

FINAL DRAFT

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

Rupert Edwards

July 2020



About Forest Trends

Forest Trends works to conserve forests and other ecosystems through the creation and wide adoption of a broad range of environmental finance, markets, and other payment and incentive mechanisms.

Forest Trends does so by: 1) providing transparent information on ecosystem values, finance, and markets through knowledge acquisition, analysis, and dissemination; 2) convening diverse coalitions, partners, and communities of practice to promote environmental values and advance development of new markets and payment mechanisms; and 3) demonstrating successful tools, standards, and models of innovative finance for conservation.

About Forest Trends' Public-Private Finance Initiative

Conserving forest and ecosystems and transforming land use at scale to sustainable low-emissions production systems requires substantial investment. Our Public-Private Finance Initiative is strategically focused on creating architectures that increase the amount of capital flowing to land-use practices which reduce emissions from deforestation and degradation, improve the productivity of agricultural and livestock systems, and enhance livelihoods of rural populations.

Acknowledgements

We gratefully acknowledge Ruben Lubowski, Alexander Golub and Gabriella Leslie (Environmental Defense Fund), and Michael Jenkins and Genevieve Bennett (Forest Trends), for their analysis and review of this report.

We also would like to thank the Norwegian Agency for Development Cooperation for their support.

Contents

Abstract.....	i
Executive summary and key policy insights.....	ii
Emerging sources of private-sector demand for REDD+	iii
Linking public and private agendas for a REDD+ Bid at scale	v
Designing a demand signal to unlock REDD+ supply	v
Introduction	1
Financing natural climate solutions through REDD+	1
Mobilizing private capital.....	3
Challenges for REDD+ and the central importance of large-scale and predictable results-based finance	5
REDD+'s unfulfilled promise	5
The central importance of large-scale and predictable results-based finance.....	6
Emerging sources of private sector demand for REDD+	9
The international aviation sector and CORSIA	10
Oil and gas sector	11
Hard-to-abate sectors.....	11
Agribusiness and food companies.....	12
Private savers and investment funds	13
Conclusion on emerging sources of private sector demand	14
Carbon pricing and the value of REDD+	15
The demand side and REDD+ value.....	15
The supply side and REDD+ value.....	16
Conclusion on carbon pricing and the value of REDD+	16
Options for operationalizing a Gigaton REDD+ Bid.....	18
Strategic focus on forest countries with the strongest capacity in order to maximize results.....	18
The Emergent Forest Finance Accelerator and use of donor-funded put options/floor prices.....	19
The buy side: Incentivizing private sector buyers to participate in the Gigaton REDD+ Bid.....	20
High environmental integrity jurisdictional REDD+ credits.....	22
The Gigaton REDD+ Bid and financing instruments for upfront capital costs	22
Conclusion	23
Specific recommendations	23

Abstract

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 NCS 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.

We set out options for developing the “Gigaton REDD+ Bid.”

Executive summary and key policy insights

Natural climate solutions (NCS) in tropical forest countries, notably the protection of existing forests, are vitally important for the transition to a carbon neutral economy by the middle of this century and thus to hopes of holding global warming below 2°C. Protecting forests also sustains the livelihoods and cultures of indigenous and local communities and protects plant and animal species along with providing a host of other critical environmental services.

REDD+¹ is a critical pathway for the international community to drive sufficient finance for NCS. The Paris Agreement² Article 5 has a strong commitment to results-based finance for REDD+. Article 6 also opens up the possibility of mechanisms for carbon markets that could provide an additional source of funding for REDD+ credits. Analysis indicates that international carbon markets including forests can enable twice the emission reductions under current Paris Agreement pledges at the same costs as countries acting alone. Forests can deliver about half of the internationally traded volumes in this scenario, over and beyond existing forest protection, restoration, and afforestation commitments made by tropical countries as part of their domestic climate pledges.³

Some forest countries have successfully reduced deforestation with domestic policies and have committed to go further as part of their Nationally Determined Contributions (NDC) goals. Forest countries will carry much of the burden of implementing NCS as part of their NDC under the Paris Agreement. However, international co-funding will be critical to increasing ambition and to accelerating implementation.

Fulfilling the potential of REDD+ should be an urgent priority for the international community. While many forest countries have progressed the REDD+ agenda, supported by a small number of bilateral donors (namely Norway, with support from Germany and the United Kingdom [UK]) and multilateral agencies (including the World Bank and the United Nations Green Climate Fund [GCF]), REDD+ has not yet delivered the transformational change initially envisioned for it in the Stern Review in 2006 and Eliasch Review in 2008.^{4,5}

The central challenge for REDD+ is that it is constrained by a “chicken-and-egg” problem: the vast potential for greenhouse gas mitigation and supply of jurisdictional REDD+ credits will not materialize in the absence of massively increased levels of visible demand. (Said demand must also deliver higher prices for accounting methodologies with strong environmental credibility). At the same time, on the demand side, many potential providers of REDD+ results-based finance may be unwilling to make large-scale funding commitments in the absence of visible supply, and with insufficient consensus on high integrity accounting methodologies.

Jurisdictional REDD+ results-based payments will only be made if forest countries are able to achieve emission reductions targets at a national or regional scale. Even funding support amounting to hundreds of millions of US dollars is not always sufficient to give forest countries the confidence to embark on ambitious emission reduction programs which would have an impact on public sector borrowing

¹ “Reducing Emissions from Deforestation and forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.” REDD+ is the framework launched under the United Nations Framework Convention on Climate Change for supporting reduced emissions and increased removals from tropical forests.

² Under the United Nations Framework Convention on Climate Change.

³ Piris-Cabezas, P., R. Lubowski, and G. Leslie. 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, D.C. <http://hdl.handle.net/10986/32746>.

⁴ Stern N. 2006. *Stern review: the economics of climate change*. Cambridge University Press, Cambridge, United Kingdom. doi: 10.1017/CBO9780511817434.

⁵ Eliasch, J. 2008. *Climate change: financing global forests: the Eliasch Review*. UK Government Office of Climate Change, London. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228833/9780108507632.pdf

requirements on the order of US\$ billions, and where the outcome is “all or nothing:” if major investment programs fail to deliver sufficient results, the bulk of REDD+ finance will not materialize.

A massive increase in international funding of the kind originally envisioned by the Stern and Eliasch reviews will be required to give forest countries the fiscal space and confidence to implement ambitious policies. Such an increase would also allow other challenges related to institutional capacity, uncertainty around Paris Agreement rules, and upfront capital investment needs to be overcome much more rapidly.

We are now at an inflection point where it is possible to build the large demand signal capable of supporting forest countries to implement ambitious policies. Donor governments and multilateral institutions are in a position today to leverage materially more private co-funding for REDD+ than has been the case historically.

Emerging sources of private-sector demand for REDD+

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. This is evidenced by, for example, the Financial Stability Board’s Task Force on Climate-Related Financial Disclosures⁶; recent European Union (EU) Green Deal proposals to enshrine in law the necessity for all sectors of the economy to transition to net-zero emissions by 2050⁷; and the development of low carbon indices and climate Value at Risk strategies in the financial markets (which we discuss further below).

Reaching net zero carbon emissions will ultimately mean that energy and industrial systems fully mitigate their own greenhouse gas (GHG) emissions without relying permanently on offsets.⁸ However, access to lower-cost, near-term mitigation options from REDD+ (taking into account not only implementation and opportunity costs but also a margin of “profit” for forest countries) provides greater flexibility for “hard-to-abate” sectors for long-term investment or R&D to ensure a dynamically efficient pathway of de-carbonization.⁹

Hence, companies are looking for credible and scaled emissions reductions. Jurisdictional REDD+ has the greatest potential to deliver such emission reductions at the scale that these sectors—and the world—will require over the next decade.¹⁰ Jurisdictional-scale programs also offer the potential for significantly higher assurances of environmental and social integrity than smaller, stand-alone initiatives. This is because jurisdictional programs, by definition, require accounting for the actions of all the actors across the jurisdiction.¹¹

The aviation and oil and gas sectors represent the most immediate opportunity for scaling demand for emissions reductions in the short term, due to their existing compliance and voluntary commitments. However, other sources of funding have strong potential, including agribusiness companies, other hard-to-abate carbon-intensive sectors, and mainstream private investment funds in the capital markets.

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) under the International Civil Aviation Organization (ICAO) is set to launch in 2021 and will be scaled up to full implementation in 2027. It has been forecast to mitigate around 2.5 billion tonnes of CO₂ between 2021 and 2035, although

⁶ “TCFD Learning Hub.” Task Force on Climate-related Financial Disclosures. Accessed July 2020. <https://www.fsb-tcfd.org>.

⁷ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

⁸ Energy Transitions Commission. 2018. *Mission Possible: Reaching Net-Zero Carbon Emissions from Harder to Abate Sectors by Mid-Century*. Energy Transitions Commission. http://www.energy-transitions.org/sites/default/files/ETC_MissionPossible_FullReport.pdf.

⁹ Koch, N., Reuter W.H., Fuss, S., and Grosjean, G. 2017. Permits vs. offsets under investment uncertainty. *Resource and Energy Economics* 49, 33-47. doi: 10.1016/j.reseneeco.2017.03.006.

¹⁰ Golub, A.A., Fuss, S., Lubowski, R., Hiller, J., Khabarov, N., Koch, N., Krasovskii, A., Kraxner, F., Laing, T., Obersteiner, M., Palmer, C., Piris-Cabezas, P., Reuter, W.H., Szolgayová, J., Taschini, L., and Wehkamp, J. 2018. Escaping the climate policy uncertainty trap: options contracts for REDD+. *Climate Policy* 18, 1227-1234. doi: 10.1080/14693062.2017.1422478.

¹¹ See for example Seymour, F. “INSIDER: 4 Reasons Why a Jurisdictional Approach for REDD+ Crediting Is Superior to a Project-Based Approach.” World Resources Institute. May 5, 2020. Accessed July 2020. <https://www.wri.org/blog/2020/05/insider-4-reasons-why-jurisdictional-approach-redd-crediting-superior-project-based>.

a July 2020 decision to remove 2020 from CORSIA's baseline will reduce the sector's offset obligations in the near term.¹² Nevertheless, its long-term compliance carbon obligations will remain very substantial.

