

Environmental Defense Fund Submission to the Standing Committee on Finance on the “Financing Nature-based Solutions” Forum

Environmental Defense Fund (EDF) applauds the Standing Committee on Finance (SCF) of the United Nations Framework Convention on Climate Change (UNFCCC) for adopting the decision during its 21st meeting to focus the next Forum on “Financing Nature-based Solutions (NBS).”¹ The theme of the Forum is both critical and timely—critical because urgent climate action, of which NBS are a crucial part, is needed if we are to stay on a Paris Agreement consistent pathway and avoid the worst impacts of climate change, timely because we have an opportune moment to enhance finance for NBS at scale. EDF appreciates the opportunity to submit inputs on the Forum, specifically on the “Scope and purpose of the Forum,” “NBS related papers and case studies that could inform the Forum,” and “Potential institutions and events to partner with in the organization of the Forum.”

We would like to note that EDF is also submitting a joint submission with Conservation International, Land Use & Climate Knowledge Initiative, National Wildlife Federation, Rare, Seychelles' Conservation and Climate Adaptation Trust, Wildlife Conservation Society, and World Wildlife Fund which highlights the importance of different NBS ecosystems for climate change mitigation and adaptation and provides complementary views on the scope and purpose of the Forum.

While EDF recognizes the importance of all NBS, this submission focuses on both how to scale reductions of emissions from tropical forests (REDD+²) to the jurisdictional (national or state/province) level, and on how to scale carbon markets and other finance for these approaches. Additionally, we share our reflections on the overall scope and purpose of the Forum. EDF hopes that this input will be taken into consideration by the SCF as it continues to develop the Forum. This submission is divided into the following sections:

- I. Introduction and Executive Summary
- II. The Importance of Tropical Forest Conservation
- III. Scope and Purpose of the Forum
 - A. Reflections and recommendations on proposed context and narrative, and themes from the “Co-facilitators’ note on the next Forum of the Standing Committee on Finance”
 - B. Description of relevant concepts and initiatives related to scaling jurisdictional forest mitigation action and financing for these approaches
- IV. NBS Related Papers, Case Studies, and Resources that Could Inform the Forum
- V. Potential Institutions and Events to Partner with in the Organization of the Forum

¹ <https://unfccc.int/sites/default/files/resource/Co-facilitators%20note%20on%20the%202021%20SCF%20Forum.pdf>

² REDD+ can include “(a) Reducing emissions from deforestation; (b) Reducing emissions from forest degradation; (c) Conservation of forest carbon stocks; (d) Sustainable management of forests; (e) Enhancement of forest carbon stocks” (Decision 1/CP.16). For additional information, visit <https://unfccc.int/topics/land-use/resources/warsaw-framework-for-redd-plus>.

I. Introduction and Executive Summary

Nature’s role in combating climate change is clear. Nature-based Solutions³ include conservation, restoration, and management activities that mitigate greenhouse gas emissions across forests, wetlands, grasslands, and other agricultural/marine landscapes, and also improve capacities of countries, people and ecosystems to increase resilience and adaptation to climate change. They can offer over 30% of the mitigation needed by 2030 and beyond to achieve the Paris Agreement goals.⁴ The direct economic contributions of NBS have also become clearer, demonstrating how investing in NBS is as much about investing in people, jobs, and the economy.⁵ For example, estimates suggest that more than half of the world’s total gross domestic product (GDP)—at least US\$44 trillion of economic value generation—is moderately or highly dependent on nature and its services.⁶ Research has also shown that protecting at least 30% of the world’s land and ocean provides financial and economic benefits that outweigh the costs at least 5-to-1, leads to increased economic output averaging US\$250 billion annually, and generates additional non-monetized economic benefits from ecosystem services averaging around US\$350 billion annually.⁷

Tropical forest conservation is perhaps the highest priority NBS. The IPCC recently affirmed that “reducing deforestation and forest degradation rates represents one of the most effective and robust options for climate change mitigation, with large mitigation benefits globally.”⁸ In fact, forest pathways, including reforestation and reducing deforestation and forest degradation, can provide over two-thirds of the cost-effective nature-based climate solution mitigation needed to hold warming to below 2°C and about half of low-cost mitigation opportunities.⁹

After more than a decade of progress on the technical and policy frameworks for reducing emissions from deforestation and forest degradation (REDD+), we face a historic opportunity to mobilize private and public markets for large-scale efforts to protect tropical forests—based on implementation of the Paris Agreement, emerging voluntary and regulated carbon market developments, and progress in key forest countries and jurisdictions. We have seen major progress in developing an international framework to reward tropical forest protection. This includes incorporation of REDD+ in the Paris Agreement; the development of jurisdictional REDD+ programs; the growth in results-based payments from Norway, other bilateral donors, and

³ In this submission, “Nature-based Solutions” (NBS) are comprehensive, covering a broad range of activities, and are inclusive of terms like “Natural Climate Solutions” and “Nature-based Climate Solutions.”

⁴ Griscom, B. et al., 2017. Natural Climate Solutions. Proceedings of the National Academy of Sciences, Oct. 2017, 114 (44) 11645-11650. <https://www.pnas.org/content/114/44/11645>.

⁵ Nature4Climate, 2020. Nature Positive Recovery for People, Economy & Climate. http://4fqbik2blqkb1nrebde8yxqj-wpengine.netdna-ssl.com/wp-content/uploads/2020/07/Nature-positive-recovery_For-people-economy-and-climate_July-2020_Final.pdf.

