worth of fossil fuel emissions. The most at-risk are tropical peatlands, tropical forests, and mangroves, which can take 60-200+ years to recover and are concentrated in the developing world. To achieve 2030 or even 2050 climate goals, avoiding the destruction of irrecoverable carbon sinks must be a priority. When destroyed, the impact is two-fold: the ecosystem releases the carbon that was stored back into the atmosphere, and it no longer removes new carbon from the atmosphere. Already, the threat of loss is real: of the world’s three largest tropical rainforests (in Brazil, Indonesia, and the Congo), new estimates suggest that “only the Congo has enough standing forest left to remain a strong net carbon sink.”

3. **Factor in the time-value of carbon.** In the same way that we think about the time-value of money, we should think about the time-value of carbon. A ton of carbon sequestered today has greater climate impact, and thus should be assigned greater value than a ton sequestered tomorrow. For example, in this critical decade for climate action, preventing deforestation in high-risk regions has greater immediate carbon impact than planting new forests because it takes
many years for a seedling to match the net carbon sequestration rates of a mature tree.\textsuperscript{3} Additionally, each new ton of CO\textsubscript{2} emitted moves us closer to dangerous ecological tipping points and makes climate change even more difficult – and eventually impossible – to slow or reverse.

4. \textbf{Keep people at the center.} It can be tempting to think about nature-based solutions as securing pristine wilderness apart from people, but this would be a mistake. The vast majority of land on earth has been modified by humans, and a third is cultivated for livestock and crops.\textsuperscript{xv} In many parts of the world, deforestation is driven by the subsistence farmer’s search for a better livelihood, and in turn, environmental degradation becomes a root cause of poverty and migration. Nature-based solutions can be a powerful bridge between the related challenges of climate change and global poverty, with investments initiating virtuous cycles of change. Indigenous communities and others on the ground, who are actively stewarding ecosystems and face many of the harshest consequences of climate change, are best placed to design and manage nature-based solutions long-term. Promoting indigenous and tribal land rights, genuine community participation and leadership, and fair compensation for climate and biodiversity impact are critical to achieving climate impact and upholding the principles of climate justice.

\textbf{Recommendations for donors and development finance institutions to catalyze private investment into nature-based solutions}

1. \textbf{Expand support for early-stage projects to grow the pipeline of investable opportunities and improve access to carbon markets.} To achieve the necessary scale of impact for nature-based solutions, more support is needed at the early stages of project development to ensure that projects are developed with an eye toward attracting private finance including revenue from carbon credits. This is especially important for smaller projects with fewer internal resources, and for conservation organizations which do not typically have deep experience in partnering with the private sector. Grants for early feasibility studies and upskilling of local staff on carbon markets and private sector partnerships will help ensure a more robust pipeline of investment opportunities. This early-stage support also promotes project development by a wider variety of organizations and local communities, who are able to capture a larger portion of the value they create on the ground.

2. \textbf{Continue to play a catalytic role in deals utilizing blended finance, results-based financing, and other innovative investment approaches.} Many high-impact natural capital projects could be candidates for private finance if the risk/return profile is improved through blended finance – the strategic use of public capital for technical assistance, as a guarantee, or as first-loss capital. Blended finance funds can also aggregate smaller deals into a portfolio of projects to reduce risk and enable investment at larger ticket sizes. In addition to providing guarantees or first-loss capital at the fund or project level, donors can provide design-stage

\textsuperscript{3} It is a common misconception that old-growth forests are in a state of carbon equilibrium – in fact, they tend to realize the highest net carbon sequestration.
funding to cover the costs of developing these structures and collect lessons learned in the process.

Other innovative financial structures should also be advanced, such as debt-for-nature swaps, insurance products, supply chain financing, and green or blue bonds.

3. **Provide donor-funded investment facilitation services to prepare and structure high-impact investments.** Donor-funded investment facilitation can help overcome information asymmetries and high transaction costs to close pioneering deals in challenging markets. Investment facilitation can support investors based in the US or Europe with boots-on-the-ground pipeline building, and it can support all investors with independent screening, due diligence of investment opportunities, and deal structuring. It can also support nature-based enterprises or projects to understand foreign and local capital options, prepare for a capital raise, respond to investors’ due diligence, and negotiate a fair deal.

Donor-funded investment facilitation has proven instrumental in unlocking private capital for enterprises across sectors in emerging and frontier markets, and it has an important role to play in unlocking capital for natural capital investments which have typically had limited participation from private investors. Projects seeking to sell carbon credits are especially good candidates for support, as this new revenue stream has the potential to change project economics dramatically but requires a unique skillset to unlock and could benefit from subsidization to lower transaction costs and overcome information asymmetries for pioneering deals.

4. **Support the development of well-functioning carbon markets.** For many nature-based solutions, revenue from the sale of carbon credits opens the opportunity to build sustainable businesses that deliver and scale climate impact. However, carbon markets today are fragmented across jurisdictions and across voluntary and compliance markets – reducing transparency and trust, increasing transaction costs, and decreasing liquidity and overall market efficiency. For nature-based solutions to become an investable asset class, a greater degree of standardization and harmonization is required. Support for industry-wide efforts to improve market functionality is critical, and donors can play a particularly important role in ensuring access and participation from actors in emerging and frontier markets.
About CrossBoundary

CrossBoundary Group’s mission is to unlock capital to make a strong return and a lasting difference in underserved markets globally. The firm has over 120 professional staff, and offices in Accra, Bamako, Bangkok, Beirut, Bogota, Chișinău, Dakar, Dubai, Ebene, Erbil, Johannesburg, Kabul, Kinshasa, Lagos, London, Nairobi, Tunis, New York City, and Washington D.C. CrossBoundary Advisory was founded in 2011 and provides a broad spectrum of investment and transaction advisory services across a range of sectors in underserved markets globally. CrossBoundary Energy was launched in 2015 and is sub-Saharan Africa’s leading provider of renewable energy services to commercial and industrial businesses. CrossBoundary Energy Access was launched in January 2019 as Africa’s first project finance facility for mini-grids, delivering first time power to rural households and businesses.

CrossBoundary Natural Capital

CrossBoundary’s Natural Capital practice provides investment advisory services for transactions with a strong impact on climate, biodiversity, and the people whose livelihoods depend on nature.

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