Major oil and gas companies including BP and Shell, as part of their corporate sustainability goals and social "license to operate" have also pledged to voluntarily reduce emissions, including "Scope 3"¹³ emissions. These pledges will be met in part through investments in natural carbon sinks, with the ambition of reaching net zero carbon by 2050. At present, investments in low-carbon businesses represent less than 1% of oil and gas companies' capital expenditure.¹⁴ This implies that even with massive internal carbon efficiency gains, meeting ambitious long-term targets will necessarily require very large-scale offsetting – not least to provide time to enable longer-term investments in low-carbon technologies and efficiency improvements.

In the agribusiness and food sector, there is a significant opportunity for companies to increase ambitions beyond zero deforestation sourcing commitments and contribute more to REDD+ objectives. With commercial agriculture responsible for well over half of all deforestation, recent years have seen much focus on the high risk of deforestation associated with four major supply chains: beef, soy, palm oil, and pulp & paper.¹⁵ In response, members of the Consumer Goods Forum passed a resolution in 2010 to achieve zero net deforestation by 2020 in those four commodity sectors. This was followed in 2014 by the New York Declaration on Forests, a voluntary cross-sector pledge, to halve global deforestation by 2020. Both initiatives have fallen far short of their 2020 targets, and major efforts will be required to catch up with their stated ambitions in the years ahead. Private sector actors indicate that a key roadblock to meeting zero deforestation sourcing goals is uneven support from governments, including in producer countries.¹⁶ In this context there has been focus in recent years on government policy and regulatory options that could be applied in consumer countries to reinforce voluntary measures.¹⁷ In the meantime, leading agribusiness and food companies could demonstrate their commitment to zero deforestation supply chains, by pledging to make payments for jurisdictional REDD+ credits from their key sourcing regions, alongside donor governments via a Gigaton REDD+ Bid platform. Extracting a very small percentage of the US\$180 billion per annum production value of the commodities associated with tropical deforestation would reduce the fiscal burden on public actors of REDD+.

Meanwhile, the financial sector is witnessing the rapid evolution of climate risk metrics (ranging from carbon footprints for securities to 2°C Value at Risk analysis) as well as emerging regulatory requirements for investment managers and pension fund trustees to climate stress-test portfolios. Emerging platforms enable investors to pick funds where a percentage of fees go to funding carbon offsets, or allow investors

¹² Watson, F. "ICAO Council adopts 2019 baseline for aviation carbon offsetting system." S&P Global. July 1, 2020. <https://www.spglobal.com/platts/en/market-insights/latest-news/coal/070120-icao-council-adopts-2019-baseline-for-aviation-carbon-offsetting-system>.

¹³ The GHG Protocol Corporate Standard classifies a company's GHG emissions into three 'scopes. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. Source: "FAQ." Greenhouse Gas Protocol. Accessed July 2020. https://ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf.

¹⁴ IEA. 2020. *The Oil and Gas Industry in Energy Transitions*. Paris: IEA. <https://www.iea.org/reports/the-oil-and-gas-industry-in-energy-transitions>. <https://www.iea.org/reports/the-oil-and-gas-industry-in-the-energy-transitions-2019>.

¹⁵ Tropical Forest Alliance Secretariat 2020. 2017. *Commodities and Forests Agenda 2020: Ten priorities to remove tropical deforestation from commodity supply chains*. Geneva, Switzerland: World Economic Forum. https://climatefocus.com/sites/default/files/TFA2020_ExecSumm.

CommoditiesandForestsAgenda2020_Sept2017_0.pdf.; *The Role of the Financial Sector in Deforestation-Free Supply Chains* is published by the Tropical Forest Alliance 2020 based on research by Vivid Economics within the framework of the Tropical Forest Alliance 2020 secretariat, hosted at the World Economic Forum, January 2017.

¹⁶ COWI. 2018. *Feasibility study on options to step up EU action against deforestation*. Luxembourg: Publications Office of the European Union.

¹⁷ See for example: Schatz, B. and M.B. Jenkins. "Deforestation can't be stopped by voluntary action alone." World Economic Forum. January 15, 2020. <https://www.weforum.org/agenda/2020/01/deforestation-voluntary-action-regulation/>.

to offset the carbon intensity that remains in their investment portfolios.¹⁸ Although in their early days, such developments could generate an enormous amount of new funding for offsets, as investors seek not only to prioritize low carbon and climate transition strategies, but also to immunize their portfolios against residual carbon intensity.

Linking public and private agendas for a REDD+ Bid at scale

A strategic goal for carbon-intensive sectors—and for money managers who invest in them—should be to work alongside donor governments or multilateral agencies to kick-start REDD+ credit supply at scale. At a macroeconomic level, the success of NCS 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.

REDD+ can contribute trillions of dollars in value by “flattening the curve” of the global economy’s costs of transition to climate stability—and opening up the opportunity to achieve tighter emissions targets and maintain total emissions over the period 2010-2100 below 1,200 GtCO₂ (consistent with a 2°C budget) while keeping the global CO₂ price below US\$250/t CO₂ by 2050. However, without the higher end of REDD+ supply potential, any tightening of ambitions would lead to a quick escalation in carbon prices.¹⁹

We propose that private actors in carbon-intensive industries would be able to pay materially higher prices for the greater robustness, impact, and scalability of jurisdictional REDD+ credits than the floor prices currently offered by donor governments, the World Bank and UN GCF of US\$5-US\$10 or the low prices being paid on a non-compliance basis for project-based credits (less than US\$3 per ton on average in 2018 according to Ecosystem Marketplace).²⁰ We show examples below of how costs of offsetting could be passed through to end-use consumers and how such costs often represent a very low percentage of the value of commodities. There is also suggestive evidence that consumers may be willing to pay a higher price for products that include carbon offsets if they are informed that companies or fuel providers are proactively taking these actions to address their climate footprints.²¹

We see a clear alignment of interests on the supply and demand sides to achieve REDD+ scale. There is an overwhelmingly strong environmental and economic case for the international community to support tropical forest countries to end deforestation. REDD+ interventions can deliver strong local benefits to forest countries. Scaling REDD+ also allows the international community to capture the under-exploited “option value” of near-term affordable mitigation options, and the consequent enormous untapped demand potential for REDD+ credits from a range of private actors.

Designing a demand signal to unlock REDD+ supply

Over the coming decade there should be ample opportunity to deliver US\$50-100 billion in combined international public and private support for REDD+. However, jurisdictional REDD+ demand and supply must demonstrate the ability to scale from current levels. Unlocking the first one billion tons of supply is the crucial step.

A broader coalition of donor governments will be needed to provide results-based funding for REDD+ in order to overcome the chicken-and-egg dilemma, and harness the growing opportunity for scaled-up

¹⁸ Edwards, R. 2019. *Harnessing Private Investor Willingness to Pay for Climate Change Mitigation*. Forest Trends. <https://www.forest-trends.org/publications/harnessing-private-investor-willingness-to-pay-for-climate-change-mitigation/>.

¹⁹ Fuss, S., Golub, A., Lubowski, R. 2020. The economic value of tropical forests for meeting global climate stabilization goals. Submitted to *Global Sustainability*.

²⁰ Zwick, S. “Voluntary Carbon Volume Hits Seven Year High on Demand for Natural Climate Solutions.” Ecosystem Marketplace. December 5, 2019.; EM Carbon Markets Hub Accessible here: <https://www.ecosystemmarketplace.com/carbon-markets/>.

²¹ Hardisty, D.J., Beall, A., Lubowski, R., Petsonk, A., and Romero-Canyas, R. 2017. A Carbon Price by Another Name May Seem Sweeter: Consumers Prefer Upstream Offsets to Downstream Taxes. *Journal of Environmental Psychology* 66. doi: 10.1016/j.jenvp.2019.101342.

private sector co-funding. To date, the governments of Norway, Germany, and the UK have been the primary backers of results-based funding for REDD+.

At the same time, sufficient, visible, and predictable funding for jurisdictional REDD+ credits from private sector actors at a sufficiently high price would incentivize a broader range of donor governments to provide additional readiness and implementation funding (e.g., for stages one and two of REDD+). This would accelerate co-operation and clarification of the rules and functional relationship around Articles 5 and 6.2 of the Paris Agreement. It would enable the development of financing instruments to address upfront costs;²² help forest countries clarify land tenure and implement policies and measures on the ground; and secure adoption of REDD+ accounting methodologies with high environmental integrity.

We propose that delivery risk and capacity challenges in forest countries would be enormously reduced when the predictable level of demand for REDD+ credits is sufficiently large to support ambitious forest country programs. Forest countries need a clear signal that international public and private funding will be sufficient to support the very large-scale investment requirements needed to achieve and go beyond NDC goals. Regulators need confidence that REDD+ credits will be of high integrity. And private actors increasingly need the confidence that there will be a very large-scale supply of REDD+ credits.

Donor government funding commitments could include a large replenishment of the United Nations Green Climate Fund (GCF) REDD+ results-based finance program and additional finance for REDD+ capacity building in a wide range of tropical forest countries.

However, there is a very strong case for a special Gigaton REDD+ Bid strategy that is focused on catalyzing large-scale private sector funding commitments. The Bid would consist of a firm and predictable contractual commitment to pay for verified jurisdictional REDD+ credits (either in the form of a floor price or via an Emission Reduction Purchase Agreement, or ERPA).

This strategy would involve two elements. First, it would focus on forest countries with the strongest capacity and potential for NCS in order to maximize results. The funding platform could provide a predictable funding window on a “first come, first served” basis. It could in parallel sign ERPAs on a forward basis with priority forest country jurisdictions. This could give forest countries the confidence that, even if they were not at the front of the queue for the funding window, they would still have a contractual off-take agreement.

Secondly, the Bid strategy would leverage public and private funding commitments in a specialist platform designed for this purpose, including using public funds for put options/floor prices. The Emergent Forest Finance Accelerator (known as “Emergent”),²³ a platform currently supported by the government of Norway, offers a ready-made opportunity and potential model for these efforts. Emergent seeks to aggregate supply and demand of high-integrity credits, underwritten by a floor price from public donors.

Governments could commit US\$5 billion for a Gigaton REDD+ Bid platform and in parallel work through the convening power of senior politicians to secure pledges and contractual commitments for an

²² Eis, J., Dixon, C., Day, E.C., Seroa da Motta, R., Edwards, R., Timothy, G., Wolf, G.V., Sander, K. 2017. *The Potential Role of Enhanced Bond Structures in Forest Climate Finance*. Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/551601508180348166/The-potential-role-of-enhanced-bond-structures-in-forest-climate-finance>.