⁶ Ibid

⁷ Waldron, A. et al., 2020. Protecting 30% of the planet for nature: costs, benefits and economic implications. https://www.conservation.cam.ac.uk/files/waldron_report_30_by_30_publish.pdf.

⁸ IPCC, 2019. Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. <https://www.ipcc.ch/srccl/>.

⁹ Griscom, B. et al., 2017. Natural Climate Solutions. Proceedings of the National Academy of Sciences, Oct. 2017, 114 (44) 11645-11650. <https://www.pnas.org/content/114/44/11645>.

multilateral funds; growing corporate climate commitments; and emerging carbon markets at national, subnational levels, and international levels. New sources of private funding could vastly increase over the next few years, provided REDD+ demand and supply can demonstrate the ability to scale from current levels. As such, EDF would like to emphasize the following points:

- Considering the significant role of tropical forest conservation in mitigating the impacts of climate change, it is essential that this nature-based solution be prioritized.
- Given the critical role that local communities and Indigenous Peoples play in reducing deforestation and protecting forests, it is imperative that they participate in and contribute to the Forum.
- Large, jurisdictional-scale (national or state/province level) REDD+ approaches are particularly important to mobilizing enhanced global climate ambition considering that they effectively address risks associated with additionality, reversals, leakage, and permanence and promote multistakeholder collaboration.
- It is essential to identify both ways to scale up forest mitigation action to the jurisdictional level, and ways to scale carbon markets and other finance for jurisdictional-scale performance.
- Carbon markets that encourage the transfer of high-quality cost effective emission reductions generated in all sectors, notably from tropical forests, can drive far greater emission reductions at a lower cost, lowering political barriers to more ambitious goal-setting and climate action
- In order to scale up REDD+ and other NBS, we need to tap into and scale all potential sources of finance, including from public and private investments and blended approaches. In addition, innovative finance instruments such as call and put options—the right but not the obligation to buy and sell—for REDD+ credits can help in mobilizing large-scale supply and demand of reductions even as carbon markets and climate policies are still in development.
- There are concrete examples, case studies, and resources currently available to help scale REDD+ and other forest-related efforts to the jurisdictional scale, and to scale finance for jurisdictional-level performance.

II. The Importance of Tropical Forest Conservation

Forest conservation provides the bulk of the cost-effective forest mitigation potential from forests.¹⁰ Tropical forests and peatlands contain over 300 Gt of carbon and are the largest repository of irrecoverable carbon in the earth’s ecosystem, carbon that once lost to the atmosphere cannot be recovered within policy-relevant time frames.¹¹ **This is why strategies to protect the world’s forests, notably REDD+ (the framework of policies and incentives for reducing emissions from deforestation and forest degradation and enhancing the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks) are so important**, as reflected by their special recognition out of all other sectors and strategies in Article 5 of the Paris Agreement.

¹⁰ Ibid

¹¹ Goldstein, A. et al., 2020. Protecting irrecoverable carbon in Earth’s ecosystems. *Nature Climate Change*, March 2020, 10: 287-295. <https://www.nature.com/articles/s41558-020-0738-8>.

Recognizing the importance of forests to climate change mitigation, the Conference of the Parties (COP) established guidelines for the UNFCCC in the Warsaw Framework for REDD+,¹² and encouraged Parties to implement and support REDD+ in Article 5 of the Paris Agreement. REDD+ programs that avoid and reverse the loss of tropical forests can contribute trillions of dollars in value by “flattening the curve” of the global economy’s costs of transition to climate stability.¹³ Our analysis finds that global use of carbon markets could allow the world to nearly double climate ambition relative to current Paris pledges (NDCs) over 2020–2035, without increasing total costs compared to a base case without international markets. Since avoided deforestation is such a large source of low-cost mitigation, linking reduced deforestation to an international carbon market drives the majority of the potential ambition gains.¹⁴ **Large, jurisdictional-scale (national or state/province level) REDD+ approaches are particularly important to mobilizing enhanced global climate ambition considering that they effectively address risks associated with additionality, reversals, leakage, and permanence.**

As such, **it is essential to identify both ways to scale up forest mitigation action to the jurisdictional level, and ways to finance jurisdictional-scale performance.** This is an opportune moment to do so. Donor governments and multilateral institutions, making payments as a form of output-based aid, can leverage materially more private co-funding for REDD+ than has been the case historically. Corporate focus on transitioning to a net-zero carbon world is moving very rapidly under pressure from policy, financial regulators, investors, consumers, and market forces. At the same time, a range of private actors needs access to large-scale, affordable, and near-term mitigation options from offsets that provide a more flexible pathway for technology investment and de-carbonization.

III. Scope and Purpose of the Forum

EDF appreciates the proposed themes and discussion topics prepared by the co-facilitators. Below are our reflections on the context and narrative, and themes.

III.A.i. Reflections on the context and narrative

The proposed context and narrative provide a comprehensive overview of the importance of NBS. As previously mentioned, NBS are critical not only to enhancing climate change action, but also to enhancing livelihoods, providing various economic and financial benefits, and promoting essential cooperation and participation. Multistakeholder collaboration between governments, private sector actors, civil society, local communities and others at the local, national, and international level is critical. As such, in addition to strengthening stakeholder engagement and facilitating the participation of the private sector, financial institutions, and academia, the Forum could also highlight the specific roles that these different stakeholders can play in scaling and

¹² <https://unfccc.int/topics/land-use/resources/warsaw-framework-for-redd-plus>

¹³ Fuss, S., Golub, A., Lubowski, R., 2020. The economic value of tropical forests for meeting global climate stabilization goals. Submitted to Global Sustainability.

¹⁴ Piris-Cabezas et al. 2019. “Estimating the Power of International Carbon Markets to Increase Global Climate Ambition.” In: The First International Research Conference on Carbon Pricing. World Bank Working Paper Series. World Bank and Carbon Pricing Leadership Coalition, Washington, DC.

<https://ceep.columbia.edu/sites/default/files/content/events/Lubowski%20et%20al.%20on%20Carbon%20Markets.pdf>

providing access to finance for NBS. Therefore, it is important that there is broad representation from different sectors and stakeholder groups so that not only will different views and perspectives be represented, but also so that various actors can learn how to engage in this space.

As noted, it is imperative that the economic and business case for nature be made and that complementary fiscal policies be enacted in order to incentivize public and private finance flows. The Forum could provide a space to discuss the current economic and business case for NBS, identify what is missing in terms of the financial, business, and economic rationale of NBS, and determine how to fill these gaps and continue advancing the economic and business case for NBS. Doing so will be essential to mobilizing and improving access to finance NBS at the scale needed to harness the unparalleled opportunities to enhance climate action.

III.A.ii. Reflections on the themes

(a) Creating enabling environments to facilitate access to climate finance for NBS on adaptation and mitigation

Key to creating enabling environments to both generate and facilitate access to climate finance for NBS is collaboration at all levels of government and across sectors. In the case of forest mitigation efforts, multistakeholder collaboration between governments, private sector actors, civil society, local communities and other actors is essential not only to scaling on-the-ground implementation but also to ensuring that efforts to reduce deforestation are complementary across a landscape. **Jurisdictional-scale REDD+ efforts help create such enabling environments by promoting multistakeholder collaboration while mitigating potential risks as discussed above.** However, the link between jurisdictional-scale REDD+ efforts and the zero deforestation commodity supply chain agenda is lacking. The Forum could potentially explore existing barriers hindering these essential connections and ways to overcome them.

(b) Harnessing local community and indigenous knowledge, gender responsive policies, climate resilience and adaptation, technology and capacity-building

Considering the critical role that local communities and Indigenous Peoples play in reducing deforestation and protecting forests, it is imperative that they participate in and contribute to the Forum.¹⁵ By doing so, these key actors will be able to share their knowledge and perspectives on NBS and potential finance pathways. A potential focus of this Forum could also be on how to facilitate local communities' and Indigenous Peoples' awareness of and access to NBS finance opportunities.

(c) Applying NBS as a means of de-risking and scaling up climate investments throughout multi-level governance

It is essential to explore how to apply “NBS as a means of de-risking and scaling up climate investments throughout multi-level governance.” As previously mentioned, NBS are critical to keeping the costs of achieving the goals of the Paris Agreement down, which is critical considering

¹⁵ Walker, W.S. et al., 2020. The role of forest conversion, degradation, and disturbance in the carbon dynamics of Amazon indigenous territories and protected areas. Proceedings of the National Academy of Sciences, Feb. 2020, 117 (6) 3015-3025. <https://www.pnas.org/content/117/6/3015>.

that a sharp rise in climate change mitigation action costs could reduce political ambition to tighten and ratchet up policy. However, it is also important to consider how to apply innovative finance mechanisms and strategies to de-risk and scale up climate finance for NBS; see discussion of examples below. The scale of NBS efforts is also key, as jurisdictional-scale NBS could help mitigate potential risks and spur increased finance flows. For example, as mentioned above, jurisdictional REDD+ approaches are able to effectively address risks associated with additionality, reversals, leakage, and permanence, and are thus primed for at-scale climate investments.

(d) The role of climate finance for ecosystems capturing carbon, swamp plants, biodiversity protection, fire management (e.g. fire management projects, including Savanna, forest and preventing forest fires), restoring land, addressing deforestation and afforestation, sustainable forests and preventing desertification

While these topics are all important, the current list is not representative of the full scope of NBS activities. For example, while addressing deforestation and enhancing sustainable forest management are critical, so are forest restoration, reducing forest degradation, and reforestation. It would be helpful to make the scope of this theme more inclusive.

(e) NBS as a driver of the NDCs and NAPs

We recommend that this theme be reframed as “NBS as a driver of climate action ambition in NDCs and NAPs.” Considering the importance of NBS to enhancing climate ambition, it is essential that NBS are included or enhanced in NDCs and NAPs. This Forum could help stakeholders understand the key challenges and opportunities to enhance the inclusion of NBS in NDCs and NAPs, and the benefits of doing so.