Edwards, R. 2018. *Toward an Architecture of Finance to Protect Tropical Forests: The Case of Brazil*. Forest Trends. https://www.forest-trends.org/wp-content/uploads/2018/02/doc_5728.pdf.

Nepstad, D., Tepper, D., McGrath, D., Seroa da Motta, R., Edwards, R., Swette, B., & Shimada, J. 2015. *Research and Financial Innovations in Support of Brazil's INDC Process*. Earth Innovation Institute. https://www.researchgate.net/publication/308995232_Research_and_Financial_Innovations_in_Support_of_Brazil's_INDC_Process.

Edwards, R., Tepper, D., and Lowery, S. 2014. *Jurisdictional REDD+ Bonds: Leveraging Private Finance for Forest Protection, Development, and Sustainable Agriculture Supply Chains*. Forest Trends. https://www.forest-trends.org/wp-content/uploads/imported/jurisdictional-redd-bond-supply-chains-and-finance-5-15-14_final-pdf.pdf.

²³ “Mobilizing high-integrity nature-based climate solutions for the private market.” Emergent. Accessed July 2020. <https://www.emergentclimate.com/>.

additional US\$5 billion from private sector leaders. The aim would be to ensure a minimum price of US\$10 for 1 billion tons of emissions reductions. The successful delivery of 1 billion tons of REDD+ credits would in turn catalyze further even larger-scale private (and public) funding commitments. Public funding commitments in the form of options/floor prices could allow for public funds to be recycled.

To incentivize “early mover” private funding commitments, the Gigaton REDD+ Bid could provide “first close” investors with privileged terms for accessing jurisdictional REDD+ credits. First close private investors would benefit from being part of a large-scale platform that secured access to more competitive pricing, “seniority” over delivered credits and the ability to buy to call options or to prioritize specific jurisdictions from where they source commodities.

Some governments might wish to acquire REDD+ credits directly as part of Article 6 trading to help achieve a portion of their own emission reduction targets, rather than making payments as form of output-based aid to support forest countries in achieving NDC goals. In this case they might make direct bids rather than underwrite floor prices.

The UK could play an especially important role in the run-up to COP26 in Glasgow in November 2021, with senior government figures pushing to convene CEOs of major companies and investment firms to participate alongside governments in the Gigaton REDD+ Bid. *Ex ante* success in achieving US\$10 billion in funding commitments would create a very positive backdrop to international climate negotiations.

SECTION ONE

Introduction

Financing natural climate solutions through REDD+

Natural climate solutions are critically important in the near term for the transition to a carbon neutral economy by the middle of this century, offering at least 30% of the mitigation needed to meet the Paris goal of stabilizing global warming below 2°C. NCS at the same time can enhance biodiversity values, water filtration, flood control, air filtration, and soil quality.²⁴ Griscom et al have shown that cost-effective tropical NCS offer globally significant climate mitigation in the coming decades: an estimated 6.56 Gigatons (Gt)/year at a cost of less than 100 US\$ per ton of carbon dioxide equivalent (tCO₂e). Forest protection, restoration, and reforestation could contribute over two-thirds of this NCS mitigation, and about half of all modeled low-cost mitigation opportunities. By far the largest and most cost-effective opportunity is conservation of existing tropical forests.²⁵ To further underscore the importance of protecting existing carbon sinks, recent analysis has found that natural ecosystems at risk of human activities contain about 260 Gt of “irrecoverable” carbon that cannot be restored within policy-relevant timeframes. Seventy Gt of this total is in tropical rainforests.²⁶

REDD+ is a critical pathway for the international community to drive sufficient finance for NCS. The Paris Agreement Article 5 has a strong commitment to results-based finance for REDD+. Article 6 also opens up the possibility of mechanisms for carbon markets that could provide an additional source of funding for REDD+ credits.

Forest Trends and partners in 2019 called for a “Marshall Plan for forests,” a massive financial and technological effort that builds capacity at a grand scale through national budget allocations, development support, climate finance, private investment, and public-private finance.²⁷ Scaled up public and private funding for REDD+ would support more ambitious action from forest countries and help optimize the “option value” that forest carbon provides to the international community as a buffer against escalating costs to Gross World Product of tightening emissions controls and mitigation pathways.²⁸

On the demand side, access to lower-cost, near-term mitigation options from REDD+ (taking into account not only implementation and opportunity costs but also a margin of “profit” for forest countries) provides greater flexibility for hard-to-abate sectors for long-term investment or R&D to ensure a dynamically efficient pathway of de-carbonization.²⁹ Limiting global warming to below 2°C will require a rapid transition to net-zero emissions across all sectors and the development of negative emission

²⁴ Griscom, B.W., *et al.* 2017. Natural Climate Solutions. *PNAS* 44, 11645-11650. doi: 10.1073/pnas.1710465114.

²⁵ Griscom, B.W., *et al.* 2020. National mitigation potential from natural climate solutions in the tropics. *Philosophical Transactions of the Royal Society B* 375. doi: 10.1098/rstb.2019.0126.

²⁶ This does not include other tropical forests and peat lands. See: Goldstein, A., Turner, W.R., Spawn, S.A., *et al.* 2020. Protecting irrecoverable carbon in Earth’s ecosystems. *Nature Climate Change* 10, 287–295. doi: 10.1038/s41558-020-0738-8.

²⁷ Streck, Charlotte. “Shades of REDD+: A Marshall Plan for Tropical Forests?” Ecosystem Marketplace. September 4, 2019. <https://www.ecosystemmarketplace.com/articles/shades-of-redd-a-marshall-plan-for-tropical-forests/>.

²⁸ Golub, A.A., Fuss, S., Lubowski, R., Hiller, J., Khabarov, N., Koch, N., *et al.* 2018. Escaping the climate policy uncertainty trap: options contracts for REDD+. *Climate Policy* 18, 1227–1234. doi: 10.1080/14693062.2017.1422478

Golub, A., Lubowski, R., Piris-Cabezas, P. 2017. Balancing Risks from Climate Policy Uncertainties: The Role of Options and Reduced Emissions from Deforestation and Forest Degradation. *Ecological Economics* 138, 90-98. doi: 10.1016/j.ecolecon.2017.03.013.

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

²⁹ Koch, N., Reuter, W.H., Fuss, S. and Grosjean, G. 2017. Permits vs. offsets under investment uncertainty *Resource and Energy Economics* 49, 33-47. doi: 10.1016/j.reseneeco.2017.03.006.

technologies. Furthermore, global abatement costs of achieving 1.5°C have been modeled as double those for 2°C.³⁰

While many forest countries have progressed the REDD+ agenda, supported by a small number of bilateral donors (namely Norway, with support from Germany and the UK) and multilateral agencies (including the World Bank and UN GCF) providing direct incentives for forest conservation, REDD+ has not yet delivered the transformational change initially envisioned for it in the Stern Review in 2006 and Eliasch Review in 2008.³¹ Fulfilling the potential of REDD+ should be an urgent priority for the international community. A critical mass of results-based payments from both public and private sources (whether in the form of output-based aid or as payment for offsets) is needed to give forest countries additional fiscal space and confidence to undertake ambitious targets to reverse and avoid deforestation.

The central challenge for REDD+ is that it is constrained by a “chicken-and-egg” problem: the vast potential for greenhouse gas mitigation and supply of jurisdictional REDD+ credits will not materialize in the absence of massively increased levels of visible demand. (Said demand must also deliver higher prices for accounting methodologies with strong environmental credibility.) At the same time, on the demand side, many potential providers of REDD+ results-based finance may be unwilling to make large-scale funding commitments in the absence of visible supply, and with insufficient consensus on high integrity accounting methodologies.

We propose that donor governments and multilateral institutions are in a position today to leverage materially more private co-funding for REDD+ than has been the case historically. The potential for 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.

It is instructive to imagine a hypothetical scenario for a very large-scale auction program of already verified, registered, and issued jurisdictional REDD+ credits. For example, suppose if a UN registry account were to contain 5 billion tons of jurisdictional REDD+ credits (with no delivery risk) and a multilateral agency announced that 1 billion tons of credits would be auctioned annually for 5 years.

Under this scenario it is possible, as we discuss in more detail below, to envisage the aviation and oil and gas sectors on their own being able to provide sufficient demand to cover auction supply at that scale, since it would allow these sectors to achieve in a very simple way much of their offsetting needs for the following 15 years, while demonstrating serious intent in their long-term emission reduction goals.

Carbon price scenarios or internal carbon prices for energy-intensive industries would suggest such hypothetical auctions should clear at prices well above US\$10/tCO₂e. If the aviation or oil and gas sectors could solve their offset need out to 2035 at the stroke of a pen at, for example US\$20/tCO₂e, they would have a strong motivation for doing so.

Of course, in the real world, jurisdictional REDD+ credits have delivery risk. Before jurisdictional REDD+ credits can be verified, issued and sold, forest countries need successfully to achieve (and then go beyond) NDC goals to reduce deforestation with ambitious domestic policies, incentives and public funds. Delivery risk for REDD+ credits and the absence of predictable supply and demand are the obstacles that need to be overcome. We propose that delivery risk and capacity challenges in forest countries would be enormously reduced when the predictable level of demand for REDD+ credits is sufficiently large to support ambitious forest country programs.

³⁰ Hof, A.F., den Elzen, M.G., Admiraal, A., Roelfsema, M., Gernaat, D. E., and van Vuuren, D. P. 2017. Global and regional abatement costs of nationally determined contributions (NDCs) and of enhanced action to levels well below 2 °C and 1.5 °C. *Environmental Science & Policy* 71, 30–40. doi: 10.1016/j.envsci.2017.02.008.

³¹ Stern, N. 2006. *Stern review: the economics of climate change*. Cambridge University Press, Cambridge, United Kingdom, cited in Angelsen, A., Martius, C., De Sy, V., Duchelle, A.E., Larson, A.M. and Pham, T.T. (eds). 2018. *Transforming REDD+: Lessons and new directions*. Bogor, Indonesia: CIFOR. <https://www.cifor.org/knowledge/publication/7045>.

Mobilizing private capital

Although carbon markets capable of mobilizing large-scale private capital for jurisdictional REDD+ have been frustratingly slow to emerge, several existing and emerging carbon markets are considering the use of jurisdictional REDD+ credits as valid compliance instruments, including the international aviation sector, California, and the Republic of Korea. The international aviation market known as ICAO's CORSIA is set to launch in 2021 and will be scaled up to full implementation in 2027. The decision of ICAO's Council in March 2020 to not consider any stand-alone projects and to conditionally accept REDD+ credits from the World Bank Forest Carbon Partnership Facility (FCPF) program, based on national and jurisdictional approaches, signals a landmark opportunity for the creation of a compliance market for jurisdictional REDD+. California's adoption of its Tropical Forest Standards (TFS) in 2018 presents another important model for a compliance standard based on jurisdictional accounting with strong environmental integrity and social requirements, although further rulemaking is still required for credits to be accepted for compliance use.

There has also been growing interest in the voluntary carbon offset markets in NCS. 2019 saw near-record volumes transacted for voluntary offsets, led by project-based NCS offsets (as opposed to jurisdictional offsets at the national or regional level).³² We also can observe growing appreciation of the mitigation potential of trees in high profile campaigns such as the Trillion Trees Initiative.

Hard-to-abate sectors are demonstrating a very strong uptick in interest in climate-related goals and metrics. In addition to the aviation sector's CORSIA compliance market, other sectors including oil and gas are developing voluntary emissions reduction targets as part of their corporate sustainability goals and social license to operate (as discussed in greater detail below). These companies are increasingly interested in nature-based solutions as a part of their emissions reduction strategies.

Reaching net zero carbon emissions will ultimately mean that energy and industrial systems reach net zero themselves without relying permanently on offsets.³³ However, reversing deforestation and active forest restoration is essential to ensure a net negative contribution from land-use to global greenhouse gas emissions. Such net-negative contributions are needed to offset unavoidable emissions from hard-to-abate industries and to secure the transition to a zero carbon economy at tolerable costs.

As we discuss in more detail below, REDD+ can contribute trillions of dollars in value by "flattening the curve" of the global economy's costs of transition to climate stability—opening up the opportunity to achieve tighter emissions targets and to maintain total emissions consistent with a 2°C budget while keeping the global carbon price below \$250/tCO₂e by 2050. However, without the higher end of REDD+ supply potential, any tightening of ambitions would lead to a quick escalation in carbon prices.³⁴

In parallel to efforts to secure funding commitments from private actors, the leading donors, such as Norway, Germany and the UK, should work to secure a much larger scale of REDD+ results-based finance from other developed country governments.

This could include through an additional large replenishment of the UN GCF REDD+ results-based finance program, and through additional finance for REDD+ capacity building in a wide range of tropical forest countries.

However, there is a very strong case for a special Gigaton REDD+ Bid strategy that is focused on catalyzing large-scale private sector funding commitments. This would entail building a collection of pledges and contractual commitments from a wide range of private actors (energy intensive industries, the aviation sector via CORSIA, agribusiness, and other corporate and private investors).

³² Forest Trends' Ecosystem Marketplace. *State of the Voluntary Carbon Markets 2019*. Washington, DC: Forest Trends Association, 2019.

³³ Energy Transitions Commission. 2018. *Mission Possible: Reaching Net-Zero Carbon Emissions from Harder to Abate Sectors by Mid-Century*. Energy Transitions Commission. http://www.energy-transitions.org/sites/default/files/ETC_MissionPossible_FullReport.pdf.

³⁴ Fuss et al. 2020.

There is a clear alignment of interests on the supply and demand sides to achieve REDD+ scale. There is an overwhelmingly strong environmental and economic case for the international community to support tropical forest countries to end deforestation. REDD+ interventions can deliver strong local benefits to forest countries. Scaling REDD+ also allows the international community to capture the under-exploited “option value” of near-term affordable mitigation options, and the consequent enormous untapped demand potential for REDD+ credits from a range of private actors.

The UK could play an especially important role in the run up to COP26 in Glasgow in November 2021, with senior government figures pushing to convene CEOs of major companies and investment firms to participate alongside governments in the Gigaton REDD+ Bid. *Ex ante* success in achieving US\$10 billion in funding commitments would create a very positive backdrop to international climate negotiations.

In the sections below we discuss:

- Challenges for REDD+ and the central importance of large-scale and predictable results-based finance
- Emerging sources of private sector demand for REDD+ offsets
- Carbon pricing and the value of REDD+
- Options for operationalizing a Gigaton REDD+ Bid
- Conclusion and Recommendations

SECTION TWO

Challenges for REDD+ and the central importance of large-scale and predictable results-based finance

REDD+'s unfulfilled promise

In a recent thorough review of the successes and failures of REDD+ to date, the authors highlight the primary challenges for REDD+ finance: namely, that a small group of donors and multilateral institutions dominate international REDD+ funding; readiness funding from established mechanisms is drying up, jeopardizing newcomers' ability to tap into future public or private funding; high expectations of private sector finance are not matched by observed flows and commitments; private sector investment in REDD+ is contingent upon enabling conditions such as carbon rights, tenure security, and law enforcement; and the Paris Agreement rules need further work clarifying definitions of REDD+, reference levels and the period for calculating historical emissions in order to ensure consistency, efficiency, fairness, and environmental integrity.³⁵

The authors also discuss the extent to which the failure of REDD+ to achieve its promise is, and is not, a result of a lack of results-based payments at the scale initially envisioned in the Stern Review of about US\$10–15 billion per year.³⁶ Certainly international funding has not yet materialized at those levels. Current disbursements are estimated to be only 7–25% of the US\$10-15 billion discussed in the Stern Review.³⁷ Moreover, current REDD+ funding is dwarfed by subsidies for key forest-risk commodities (beef and soy in Brazil; palm oil and timber in Indonesia), which for these four commodities amount to US\$40 billion per year.³⁸ On the other hand, the authors point out that significant amounts of pledged REDD+ funding are yet to be spent. Unspent Norwegian support alone corresponded to NOK 10.5 billion (US\$1.2 billion) by the end of 2016. This is not entirely bad news; if such funding had been too easily available without institutions and capacities in place to ensure transparency and accountability, the result would have been inefficiencies and corruption.

In this vein, the authors go on to emphasize that, for REDD+ to succeed, domestic policies and incentives in forest countries are what ultimately will drive change on the ground, citing, *inter alia*, Brazil's low carbon agriculture program³⁹ and India's ecological transfer for forests, started in 2014.⁴⁰ In fact, some forest countries have already successfully reduced deforestation with domestic policies, incentives, and public funds and have now committed to go further as part of their NDC goals.

³⁵ Angelsen, A., Martius, C., De Sy, V., Duchelle, A.E., Larson, A.M., and Pham, T.T. (eds). 2018. *Transforming REDD+: Lessons and new directions*. Bogor, Indonesia: CIFOR. <https://www.cifor.org/knowledge/publication/7045>.

³⁶ Stern 2006.

³⁷ Cited in Angelsen et al. 2018. Global estimates of finance pledged or committed to support REDD+ efforts are US\$1.1–2.7 billion per year (Norman, M. and Nakhouda, S. 2014. *The State of REDD+ Finance*. Washington DC: Center for Global Development.; Olesen, A. et al. 2018. *Study on EU Financing of REDD+ Related Activities, and Results-Based Payments Pre and Post 2020: Sources, Cost-Effectiveness and Fair Allocation of Incentives*. Luxembourg: European Commission, DG Environment/Climate Action. <https://op.europa.eu/en/publication-detail/-/publication/6f8dea1e-b6fe-11e8-99ee-01aa75ed71a1>. This takes into account estimates by the Eliasch Review (i.e., by 2030, the cost to halve emissions from the forest sector could be around US\$17–33 billion per year, including global carbon trading); Eliasch 2008.

³⁸ McFarland, W., Whitley, S., and Kissinger, G. 2015. *Subsidies to key commodities driving forest loss finance*. London, UK: Overseas Development Institute. <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9577.pdf>.

³⁹ Nepstad, D., Boyd, W., Stickler, C.M., Bezerra, T., and Azevedo, A.A. 2013. Responding to climate change and the global land crisis: REDD+, market transformation and low-emissions rural development. *Philosophical Transactions of the Royal Society B* 368 (1619). doi: 10.1098/rstb.2012.0167.

⁴⁰ Busch, J. and Mukherjee, A. 2018. Encouraging state governments to protect and restore forests using ecological fiscal transfers: India's tax revenue distribution reform. *Conservation Letters* 11(2). doi: 10.1111/conl.12416.

We agree with Angelsen et al's conclusion that realizing REDD+'s promise requires both top-down change, in the form of a massive rollout of jurisdictional programs, *and* increased ambition from the bottom-up, in terms of grassroots approaches.

Nevertheless, in this paper we take the view that a massive increase in international funding of the kind originally envisioned by the Stern and Eliasch reviews will be required to give forest countries the fiscal space and confidence to implement ambitious policies and measures on the ground. Such a global-level push would also help to more rapidly overcome challenges related to institutional capacity in forest countries, uncertainty around Paris Agreement rules, and gaps in upfront capital investment.

The central importance of large-scale and predictable results-based finance

International co-funding is necessary for forest countries to exceed their NDC targets and thus create surplus REDD+ credits that could be sold to private and public buyers. Forest countries will carry much of the burden of implementing NCS as part of their NDC goals. (At the global level, the land-use and forest sector is expected to contribute as much as 20% of the full mitigation potential of all conditional and unconditional NDC targets.⁴¹) However if, as one study suggests, the median cost of implementing cost-effective NCS is equivalent to 5.5% of national GDP for tropical countries,⁴² international co-funding will be critical to accelerating implementation.⁴³ A funding platform that guarantees a sufficiently high price for REDD+ could also help to finance the investment needed to meet forest countries' initial NDC goals.⁴⁴

A results-based approach is the best guarantor of effectiveness. Jurisdictional REDD+ results-based payments will only be made if forest countries are able to achieve emissions reductions at a national or regional scale. This approach is a defense against inefficiency as well as against "leakage."^{45,46} Donors can commit more resources to verifiable results when the risk of achieving those results is transferred predominantly to the countries responsible. Another advantage is that forest countries themselves are better able to choose their own pathways to achieving goals, avoiding the conditionality often associated with input-based aid programs. Development finance in the forms of grants and loans for specific projects will play an important role in supporting implementation of REDD+.⁴⁷ But the bottleneck of due diligence process accompanying input-based aid has little hope of giving forest countries fiscal space at real scale, which is what most will need to meet ambitious targets through implementation of domestic policies.

However, the fact that jurisdictional REDD+ results-based payments will only be made if forest countries are able to achieve emissions reductions targets at a national or regional scale does help explain why

⁴¹ Forsell, N., Turkovska, O., Gusti, M. *et al.* 2016. Assessing the INDCs' land use, land use change, and forest emission projections. *Carbon Balance and Management* 11, 26. DOI: 10.1186/s13021-016-0068-3.