(f) Various types of finance for NBS

It is evident that public finance alone will not be sufficient for supporting the scale of NBS needed to tackle climate change at the required pace to limit global temperature rise to below 2°C. Estimates suggest that since 2010, support for forests in tropical deforestation countries, for example, amounted to only US\$ 3.2 billion of the US\$ 256 billion (1.5 percent) committed by multilateral institutions and developed country donors since 2010 to climate change mitigation.¹⁶ **In addition to scaling up existing frameworks and strategies, such as REDD+, we need to tap into and scale all potential sources of finance, including public investments, private investments—which have the potential to provide much larger flows of finance—and blended approaches.** In addition, innovative finance instruments such as call and put options—the right but not the obligation to buy and sell—for REDD+ credits can help in mobilizing large-scale supply and demand of reductions even as carbon markets and climate policies are still uncertain.^{17,18}

¹⁶ New York Declaration on Forests Assessment Partners, 2019. Goal 8 Assessment. <https://forestdeclaration.org/images/uploads/resource/2019NYDFGoal8.pdf>

¹⁷ Golub, A. et al., 2020. Business responses to climate policy uncertainty: Theoretical analysis of a twin deferral strategy and the risk-adjusted price of carbon. *Energy*, Aug. 2020, 205. <https://doi.org/10.1016/j.energy.2020.117996>.

¹⁸ Golub, A. et al., 2018. Escaping the climate policy uncertainty trap: options contracts for REDD+. *Climate Policy*, March 2018, 18 (10), 1227-1234. <https://doi.org/10.1080/14693062.2017.1422478>.

Robust carbon markets, in particular, have the potential to significantly increase climate action ambition while lowering the cost of achieving emission reductions targets. EDF modeling suggests that employing global emissions trading to meet Paris Agreement pledges could reduce the total mitigation cost by up to 79%.¹⁹ In turn, reinvesting these savings into greater emission reductions would nearly double the cumulative emissions reductions from 2020-2035 relative to current NDCs.²⁰ **By encouraging the transfer of high-quality cost effective emission reductions generated in all sectors, including the forest sector, carbon markets can drive far greater emission reductions at a lower cost, and lower political barriers to more ambitious goal-setting and climate action.**

III.B. Relevant concepts and initiatives

As previously mentioned, EDF's inputs are primarily focused on determining how to scale REDD+ and other forest-related efforts to the jurisdictional scale, and on how to scale finance for jurisdictional-level performance. Here, we highlight several relevant concepts and initiatives that are underway and that can provide concrete examples of how to scale both forest mitigation action and finance.

III.B.i. Innovative finance mechanisms for jurisdictional-scale forest mitigation approaches

Emergent Forest Finance Accelerator (“Emergent”)

Emergent²¹ is a not-for-profit finance facility that was launched²² during the UN Climate Week at the end of 2019 so as to combat the climate crisis by accelerating the speed and scale of tropical forest conservation by facilitating large-scale transactions of jurisdictional (national or state-level) REDD+ credits. Emergent is a collaboration of EDF, the government of Norway, the Rockefeller Foundation and international civil society leaders. Emergent uses a public-private finance model in which public donors provide a floor price for credits to guarantee long-term demand for emissions reductions to REDD+ jurisdictions. It also provides a means for corporations and other buyers to easily access credits from jurisdictional-level forest protection programs that meet the highest environmental and social standards. It will rely on the Architecture for REDD+ Transactions (ART), which provides The REDD+ Environmental Excellency Standard (TREES) to transparently register, verify, and issue emission reduction credits, so as to assure the integrity of the credits.²³ Together, Emergent and ART— purpose-built to incorporate high environmental integrity and support private sector engagement— provide a global hub for buying and selling high-integrity REDD+ credits at scale.

¹⁹ Piris-Cabezas et al., 2017. The power of markets to increase ambition.

www.edf.org/sites/default/files/documents/Power_of_markets_to_increase_ambition.pdf

²⁰ Ibid

²¹ <http://www.emergentclimate.com>

²² <https://nature4climate.org/articles/emergent-and-art-a-new-structure-for-scaling-finance-for-tropical-forest-protection-1015am-1115am/>

²³ <https://www.artredd.org/>

Gigaton REDD+ Bid Strategy

A massive increase in public and private results-based funding commitments is critical to protect tropical rainforests and other “natural climate solutions” in tropical forest countries, and thus to hopes of holding global warming below 2°C. REDD+ programs that avoid and reverse the loss of tropical forests can contribute trillions of dollars in value by “flattening the curve” of the global economy’s costs of transition to climate stability. Donor governments and multilateral institutions, making payments as a form of output-based aid, are in a position today to leverage materially more private co-funding for REDD+ than has been the case historically. Corporate focus on transitioning to a net-zero carbon world is moving very rapidly under pressure from policy, financial regulators, investors, consumers, and market forces. A range of private actors needs access to large-scale, affordable, and near-term mitigation options from offsets that provide a more flexible pathway for technology investment and de-carbonization. This is especially true for “hard-to-abate” sectors.

Jurisdictional (e.g., national, state, or province-level) REDD+ has by far the largest potential to supply offsets at scale. New sources of private funding could vastly increase over the next few years, provided jurisdictional REDD+ demand and supply can demonstrate the ability to scale from current levels. We are at an inflection point where as yet unfulfilled supply potential could be mobilized by a quantum increase on the demand side. We recommend that a coalition of donor governments secure co-funding from a range of private actors for a “Gigaton REDD+ Bid” with a value of at least US\$10 billion, in order to unlock supply of jurisdictional REDD+ credits. Success in delivering 1 billion tons of emissions reductions would in turn catalyze further even larger-scale private and public funding commitments.

At a macroeconomic level, the success of natural climate solutions and of REDD+ is critical to preventing carbon prices from escalating rapidly, thus reducing political ambition when emission reduction policies need to be tightened. Moreover, at the company level, the ability of the hard-to-abate sectors to meet ambitious net zero carbon targets looks extremely challenging in the absence of a transformational increase on the supply side for offsets. In a newly published report by Forest Trends, titled “A Gigaton REDD+ Bid Strategy Unlocking the potential for REDD+ in supporting the protection of rainforests and other ‘natural climate solutions’ in tropical forest countries” (discussed in further detail in *Section III. NBS Related Papers, Case Studies, and Resources*), we set out options for developing the “Gigaton REDD+ Bid.”²⁴

CONSERV

CONSERV is an innovative financial arrangement for forest and environmental protection in Brazil led by IPAM (Amazon Environmental Research Institute) in partnership with EDF and Woods Hole Research Center (WHRC).²⁵ This novel financial mechanism will compensate farmers for protecting forests that they can legally deforest, i.e. their surplus “legal reserve” of native vegetation inside their private properties above the legal thresholds set in the Brazilian Forest

²⁴ Edwards, R., 2020. A Gigaton REDD+ Bid Strategy Unlocking the potential for REDD+ in supporting the protection of rainforests and other “natural climate solutions” in tropical forest countries. https://www.forest-trends.org/wp-content/uploads/2020/07/doc_5756_rev.pdf.

²⁵ <https://ipam.org.br/rural-producers-in-mato-grosso-may-be-paid-to-not-deforest/>

Code. According to the 2012 Brazilian Forest Code, rural private properties countrywide have mandatory native vegetation preservation requirements set as permanent preservation areas (APPs in Portuguese), which forbids removal of ecosystem sensitive areas (e.g. river springs, riparian forest, mountain tops); and legal reserves which determine minimum native vegetation preservation thresholds of 80% in the Amazon, 35% in the Cerrado, and 20% elsewhere.

CONSERV will start in 2020 as a three-year pilot program in two municipalities in the Brazilian state of Mato Grosso. Initially funded by public donors, CONSERV aims to provide a proof-of-concept that carefully targeted compensation for farmers with excess legal reserves reduces deforestation, and to scale up to a large jurisdiction-wide program funded by public and private sources. CONSERV could provide a model for a new cost-effective approach to compensating landowners for avoiding legal deforestation—while also fundamentally changing the dynamics of forest protection and green growth by bringing landowners on board.

III.B.ii. Other considerations

Indigenous Peoples and NBS

Well-designed NBS can have important social and environmental benefits—in particular for Indigenous and traditional forest peoples. Jurisdictional REDD+ systems are a good example. Stand-alone offset projects for reducing deforestation typically rely on projecting a business-as-usual (BAU) emissions scenario and compensating a project for emitting less than BAU. The higher the BAU deforestation, the more can be made by reducing it. This approach can leave out Indigenous and traditional peoples, who historically have very low deforestation and often actively defend large-scale forest landscapes—as in the Amazon, where half of the region is officially recognized Indigenous territories and protected areas, mostly inhabited by traditional forest communities.

Jurisdictional REDD+ systems, such as the one developed by Acre state, can address this inequity. Through a combination of state and federal policies, Acre reduced its statewide deforestation about 80% between 2004 – 2014. The German development bank KfW agreed to compensate Acre for part of these reductions. Indigenous Peoples were among the first beneficiaries, receiving state support for development territorial management plans for the 16 Indigenous Peoples of the state. Under Acre’s REDD+ law, the state Climate Change Institute is responsible for determining the legitimate providers of environmental services, so that good actors on both sides of the frontier benefit. The often vexed question of “who owns the carbon” is not an issue, since providers of environmental services and REDD+ beneficiaries may or may not be private landowners.

Considering the critical role of Indigenous Peoples to forest NBS, including REDD+, these important stakeholders need to be included in and considered throughout conversations related to finance for NBS, such as those being organized by the SCF through this Forum. The UNFCCC

Local Communities and Indigenous Peoples Platform (LCIPP),²⁶ which the SCF might consider connecting to, could also serve as a key avenue through which to explore the role of Indigenous Peoples in NBS and how to access NBS finance.

Supply chain and agribusiness finance

Commodity supply chain companies have a crucial role in promoting sustainable agricultural practices and deforestation-free supply chains, and can provide an underexploited source of finance for farmers and jurisdictional production and conservation initiatives.

Recognizing that forests are a critical part of both meeting sustainability goals and climate commitments, various companies have set deforestation-free supply chain goals with 2020 deadlines, many of which will not be met. Nevertheless, serving as the link between farmers and global markets, corporate engagement in eliminating deforestation from supply chains and in supporting broader jurisdictional initiatives is increasingly important for climate change mitigation and to minimizing corporate risk.

Through engaging in jurisdictional approaches, such as Mato Grosso's Produce, Conserve, Include (PCI) strategy,²⁷ which aims to produce more agricultural commodities, conserve natural resources, and include smallholders and Indigenous people in economic development, companies sourcing agricultural commodities can collaborate with local governments, communities, and producers in their sourcing region. By working together, the stakeholders ensure that local laws, regional efforts, and corporate policies work in concert to reduce deforestation and increase productivity across an entire region.