⁴² Griscom et al. 2020.

⁴³ Griscom et al. (2020) highlight that with the social cost of carbon in their analysis considered to be US\$100/tCO_{2e}, the financial capacity of countries to implement up to this level of NCS potential is highly variable. Among the four countries with the largest NCS potential, the costs of implementing cost-effective NCS (assuming an average cost of US\$50 per Mg CO_{2e}), ranges from 46% of GDP in the DRC to less than 1% in India. The median cost of implementing cost-effective NCS is equivalent to 5.5% of national GDP for tropical countries. Cost-effective levels of NCS implementation are equivalent to less than 1% of GDP for 15 tropical countries, and to over 10% of GDP for 26 tropical countries.)

⁴⁴ Piris-Cabezas et al. 2019.

⁴⁵ Leakage refers to the movement of activities destructive of forests to another location

⁴⁶ Seymour 2020.

⁴⁷ Working Group on Scaling Up Performance-Based Transfers for Reduced Tropical Deforestation. 2015. *Look to the Forests: How performance payments can slow climate change*. Center for Global Development. Working group: Nancy Birdsall and Pedro Pablo Kuczynski, co-chairs. Michele de Nevers, Working Group manager. <https://www.cgdev.org/publication/ft/look-forests-how-performance-payments-can-slow-climate-change>.

Seymour, F. and Busch, J. 2016. *Why Forests, Why Now. The Science, Economics and Politics of Tropical Forests and Climate Change*. Washington, D.C.: Center for Global Development. <https://www.cgdev.org/sites/default/files/Seymour-Busch-why-forests-why-now-full-book.PDF>.

significant commitments of REDD+ funding are yet to be spent. Even funding support amounting to hundreds of millions of US dollars is not always sufficient to give forest countries the confidence to embark on ambitious emission reduction programs which would have an impact on public sector borrowing requirements on the order of US\$ billions, and where the outcome is “all or nothing:” if major investment programs fail to deliver sufficient results, the bulk of REDD+ finance will not materialize. Thus, the great potential for REDD+ to achieve scale is also its main weakness—unlocking this potential requires very large-scale REDD+ funding commitments.⁴⁸

An instructive comparison can be made with large-scale renewable energy infrastructure investments. The UK currently has 8.5 gigawatts (GW) of offshore wind capacity.⁴⁹ This could not have been financed if the UK government had provided subsidies in the form of Feed-in-Tariffs or Contracts for Difference sufficient only for 1 GW of capacity, and had argued that payments would only be made at the moment when 8.5 GW were online and generating electricity.

A results-based approach does not necessarily preclude mechanisms to reward early progress and build capacity in forest countries. As the World Bank has noted, success will not occur immediately or uniformly in new large-scale emission reductions programs, and if early local success is not rewarded, it will be unlikely that these programs will persist with local stakeholders to achieve program-wide performance.⁵⁰ Angelsen et al have also suggested donors consider opening up results-based finance for results achieved in the two first phases of REDD+, such as completion of a national REDD+ strategy and measurement, reporting, and verification (MRV) systems and verified pilots. The authors also emphasize the continued importance of upfront grants to build capacity in some countries.

There has been criticism in recent years at the very slow pace at which the World Bank has disbursed results-based funding commitments from its carbon funds.⁵¹ A major reason for the slow disbursement of funding from the Forest Carbon Partnership Facility, BioCarbon Fund, and Sustainable Landscapes Initiative is that these funds’ resources have been spread too thin in an effort to build capacity in a broad range of tropical forest countries. We discuss further below how scaled-up funding commitments could allow both a more targeted approach toward countries with institutional capacity in order to demonstrate REDD+ potential for scale and, at the same time, multilateral support for building readiness in countries with less capacity.

Because it operates at regional and national scales, only jurisdictional REDD+ has the potential to deliver a supply of credits over the next 10-20 years that could be measured in billions of tons. According to Forest Trends’ Ecosystem Marketplace, the volumes of project-based offsets purchased in the voluntary carbon reached a record high in 2018, largely driven by interest in REDD+ and other NCS, with further gains expected in 2019 and early 2020.⁵² Total volumes rose from 14 to 51 million tons CO₂ over 2016-2018; volumes from REDD in particular rose from 11 to 31 million tons.⁵³ Despite this growth, overall volumes remain very small relative to the deforestation and climate challenge and to private sector offset needs.

It is unlikely that project-based REDD+ will be able to close this gap in the future. The Carbon Disclosure Project has found that many private companies are not convinced of the business case for project-based

⁴⁸ Edwards 2018; and Edwards, R. 2016. *Linking REDD+ to Support Brazil’s Climate Goals and Implementation of the Forest Code*. Forest Trends. <https://www.forest-trends.org/wp-content/uploads/2017/03/FOR193-Climate-Finance-Report-ENGLISH-17-0221.pdf>.

⁴⁹ Loughran, J. “Massive seabed auction could double UK’s offshore wind power.” *Engineering and Technology*. September 19, 2019. <https://eandt.theiet.org/content/articles/2019/09/massive-seabed-auction-could-double-uk-s-offshore-wind-power/>.

⁵⁰ E.g., discussion by World Bank joint Climate CCSA and ENR GP Knowledge Event: *Designing pay for performance for jurisdictional REDD+*, Feb. 7, 2017 led by Benoit Bosquet, Practice Manager, Environment and Natural Resources

⁵¹ See Seymour and Busch, 2016; see also “The World Bank’s Forest Carbon Partnership Facility “has not saved a single hectare of forest.” REDD Monitor. November 17, 2016.

<http://www.redd-monitor.org/2016/11/17/the-world-banks-forest-carbon-partnership-facility-has-not-saved-a-single-hectare-of-forest/>.

⁵² Forest Trends’ Ecosystem Marketplace, 2019.

⁵³ Ibid.

REDD+ due to perceived risks related to land tenure, carbon ownership, and “nesting” rules for project carbon credits.⁵⁴ (Project-based crediting will continue to play an important role in supporting individual conservation projects. Peru is an example of a country developing accounting systems for project-based emission reductions to be nested within the national jurisdictional framework; other countries may follow suit).

Sufficient, visible, and predictable funding for jurisdictional REDD+ credits from private sector actors at a sufficiently high price would unlock a number of positive outcomes. It would incentivize a broader range of donor governments to provide additional readiness and implementation funding (e.g., stages 1 and 2 of REDD+), help forest countries clarify land tenure and implement policies and measures on the ground, and secure adoption of accounting methodologies with environmental integrity. It would accelerate co-operation and clarification of the rules and functional relationship around Articles 5 and 6.2 of the Paris Agreement. Finally, a serious funding commitment from public and private sector actors would also enable the development of financing instruments to address upfront costs.⁵⁵

A broader coalition of donor governments than Norway, Germany and the UK will be needed to scale up results-based funding for REDD+ to harness the growing opportunity for much greater levels of private sector co-funding. At present, only a few countries account for a large proportion of international public funding: between 2008 and 2015, 87% of official development assistance for activities explicitly labeled as REDD+ was committed by Norway, Germany, the United Kingdom, the United States and Australia.⁵⁶

We are now at an inflection point where it is possible to build the large demand signal capable of overcoming the challenges described above. Over the coming decade there should be ample opportunity to deliver US\$50-100 billion in combined international public and private support for REDD+. Unlocking the first one billion tons of supply is the crucial step.

⁵⁴ CDP. 2018. *Harnessing the potential of the private sector to deliver REDD+: A briefing for policymakers*. London, UK: CDP.

⁵⁵ World Bank. 2017. *The Potential Role of Enhanced Bond Structures in Forest Climate Finance*. Washington, D.C.: World Bank. See also Edwards 2018; Nepstad et al. 2015; Edwards et al. 2014.

⁵⁶ Olesen, A., Böttcher, H., Siemons, A., Herrmann, L., Martius, C., Roman-Cuesta, R.M., Atmadja, S., Hansen, D.S., Andersen, S.P., Georgiev, I., Bager, S.L., Schwöppe, C., and Wunder, S. 2018. *Study on EU Financing of REDD+ Related Activities, and Results-Based Payments Pre and Post 2020: Sources, Cost-Effectiveness and Fair Allocation of Incentives*. Luxembourg: European Commission, DG Environment/Climate Action. <https://op.europa.eu/en/publication-detail/-/publication/6f8dea1e-b6fe-11e8-99ee-01aa75ed71a1>.

SECTION THREE

Emerging sources of private sector demand for REDD+

Several very large potential sources of demand for jurisdictional REDD+ credits are emerging. This demand would grow if industry sectors had visibility of supply at a scale that could help meet offset and other climate action needs.

A powerful combination of policy, pressure from financial regulators, investors, consumers, and market forces is driving companies to commit to net-zero carbon targets. For example, organizations representing a combined market capitalization of more than US\$11 trillion have joined the Financial Stability Board’s Task Force on Climate-Related Financial Disclosures (TCFD).⁵⁷ In Europe, the EU’s Green Deal proposes to enshrine in law the necessity for all sectors of the economy to transition to net-zero emissions by 2050 and the EU Sustainable Finance Taxonomy aims to provide a clear framework for investors with reference to this target. And we are witnessing the rapid development of low carbon indices and climate Value at Risk strategies in the financial markets (which we discuss further below). There is also suggestive evidence that consumers may be willing to pay a higher price for products that include carbon offsets if they are informed that companies or fuel providers are proactively taking these actions to address their climate footprints.⁵⁸

It is in this context that industrial sectors are demonstrating a strong interest in climate-related goals and metrics. In addition to the aviation sector, other hard-to-abate sectors including oil and gas are developing emission reduction targets as part of their corporate sustainability goals and social license to operate. These companies are increasingly interested in offsets from nature-based solutions, which could allow them to meet a significant percentage of targets while providing time to support the efficiency gains, R&D and technology investment critical for robust endogenous de-carbonization of their core businesses.