Moreover, agribusiness can provide significant funding in a variety of forms to foster sustainable agricultural practices. Input suppliers often provide upfront capital to farmers, in the form of raw materials, to be repaid after harvest—which function as a credit loan. Commodity traders provide insurance for production by entering in pre-harvest purchase agreements at predetermined prices, which works as a price hedging instrument.

New financial arrangements between farmers and the private sector, traders, supply chain companies and final consumers can potentially contribute to funding for forest conservation initiatives (e.g. CONSERV), restoration, and production intensification. These initiatives could be further linked with payments for performance-based jurisdictional REDD+.

IV. NBS Papers, Case Studies, and Resources

Below is a list of relevant papers, case studies, and resources from EDF and partners that the SCF might consider when developing the Forum. It is worth noting that several resources have not yet been published so there are currently no available links, but as they become available EDF would be happy to pass along that information.

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<https://unfccc.int/LCIPP#:~:text=The%20platform%20has%20been%20established,lessons%20learned%20on%20mitigation%20and>

²⁷ <https://business.edf.org/insights/mato-grosso-produce-conserve-include-pci/>

A Gigaton REDD+ Bid Strategy Unlocking the potential for REDD+ in supporting the protection of rainforests and other “natural climate solutions” in tropical forest countries

July 2020, Forest Trends

This report explores options for developing a “Gigaton REDD+ Bid,” a concept developed by Forest Trends which recommends that a coalition of donor governments secures co-funding from a range of private actors for a “Gigaton REDD+ Bid” with a value of at least US\$10 billion in order to unlock supply of REDD+ credits. Success in delivering 1 billion tons of emission reductions would in turn catalyze further even larger-scale private and public funding commitments.

Link: <https://www.forest-trends.org/publications/a-gigaton-redd-bid-strategy/>

Business responses to climate policy uncertainty: Theoretical analysis of a twin deferral strategy and the risk-adjusted price of carbon

2020, published in Energy

Climate policies are currently insufficient to meet stabilization goals and remain uncertain. This paper develops a conceptual model to illustrate investment decisions of a risk-neutral firm faced with uncertain climate policy requirements. The firm trades off lost profits from abating too much (being “long”) versus too little (being “short”). Despite risk neutrality, profits are nonlinear such that uncertainty encourages a twin deferral strategy of deferring investment in deploying abatement technology as well as in buying and holding (banking) emissions allowances. This strategy avoids risks of stranded abatement investments but suppresses carbon prices such that prices are projected to evolve through a sequence of stepwise jumps as policies mature. Prices may spike dramatically during an abatement “short squeeze” if firms must rapidly abate in tandem. To mitigate such risk, firms may engineer payoffs from abatement strategies if they have access to suitable hedging tools. These potentially include call options (the right but not obligation to purchase at a fixed price) on avoided emissions from tropical deforestation, as well as investments in R&D and price guarantees (put options) on abatement. Policy makers should support development of hedging tools while enhancing certainty over future policies.

Link: <https://ideas.repec.org/a/eee/energy/v205y2020ics0360544220311038.html>

Designing an environmental impact bond for wetland restoration in Louisiana

February 2019, published in Ecosystem Services

Coastal regions and deltas around the globe are seeking financing for resilience projects to cope with more frequent extreme events, sea-level rise and land subsidence. Interest is growing in natural infrastructure that generates multiple ecosystem services including flood risk reduction. The growth of the conservation finance market represents an opportunity to support these investments, but there is a need for pilot transactions that align incentives across private and public entities, along with rigorous performance metrics for natural infrastructure linked to resilience outcomes. We test the feasibility of the Environmental Impact Bond (EIB) model to address these challenges. An EIB is a form of Pay-for-Performance debt financing where investors provide upfront capital to implement a project and are repaid according to the degree to which desired environmental outcomes are achieved. We evaluate this concept for wetland

restoration projects identified in Louisiana's Coastal Master Plan by developing a site selection procedure and designing a multi-stakeholder transaction tied to restoration outcomes. Based on our proposed model we conclude that an EIB could be used to accelerate restoration and increase the net benefits of wetland investments, aligning incentives of the investors and payors around metrics of wetland sustainability.

Link: <https://www.sciencedirect.com/science/article/pii/S2212041618302882>

Estimating the Power of International Carbon Markets to Increase Global Climate Ambition
January 2019, published as part of The First International Research Conference on Carbon Pricing, World Bank Working Paper Series as part of the World Bank and Carbon Pricing Leadership Coalition

By helping achieve emissions targets more inexpensively than expected, emissions trading systems can lower political resistance to more ambitious targets, enabling deeper and faster cuts in emissions over time. Using a dynamic global partial-equilibrium carbon market model, we quantify cost savings under scenarios for emissions trading within and across countries, as well as the corresponding potential to escalate reductions if those cost savings were translated into greater mitigation. A key finding is that since avoided deforestation is such a large source of low-cost mitigation, linking reduced deforestation to an international carbon market is a key driver of the potential ambition gains across the modeled scenarios. International markets including forests play a potentially even more critical role as global ambition increases, with roughly double the volume of international transactions and ten-fold the value of trading if countries' Paris pledges are scaled up to limit warming to 2°C.