Hence companies are looking for credible and scaled emissions reductions. National and jurisdictional REDD+ has the greatest potential to deliver such emission reductions at the scale that these sectors—and the world—will require over the next decade.⁵⁹

Government actors are aware of the growing potential for private demand to support REDD+. For example, the United States’ Department of State in May 2020 announced a project for an “Offset National Emissions through Sustainable Landscapes (ONE-SL)” program. ONE-SL is “a cooperative agreement that will support the transition from project-scale REDD+ to jurisdictional and national REDD+ action in select countries to achieve greater emissions reductions and to utilize any excess emissions as marketable transactions for carbon offsets to commercial actors. The need for this project rests in the international movement in production, manufacturing, and service industries to create a carbon neutral footprint as a result of their operations...Carbon market offsets will be an increasing need in international financial markets and this project links the offset credits with forest and land use improvements to result in both financial and environmental benefits for developing countries.”⁶⁰

The aviation and oil and gas sectors are critical to scaling demand in the short term and represent the most immediate opportunity. However, other sources of private funding have strong potential, including agribusiness, hard-to-abate sectors beyond aviation, and private investment funds, technology companies, and other actors seeking to address their climate impacts.

⁵⁷ TCFD Learning Hub, 2020.

⁵⁸ Hardisty et al. 2017.

⁵⁹ Golub et al. 2018; Piris-Cabezas et al. 2019.

⁶⁰ See Notice of Funding Opportunity: “Offset National Emissions through Sustainable Landscapes (ONE-SL).” The Bureau of Oceans and International Environmental and Scientific Affairs (OES) & the Office of Global Change (EGC) at the Department of State (DOS). 2020. <https://www.grants.gov/web/grants/view-opportunity.html?oppld=326768>.

The international aviation sector and CORSIA

Emissions from domestic aviation, including intra-EU flights, are covered by the UN Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, but international flights are not. As such, ICAO was mandated to address emissions from international flights.

ICAO's CORSIA market has been forecast to mitigate around 2.5 billion tonnes of CO₂ between 2021 and 2035, or an annual average of 165 million tonnes of CO₂.⁶¹ CORSIA's offset requirements will apply for 15 years, from 2021 through 2035. However, the program enters full force in phases, by allowing countries to opt in to the first two cycles. A three-year pilot phase runs from 2021 through 2023, followed by a second opt-in cycle between 2024 and 2026.

Analysis by Forest Trends' Ecosystem Marketplace shows that current supplies of carbon offsets that meet reported eligibility proposals (which limit eligibility to reductions achieved between 2016 and 2020) for CORSIA's first three-year pilot phase are more than adequate to meet expected demand.⁶² Demand projections vary quite a bit for CORSIA, in part because as of February 2020, just 82 of the 193 ICAO member countries have elected to join. Consequently, demand estimates range from a low of 78 million metric tons to a high of 130 million tons for the entire three-year pilot period.⁶³

A July 2020 decision to remove the year 2020 from CORSIA's baseline will reduce the sector's offset obligations in the near term, but in the long-term airlines' demand obligations after 2027 will be very substantial.⁶⁴

In March 2020, ICAO's Council announced its decision to not consider any stand-alone projects and to conditionally accept REDD+ credits from the World Bank Forest Carbon Partnership Facility program, based on national and jurisdictional approaches. This signals a landmark opportunity for the creation of a compliance market for jurisdictional REDD+.

A report on the aviation sector in 2019 by Redburn, a leading independent research firm for European public equities markets, suggests that carbon offsetting will have little impact on the cost of flights and an indiscernible impact on consumer demand unless offset supply is massively constrained.⁶⁵ Their median scenario, which incorporates current policies, a consensus carbon price (based on EU Emissions Trading Scheme unit prices around €25/ton) and a 5% renewable fuel mix, estimates an additional cost of around €2 per passenger for low-cost air carriers and €4 per passenger for network airlines by 2030. Redburn's worst-case scenario incorporates policy changes at the national and international levels, with carbon prices rising in line with the Intergovernmental Panel on Climate Change (IPCC)'s sustainable development scenario (i.e., rising to US\$140/ton by 2040⁶⁶), a 25% renewable fuel mix (where renewable fuel stays at a 100% premium to fossil-based jet fuel), and other countries copying the recent French "eco" tax. Under this scenario, the low-cost carriers will see per-passenger cost increase around €9, while the network airlines cost per passenger rises by €20 by 2030.

This analysis implies that if the international aviation industry were offered the opportunity to acquire, as under our hypothetical scenario, a guaranteed supply of 2.5 billion tons of credits at prices of, for example, US\$20/ton to 2030, they could fulfill their offsetting obligations in a way that would mean costs

⁶¹ International Air Transport Association. "Fact sheet: CORSIA." IATA. July 1, 2020. <https://www.iata.org/contentassets/fb745460050c48089597a3ef1b9fe7a8/corsia-fact-sheet.pdf>.

⁶² Forest Trends' Ecosystem Marketplace. 2020. *Carbon Markets are Well-positioned to Meet CORSIA Demand Projections*. Forest Trends. <https://app.hubspot.com/documents/3298623/view/69866075?accessId=fe65d3>.

⁶³ See: Environmental Defense Fund. "ICAO's market-based measure." EDF. Updated August 23, 2019. <https://www.edf.org/climate/icaos-market-based-measure>.

⁶⁴ Watson 2020.

⁶⁵ Redburn Review October 2019. *Aviation Hot Air*.

⁶⁶ Intergovernmental Panel on Climate Change. 2014. *AR5 Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. IPCC. <https://www.ipcc.ch/report/ar5/wg3/>.

passed on to passengers will be a trivial percentage of both the overall ticket cost and of fuel price volatility.

The aviation sector is financially stressed due to the COVID-19 pandemic. Nevertheless, its large-scale compliance carbon obligations remain, the costs of which can be passed through to consumers. Furthermore, government financial assistance for airlines represents an opportunity to request support from the industry for a Gigaton REDD+ Bid strategy.

Oil and gas sector

Ambitious long-term targets in this sector will require very large-scale offsetting, not least to provide time to enable longer-term investments that can yield improved technologies. Investments in renewable energy and other technologies and efficiency improvements will transform the oil and gas sector's carbon intensity. The International Energy Agency (IEA) has demonstrated that there are ample, cost-effective opportunities to bring down the emissions intensity of delivered oil and gas by minimizing flaring of associated gas and venting of CO₂, tackling methane emissions, and integrating renewables and low-carbon electricity into new upstream and liquefied natural gas developments. However, going beyond efficiency gains to achieve net zero is a huge technological challenge. Investments in low-carbon businesses currently represent less than 1% of oil and gas companies' capital expenditure.⁶⁷

Several major oil and gas companies are aiming to voluntarily reduce their emissions, including Scope 3 emissions, in part through investments in carbon sinks. BP and Shell have both announced goals to be net zero carbon by 2050. For BP, these aims would equate to a reduction in emissions to net zero from current levels of 415 million tons CO₂e a year,⁶⁸ and for Shell a reduction in emissions in 2018 from 599 million tons CO₂e.⁶⁹ Spain's Repsol has committed to achieving net zero Scope 3 emissions by 2050 including through carbon offsets such as NCS and carbon capture and storage. Total has also recently committed to net zero carbon in relation to sales in Europe by 2050, explicitly in response to the EU's Green Deal zero emissions target.

These commitments may not be as strong as they look at first glance: Total's Europe commitment represents only a 60% reduction in carbon intensity globally; BP leaves out the rising proportion of its oil and gas business that it trades rather than produces; Shell's strategy and capital deployment plans are subject to "society" acting ambitious climate goals.⁷⁰ Nevertheless, the direction of travel is clear and signals a quantum increase in demand for offsets.

Hard-to-abate sectors

In addition to aviation, a large proportion of emissions are generated from hard-to-abate carbon-intensive sectors such as transportation, iron and steel, cement and chemicals. As stated above, the EU's Green Deal and Sustainable Finance Taxonomy aims to incentivize the hard-to-abate sectors to make the transition to net zero carbon and is explicit about the importance of including these more carbon-intensive sectors within the definition of "sustainable finance". These sectors are critical to economic growth and prioritizing their abatement potential is central to the climate transition. In the medium term these sectors are likely to follow the oil and gas sectors to be an additional source of demand for offsets.

⁶⁷ IEA 2020.

⁶⁸ "BP sets ambition for net zero by 2050, fundamentally changing organization to deliver." BP Press Release. February 12, 2020. <https://www.bp.com/en/global/corporate/news-and-insights/press-releases/bernard-looney-announces-new-ambition-for-bp.html>.

⁶⁹ Bousso, R. and Nasralla, S. "Shell sets emission ambition of net zero by 2050, with customer help." Reuters. April 16, 2020. <https://www.reuters.com/article/us-shell-emissions/shell-sets-emission-ambition-of-net-zero-by-2050-with-customer-help-idUSKCN21Y0MW>.

⁷⁰ "Total adopts a new climate ambition to get to net zero by 2050." Total Press Release. May 5, 2020. <https://www.total.com/media/news/total-adopts-new-climate-ambition-get-net-zero-2050>.

Agribusiness and food companies

In the agribusiness and food sector, there is a significant opportunity for companies to increase ambitions beyond zero deforestation sourcing commitments and contribute more to REDD+ objectives

Commercial agriculture is responsible for well over half of all tropical deforestation. Recent years have seen much focus on the high risk of deforestation (including very extensive illegal deforestation)⁷¹ associated with four major supply chains: beef, soy, palm oil, and pulp & paper. The combined production of these commodities in 2017 was worth US\$180 billion to tropical forest countries, of which 45% was exported.⁷² In 2010, members of the Consumer Goods Forum passed a resolution to achieve zero net deforestation by 2020 in those four commodity sectors. This was followed in 2014 by the New York Declaration on Forests, a voluntary cross-sector initiative to halve global deforestation by 2020. Both initiatives have fallen far short of their 2020 targets, and major efforts will be required to catch up with their stated ambitions in the years ahead. Private sector actors indicate that a key roadblock to meeting zero deforestation sourcing goals is uneven support from governments, including in producer countries.⁷³ In this context there has been focus in recent years on government policy and regulatory options that could be applied in consumer countries to reinforce voluntary measures.⁷⁴

In the meantime, leading agribusiness and food companies could demonstrate their commitment to zero deforestation supply chains, by pledging to make payments for jurisdictional REDD+ credits from their key sourcing regions, alongside donor governments via a Gigaton REDD+ Bid platform.