Link:

<https://ceep.columbia.edu/sites/default/files/content/events/Lubowski%20et%20al.%20on%20Carbon%20Markets.pdf>

Harnessing Private Investor 'Willingness-to-Pay' for Climate Change Mitigation
May 2019, Forest Trends

Private investors currently have little opportunity to deploy investment capital on concessionary terms for climate impact. This paper proposes that a significant percentage of social responsible investment (SRI), impact, and many mainstream investors would be willing to pay a modest donation on the nominal value of their investment portfolios in order to support climate change mitigation and associated co-benefits, provided that they felt that their overall returns (minus the fee) tracked mainstream investment performance. In this working paper, we propose a special platform, referred to here as a Global Climate Finance Foundation (GCFF), enabling private investors across the world to contribute a small voluntary payment to climate change mitigation. The resulting climate investments would be underpinned by government climate finance commitments. Harnessing this willingness-to-pay and achieving momentum would require leadership of respected and senior public figures and philanthropic foundations as well as of CEOs at large investment funds.

Link: https://www.forest-trends.org/wp-content/uploads/2019/05/doc_5752.pdf

International Seminar Business Opportunities for a Sustainable Rural Economy: the contribution from forests and agriculture

May 2019, published as part of the International Policy Centre for Inclusive Growth joint publication

This report reflects findings from the international Seminar “Business Opportunities for a Sustainable Rural Economy: Contributions from Forests and Agriculture,” held on 14-15 May 2019, at the headquarters of the Institute for Applied Economic Research (Ipea), in Brasília, Brazil. International experts and representatives from the Brazilian government, the private sector, civil society and academia gathered to study new opportunities for sustainable businesses for the Brazilian rural sector, and to identify strategies and challenges to develop them.

Link: https://ipcig.org/pub/eng/JP21_International_Seminar_Business_Opportunities.pdf

Produce, Conserve, Include (PCI) Pitchbook

May 2019, Produce, Conserve, Include Institute and its multi-stakeholder body

This pitch book aims to provide a “menu” of some of the on-the-ground programs in Mato Grosso that are ripe for corporate engagement. The goal is to make it simple for companies to understand how they can connect their supply chain efforts to the broader Mato Grosso PCI strategy to contribute to its success and achieve their own supply chain goals.

Link: <http://blogs.edf.org/biz/files/2019/05/PCI-PitchBook-final-online.pdf>

Catalyzing carbon markets globally to realize the promise of Paris: The power of markets to increase ambition

April 2018, submitted to the Talanoa Dialogue Platform by EDF

It is widely understood that carbon pricing policies lower the costs of achieving a given target emissions level, by creating a powerful economic incentive for businesses and individuals to reduce emissions as cost effectively as possible and thereby spurring innovation in cleaner and cheaper technologies. What is less commonly emphasized—but more important for the health of the climate and the future of the planet—is how those cost savings can translate into deeper cuts in climate pollution. This submission presents the results of an analysis that attempts to estimate the potential for carbon markets to yield deeper reductions. We employed EDF’s carbon market modelling framework to conduct a quantitative analysis of the cost savings under various scenarios for domestic and international emissions trading—as well as the corresponding escalation in reductions that would result if those cost savings were translated into greater ambition.

Link:

https://unfccc.int/sites/default/files/resource/236_Talanoa%20submission%20carbon%20markets%20potential%20EDF%20April%203.pdf

Escaping the climate policy uncertainty trap: options contracts for REDD+

March 2018, published in Climate Policy

Climate policy uncertainty significantly hinders investments in low-carbon technologies. The global community is behind schedule to curb carbon emissions, and continued delays create risks of escalating climate change damages and future policy costs. Because of its unique scale, cost structure and near-term availability, REDD+ has significant potential to help manage climate policy risks and facilitate the transition to lower greenhouse gas emissions. This report explores “call” options contracts in the form of the right but not the obligation to buy high-quality emissions reduction credits from jurisdictional REDD+ programs at a predetermined price per ton of CO₂.

Link: <https://www.tandfonline.com/doi/abs/10.1080/14693062.2017.1422478>

Toward a Financial Architecture to Protect Tropical Forests: The Case of Brazil

January 2018, Forest Trends

This report focuses on Brazil, a critical forest country, in order to describe an architecture of finance based on a particular framework of law and existing institutional efforts to protect forests. Despite a challenging macroeconomic environment, Brazil has the most developed legislative framework for tropical forest protection in the Forest Code, powerful institutional capacity including in its large public agriculture finance institutions, and high levels of foreign investment and trade in commodities associated with deforestation. We will address two integrated dimensions of a comprehensive strategy to stabilize the forest frontier. There is currently a major focus on commercial approaches to improving productivity on the agricultural side of the frontier. While this focus is important, there needs to be a parallel investment into the protection of forests, ensuring that the public goods forests provide (e.g., climate, water, biodiversity) have real value. Building a successful market and policy strategy to effectively stabilize the forest frontier will necessarily require the building and connecting of three fundamental pieces of the architecture.

Link: https://www.forest-trends.org/wp-content/uploads/2018/02/doc_5728.pdf

Balancing Risks from Climate Policy Uncertainties: The Role of Options and Reduced Emissions from Deforestation and Forest Degradation

August 2017, published in Ecological Economics

In light of the adjustment costs for society entailed in progressively adjusting climate policies, this paper develops a conceptual model and numerical example that illustrate the risk associated with exposure to the high costs of complying with future emissions controls and how this risks trades off against that from potentially premature investment into abatement. We then highlight the

potentially unique role of tropical forest protection in helping to manage these risks by providing a cost-effective “buffer” of near term emissions reductions at a globally significant scale.

Link: <https://www.sciencedirect.com/science/article/pii/S0921800916304645>

The power of markets to increase ambition

2017, EDF

Carbon pricing policies are a promising tool to combat climate change, as they can lower the costs of achieving a given target emissions level. These cost savings can translate into deeper cuts in climate pollution. By helping achieve emissions targets more inexpensively than expected, carbon pricing policies could lower political barriers to more ambitious goal-setting. EDF modeling results have found that reinvesting the cost savings from a global emissions trading system over the period 2020-2035 would nearly double the emissions reductions under current national Paris Agreement pledges (“NDCs”), at no added cost.

Link:

https://www.edf.org/sites/default/files/documents/Power_of_markets_to_increase_ambition.pdf

Leveraging private sector finance for REDD+ Implementation: Financing Mechanisms and investible entities

June 2015, published as part of the *Global Landscapes Forum*

This brief considers the need to both “produce and protect” and explore public–private financing mechanisms at both national and international levels for mobilizing capital to meet these twin imperatives. Especially in the near term, with market-based REDD+ still not underway, international and domestic public REDD+ funds can mitigate private investment risks; help lower the net cost of capital for forest countries and subnational jurisdictions to borrow and otherwise attract financing; and encourage stronger political will on the part of forest-country policy makers to commit domestic REDD+ resources and develop policies to promote sustainable commodity production and forest protection. This combination of international REDD+ finance, forest country political will and public resources can support public–private partnerships and leverage private capital from capital markets, agri-business, commodity buyers, traditional and mission-driven investors and emerging carbon markets. Such finance can then generate further private investment at a local level to support local low-carbon development strategies.

Link: <https://www.globallandscapesforum.org/publication/leveraging-private-sector-finance-for-redd-implementation-financing-mechanisms-and-investible-entities/>

Economics and Finance of Reducing Emissions from Tropical Deforestation (REDD+): Reconciling Short-Term Private Incentives with Long-Term Jurisdictional Benefits

Revised and resubmitted on July, 13th 2020 to the *Special Issue of the journal Ecosystem Services* “Finance for Nature: Bridging the Blue-Green Investment Gap to Inform the Post-2020 Global Biodiversity Framework”

This paper develops a real options framework of land-use choices and a quantitative illustration for Brazil's state of Mato Grosso to show why deforestation for extensive ranching persists as the norm even though conservation-plus-intensification has a more favorable apparent net present value, prior to considering risks. The paper further shows how financial instruments such as bonds and call and put options can help close the gap between currently perceived private values of carbon in standing forests and long-term value under emerging markets to value forest conservation at large scales (REDD+).

Funding strategies for the Mato Grosso Produce, Conserve and Include program

Expected publication end of July 2020, EDF and Forest Trends

This paper proposes four core financial strategies to support the large-scale (US\$ 8.9 billion) investment requirements of the State of Mato Grosso's ambitious Produce, Conserve and Include (PCI) strategy over the next 10 years. The goal is to harness international public and private sector funding at the project, programmatic and jurisdictional scales.

Here Today, Here Tomorrow: Opportunity Cost of Avoiding Deforestation in Mato Grosso, Brazil

Expected publication end of July 2020, EDF

This paper estimates the scale of financial penalties and compensations that would halt illegal deforestation and prompt landowners to forgo their right to deforest legally their excess legal reserves, by quantifying the opportunity cost of all remaining standing forest plots in Mato Grosso, Brazil through 2030. Based on these estimates, coupled with spatial data on carbon stocks, we develop marginal CO₂ abatement cost curves for illegal and legal deforestation for each land type.

Designing the Market for Environmental Reserve Quotas: Property-Level Analysis of Environmental Compliance Strategies in Mato Grosso, Brazil

Expected publication end of August 2020, EDF

In this study we assess feasibility of the CRA market (Environmental Reserve Quotas) in the large agricultural state of Mato Grosso building on an econometric analysis of opportunity costs for forest and non-forest plots, and using estimates of restoration costs for properties not in environmental compliance. We compare market equilibria (price and quantity traded) under different scenarios including by biome, interactions with payments for carbon sequestration, and limits to the pool of suppliers.

V. Potential Institutions and Events to Partner with in the Organization of the Forum

The organizations below are invested in the success and outcome of the Forum, and could assist the SCF in the development and organization of the Forum. Please reach out to the corresponding points of contact with any questions or requests for additional information.

- **Environmental Defense Fund (EDF):** Ruben Lubowski, rlubowski@edf.org; Breanna Lujan, blujan@edf.org
- **Emergent Forest Finance Accelerator:** Eron Bloomgarden, eron@emergentclimate.com
- **Forest Trends:** Rupert Edwards, REdwards@forest-trends.org
- **Amazon Environmental Research Institute (IPAM):** Marcelo Stabile, marcelo.stabile@ipam.org.br
- **Climate Policy Initiative-Brazil (CPI):** Juliano Assuncao, Juliano.Assuncao@cpirio.org
- **International Institute for Applied Systems Analysis (IIASA):** Florian Kraxner, kraxner@iiasa.ac.at
- **Mercator Research Institute on Global Commons and Climate Change (MCC):** Sabine Fuss, Fuss@mcc-berlin.net