Extracting a very small percentage of the US\$180 billion per annum production value of the commodities associated with tropical deforestation would reduce the fiscal burden on public actors. A 2018 report suggested that just 0.5% of the total value of the state of Mato Grosso, Brazil's annual soy and beef production would be worth US\$65.6 million and US\$36.7 million respectively, which equates to about US\$1 billion over 10 years.⁷⁵

Although hypothecation of tax revenue is understandably not popular with finance ministries, there is also a case to be made for the imposition of duties on imports of commodities associated with deforestation, where revenue raised is ring-fenced for jurisdictional REDD+ programs.⁷⁶ It has also been suggested that agribusiness could co-fund forest country programs at the phase 2 implementation stage of REDD+, for example through payments for conservation measured at the per hectare level to farmers operating within the law.⁷⁷ In the state of Mato Grosso, Brazil US\$1 billion would be sufficient to cover

⁷¹ Lawson, S. 2014. *Consumer Goods and Deforestation: An Analysis of the Extent and Nature of Illegality in Forest Conversion for Agriculture and Timber Plantations*. Forest Trends. <https://www.forest-trends.org/publications/consumer-goods-and-deforestation/>.

⁷² Tropical Forest Alliance Secretariat 2020. 2017. *Commodities and Forests Agenda 2020: Ten priorities to remove tropical deforestation from commodity supply chains*. Geneva, Switzerland: World Economic Forum. https://climatefocus.com/sites/default/files/TFA2020_ExecSumm.CommoditiesandForestsAgenda2020_Sept2017_0.pdf.

The Role of the Financial Sector in Deforestation-Free Supply Chains is published by the Tropical Forest Alliance 2020 based on research by Vivid Economics within the framework of the Tropical Forest Alliance 2020 secretariat, hosted at the World Economic Forum, January 2017.

⁷³ COWI 2018.

⁷⁴ See for example: Schatz, B. and M.B. Jenkins. "Deforestation can't be stopped by voluntary action alone." World Economic Forum. January 15, 2020. <https://www.weforum.org/agenda/2020/01/deforestation-voluntary-action-regulation/>.

Global Resource Initiative. *Global Resource Initiative Final Recommendations Report*. 2020. Global Resource Initiative, UK Department for Environment, Food and Rural Affairs. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/876464/gri-taskforce-final-recommendations-report.pdf.

⁷⁵ Edwards 2018.

⁷⁶ Ibid.

⁷⁷ Ibid.

the costs of a 1 million hectare conservation program (equivalent to 10% of the entire soy production area) to avoid 90% of predicted legal deforestation in Mato Grosso.⁷⁸

Private savers and investment funds

The financial sector is witnessing the rapid evolution of climate risk metrics (ranging from carbon footprints for securities to 2°C Value at Risk analysis) as well as emerging regulatory requirements for investment managers and pension fund trustees to climate stress test portfolios. The Network for Greening the Financial System now has 34 central banks and regulators as members. The Montreal Carbon Pledge, an environmental initiative launched by the United Nations Principles for Responsible Investment, encourages investment management firms to monitor and disclose the carbon footprint of their investment portfolios.⁷⁹ At the same time, investors are increasingly aware that the value of shares in fossil fuel companies needs to account for the risk of stronger future policy and regulatory responses from governments to climate change.⁸⁰

Against this backdrop mainstream financial products with a climate theme have been developing and gaining traction with investors at great pace: For example, the MSCI Carbon Delta Low Carbon Indices reweight stocks based on carbon exposure.⁸¹ S&P Trucost has created Paris Aligned and Climate Transition indices.⁸² Meanwhile the Climate Bonds Initiative is forecasting US\$250 billion in green bond issues for the year 2020.⁸³

At the same time, the hard-to-abate sectors remain critical to economic growth and to the climate transition. Some investment managers have developed strategies, such as the *Lombard Odier Climate Transition Strategy* which, rather than excluding the most carbon-intensive stocks and industries, focuses on those businesses leading the way in prioritizing GHG abatement.⁸⁴

Additionally, while there is on-going work (e.g., in the European Commission and Parliament) to ensure more rigorous definitions for sustainable investing, socially responsible investment (SRI) has gone from a niche concept to significant scale. The Global Sustainable Investment Alliance in 2018 reported that sustainable investing assets in the five major markets stood at US\$30.7 trillion, a 34% increase in two years, with climate change the leading environmental, social, and governance (ESG) issue for money managers in asset-weighted terms.⁸⁵ Investors ploughed a record US\$21 billion into SRI funds in the US in 2019, almost quadrupling the rate of inflows in 2018 according to Morningstar. Recent evidence indicates that these inflows are starting to have a distortionary effect, with some analysts suggesting leading green companies are becoming overvalued due to massive flows into SRI funds.⁸⁶

⁷⁸ Environmental Defense Fund, Amazon Environmental Research Institute (IPAM in Portuguese), and Forest Trends. *Funding Strategies for the Mato Grosso Produce, Conserve, and Include Program*. Forthcoming.

⁷⁹ "The Montreal Carbon Pledge." PRI Montreal Pledge. Accessed July 2020. www.montrealpledge.org.

⁸⁰ See: UK Sustainable Investment and Finance Association. *Oil Pressure Gauge Survey 2019*. UKSIF. October 22, 2019. <https://uksif.org/oil-pressure-gauge-survey-booklet-2019/>; Carbon Tracker Initiative. "Aligning capital market actions with climate reality." Accessed July 2020. <https://www.carbontracker.org>.

⁸¹ "MSCI Low Carbon Indexes." MSCI. Accessed July 2020. <https://www.msci.com/low-carbon-indexes>.

⁸² "Indices: Paris-Aligned & Climate Transition (PACT)." S&P Dow Jones Indices. Accessed July 2020. <https://us.spindices.com/index-family/esg/climate>.

⁸³ "Climate Bonds Initiative." Accessed July 2020. <https://www.climatebonds.net>.

⁸⁴ Lombard Odier Investment Managers. 2020. *Investing in the Climate Transition - a synthesis*. Lombard Odier Investment Managers.

⁸⁵ Global Sustainable Investment Alliance. 2018. *2018 Global Sustainable Investment Review*.

http://www.gsi-alliance.org/wp-content/uploads/2019/03/GSIR_Review2018.3.28.pdf

⁸⁶ "'Monstrous' run for responsible stocks stokes fears of a bubble." *Financial Times*. February 21, 2020. <https://www.ft.com/content/73765d6c-5402-11ea-90ad-25e377c0ee1f>.

SRI funds explicitly target commercial risk-adjusted returns. However, there is evidence emerging that some savers have a “willingness-to-pay” to reduce the carbon impact of their savings.⁸⁷ To some extent this is evidenced in the analysis suggesting green companies are becoming overvalued. However, beyond that, platforms are starting to emerge that enable investors to pick funds where a percentage of fees go to funding carbon offsets. BlackRock has developed a low risk liquid product for retail investors that will use at least 5% of net revenue from its management fee to purchase and then retire carbon offsets.⁸⁸ And other platforms are emerging that would allow investors to offset the carbon intensity that remains in their investment portfolios.⁸⁹ A new platform uses S&P Trucost carbon metrics aiming to allow investors to both calculate and offset the carbon intensity of their portfolios.⁹⁰ At the same time, campaigners are asking private investors to donate a small percentage of the nominal value of their savings for climate change mitigation.⁹¹

Although in their early days, such trends could generate an enormous amount of new funding for offsets, as investors seek not only to prioritize low carbon and climate- transition strategies but also to immunize their portfolios against residual carbon intensity.

Conclusion on emerging sources of private sector demand

A strategic goal for carbon-intensive sectors — and for money managers who invest in them — should be to work alongside donor governments or multilateral agencies to kick start REDD+ credit supply at scale for two principal reasons:

- At a macroeconomic level, the success of NCS and of REDD+ is critical to preventing carbon prices from escalating rapidly as emission reduction policies are tightened.
- 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.

⁸⁷ Edwards, R. 2019. *Harnessing Private Investor ‘Willingness-to-Pay’ for Climate Change Mitigation: A Mechanism to Co-fund Public Commitments to Achieve the Goals of the Paris Agreement*. Forest Trends. <https://www.forest-trends.org/publications/harnessing-private-investor-willingness-to-pay-for-climate-change-mitigation/>.

⁸⁸ BlackRock. 2019. *Prospectus: BlackRock Liquid Environmentally Aware Fund*. <https://www.blackrock.com/cash/enus/streamdocument?stream=reg&product=LLEAF&shareClass=Class+A&documentId=1689778%7E1689770&iframeUrlOverride=%2Fcash%2Fliterature%2Fprospectus%2Fpro-leaf-inv-us.pdf>.

⁸⁹ Edwards 2019.

⁹⁰ Sugi. <https://www.sugi.earth/>.

⁹¹ “Global Returns Project: Work with us to raise \$10 billion every year to tackle the Climate Crisis.” Global Returns Project. Accessed July 2020. <https://globalreturnsproject.earth>.

SECTION FOUR

Carbon pricing and the value of REDD+

Currently funding for REDD+ is dominated by donor results-based payments as a form of output-based aid. Norway, the World Bank Carbon Funds and Germany's REDD+ Early Movers Program have generally made payment commitments on the basis of US\$5/tCO₂e. Payments for REDD+ credits are used to support forest countries to achieve NDC goals rather than used for compliance purposes in the donor country. The UN Green Climate Fund pilot REDD+ results-based finance program has also paid for emission reductions at US\$5/tCO₂e.⁹² Norway's recent agreements to provide floor prices to Gabon and Colombia have been made at US\$10t/CO₂e price for emission reductions certified by Architecture for REDD+ Transactions' "The REDD+ Environmental Excellence Standard," (ART-TREES),⁹³ on the basis that ART-TREES is the methodology with the strongest environmental integrity.

However, growth in private demand would lead to a market developing over time with prices based on supply and demand, or a hybrid of government-funded floor prices (which could continue to be a form of output-based aid to support NDC goals), government purchases of REDD+ credits under Article 6, and private demand at varying prices.

The demand side and REDD+ value

Insights into the value of REDD+ can be seen from literature modeling carbon prices for a carbon-constrained global economy:

- Scenarios that limit warming to below 2°C with a greater than 66% probability imply carbon prices increasing throughout the 21st century. Variations in carbon price trajectories in IPCC 2°C scenarios have been found to show a wide range of results (depending on socio-economic factors or modeling frameworks), with short-term prices varying from US\$15 to US\$360 per tCO₂e in 2030, US\$45 to US\$1,000 per tCO₂e in 2050, and \$140 to \$8,300 per tCO₂e in 2100.⁹⁴
- Global abatement costs of keeping global warming below 1.5°C have been modeled as double those for 2°C, and five to six times higher than all actions proposed in current NDCs. The aggregate incremental cost of achieving a 1.5°C target against current NDCs is estimated at US\$600 billion annually.⁹⁵
- It has been estimated that, under an aggressive approach for conserving and restoring tropical forests in a 2°C scenario, fossil fuel emissions would need to fall to zero by 2045-50, rather than by 2035 in the case with business-as-usual forest emissions.⁹⁶
- International climate cooperation through carbon markets that include tropical forest protection could result in almost double the emissions reductions as a non-market scenario for implementing NDCs, for the same total cost.⁹⁷

⁹² Leonard, Stephen. "Green Climate Fund steps up to reduce deforestation and forest degradation." CIFOR: Forests News. July 14, 2017. <https://forestsnews.cifor.org/50548/green-climate-fund-steps-up-to-reduce-deforestation-and-forest-degradation?fnl=en>.

⁹³ Architecture for REDD+ Transactions. "TREES: The REDD+ Environmental Excellence Standard." ART. Accessed July 2020. <https://www.artredd.org/trees/>.

⁹⁴ Guivarch, C. and Rogelj, J. 2017. Carbon price variations in 2°C scenarios explored. *Geography* 12, 13. https://pdfs.semanticscholar.org/f8ca/312d9ee0ae250cad251d522569c8662c1290.pdf?_ga=2.30769471.1284876277.1594837734-1899801738.1594837734.

⁹⁵ Hof et al. 2017.

⁹⁶ Houghton, R.A. and Nassikas, A.A. 2018. Negative emissions from stopping deforestation and forest degradation, globally. *Global Change Biology*. 24, 350–9. doi: 10.1111/gcb.13876.

⁹⁷ Piris-Cabezas et al. 2019.

- REDD+ can contribute trillions of dollars in value by “flattening the curve” of the global economy’s costs of transition to climate stability—opening up the opportunity to achieve tighter emissions targets and to maintain total emissions over the period 2010-2100 below 1,200 GtCO₂ (consistent with a 2°C carbon budget) while keeping the global CO₂ price below US\$250/t CO₂ by 2050. Analysis also suggests that tightening the carbon budget to 970Gt of CO₂ for the period 2018-2100 (corresponding to a 1.8°C scenario) is politically unfeasible in the absence of significant REDD+ supply. Not only could REDD+ slash abatement costs by half (saving up to 0.5% of Gross World Product) or help to achieve lower emissions targets at the same cost, it also could play an essential role controlling “fat tail” risk of excessively high costs for climate policy adjustment.⁹⁸

The supply side and REDD+ value

Success in achieving REDD+ outcomes are dependent on forest country governments changing behavior via the implementation of legal measures as well as through incentives to compensate landowners for the opportunity costs of avoided deforestation (e.g., foregone agricultural production).

A 2017 study used detailed household data from 2015 to estimate opportunity costs to smallholders from foregone agricultural production in multiple sites across the tropics found a mean opportunity cost equivalent to US\$8.11/tCO₂e,⁹⁹ with wide variation across regions and income groups.¹⁰⁰ This is similar to the mean per ton from a previous local level study.¹⁰¹ In addition to opportunity costs, governments have to bear implementation costs including for example monitoring, reporting and verification of emissions.¹⁰² Therefore the cost of “supplying” jurisdictional REDD+ credits needs to account for both opportunity and implementation costs.

A comparison between this low cost of “supplying” jurisdictional REDD+ credits for forest countries in relation to the very high value of REDD+ on the demand side (in reducing global abatement costs), represents an opportunity for forest countries to harness international support to overcome the economic challenge of going beyond NDC goals.

Conclusion on carbon pricing and the value of REDD+

Forest countries will carry much of the burden of implementing NCS in achieving and going beyond their NDC goals. A dramatic increase in the scale of international demand, and in prices paid for jurisdictional REDD+ results, can support forest countries in these efforts. We propose that private actors in carbon-intensive industries have ample room to pay materially higher prices than the floor prices currently offered by donor governments, the World Bank, and UN GCF of US\$5-10/tCO₂e. Payments for REDD+ credits that better reflect their value to the international community (and to carbon-intensive industries) should provide forest countries with revenue streams that would be materially higher than the carbon prices implied simply by reference to opportunity and implementation costs; and higher than in the current market for project-based credits.¹⁰³

⁹⁸ Fuss et al 2020.

⁹⁹ One ton of carbon equates to 3.67t CO₂.

¹⁰⁰ Ickowitz, A., Sills, E., de Sassi, C. 2017. Estimating Smallholder Opportunity Costs of REDD+: A Pan-tropical Analysis from Households to Carbon and Back. *World Development* 95, 15-26. doi: 10.1016/j.worlddev.2017.02.022.

¹⁰¹ T.-H.D. Phan, R. Brouwer, M. Davidson. 2014. The economic costs of avoided deforestation in the developing world: A meta-analysis. *Journal of Forest Economics* 20 (1) 1-16. doi: 10.1016/j.jfe.2013.06.004.

¹⁰² Luttrell, C., Sills, E., Aryani, R., et al. 2018. Beyond opportunity costs: who bears the implementation costs of reducing emissions from deforestation and degradation? *Mitigation and Adaptation Strategies for Global Change* 23, 291–310. doi: 10.1007/s11027-016-9736-6.

¹⁰³ The estimated median price per ton prevalent in the voluntary carbon market for REDD+ project credits was US\$2.35/tCO₂e in 2018. Source: Forest Trends’ Ecosystem Marketplace 2019.

It is also important to note the difference between, on the one hand, donor payments as a form of output-based aid to support forest countries to meet their NDC goals and, on the other hand, governments acquiring credits as part of Article 6 trading, or private actors paying for offsets to meet compliance or voluntary targets. In relation to the latter, forest countries will need to make a “corresponding adjustments” to ensure no “double-counting” of credits under Paris Agreement rules.¹⁰⁴

¹⁰⁴ For a discussion of the relation between Articles 5 and 6 of the Paris Agreement, concerns about “double counting” and the need for corresponding adjustments see Graham, P. 2017. Cooperative Approaches for Supporting REDD+: Linking Articles 5 and 6 of the Paris Agreement. Climate Advisers. <https://www.climateadvisers.com/wp-content/uploads/2013/12/Linking-Art5-and-Art6-2.pdf>. See also Evans, S. and J. Gabbatiss. "In-depth Q&A: How 'Article 6' carbon markets could 'make or break' the Paris Agreement." November 29, 2019. CarbonBrief. <https://www.carbonbrief.org/in-depth-q-and-a-how-article-6-carbon-markets-could-make-or-break-the-paris-agreement>

SECTION FIVE

Options for operationalizing a Gigaton REDD+ Bid

As stated above, leading donor countries can work to broaden the number of countries making general REDD+ funding commitments. This could include an additional large replenishment of the UN GCF REDD+ results-based finance program and additional finance for REDD+ capacity building in a number of tropical forest countries.

However, there is a very strong case for a special Gigaton REDD+ Bid strategy that is focused on catalyzing large-scale private sector funding commitments. This strategy would involve two elements.

First, it would focus on forest countries with the strongest capacity and potential for NCS in order to maximize results. The funding platform could provide a predictable funding window on a “first come, first served” basis. It could in parallel sign ERPAs on a forward basis with priority forest country jurisdictions. This could give forest countries the confidence that, even if they were not at the front of the queue for the funding window, they would still have a contractual off-take agreement.

Secondly, the Bid strategy would leverage public and private funding commitments in a specialist platform designed for this purpose, including using public funds for put options/floor prices. The Emergent Forest Finance Accelerator (known as “Emergent”),¹⁰⁵ a platform currently supported by the government of Norway, the leading REDD+ donor, offers a ready-made opportunity and potential model for these efforts.

Governments could commit US\$5 billion and in parallel work through the convening power of senior politicians to secure pledges and contractual commitments for an additional US\$5 billion from private sector leaders. The aim would be to ensure a minimum price of US\$10 for one billion tons of emissions reductions. The successful delivery of one billion tons of REDD+ credits would in turn catalyze even larger-scale private and public funding commitments.

These public funding and private funding commitments would not all need to be available for drawdown in the first year of the Bid. Instead they could be pledged in the form of firm bids or put options for different future delivery or expiration dates, in order to reduce the impact on annual budgets.

Strategic focus on forest countries with the strongest capacity in order to maximize results

Private sector buyers of REDD+ credits will be focused on delivery of REDD+ credits rather than capacity building.

As discussed above, a major reason for the World Bank carbon funds’ inability to disburse funding commitments has been that resources have been spread too thin in an effort to build capacity in a broad range of tropical forest countries.

Moreover, Griscom et al have found that

There are a small set of large to medium-sized countries that harbor the majority of tropical NCS opportunity and that have high governance indicators and have relatively strong to intermediate financial capacity (Indonesia, Brazil, India, Malaysia, Mexico, Colombia). International co-financing could accelerate NCS implementation in such countries, which is critical given the sheer magnitude of their potential. Provided that access to finance is matched by political will (where indicated by ambitious NDCs) and institutional capabilities (where indicated by strong and improving governance) there is reason for

¹⁰⁵ “Mobilizing high-integrity nature-based climate solutions for the private market.” Emergent. Accessed July 2020. <https://www.emergentclimate.com/>.

optimism that these national governments are capable of unlocking a great deal of their cost-effective NCS potential.¹⁰⁶

A strategic focus on countries with the strongest capacity would have the most immediate effect in ensuring that funding commitments resulted in payments being made at scale for verified and delivered jurisdictional REDD+ credits. This would demonstrate to both public and private funders that REDD+ could deliver results and thus meet offset needs. It would also incentivize other forest countries to try and achieve the international funding support enjoyed by the initial “winners.” This strategic focus need not necessarily be limited to the above list of high capacity countries. Donor governments that participated in a Gigaton REDD+ Bid may already be developing bilateral REDD+ partnerships with other forest countries that build on existing trade and diplomatic connections.¹⁰⁷

As noted above, the Gigaton REDD+ Bid platform could employ a dual strategy of providing predictable funding on a “first come, first served” basis, while at the same time signing ERPAs on a forward basis with priority forest country jurisdictions. Forest countries at an earlier stage of readiness would thus be assured of future demand. And, as we describe below, high volume ERPA contracts could help incentivize “early mover” private investors.

If the US\$10 billion was completely drawn down to pay for delivered jurisdictional REDD+ credits, that would demonstrate great success in addressing tropical deforestation and, we suggest, rapidly lead to more funding commitments. Donor governments would have ample opportunity in parallel and on an ongoing basis to support less-developed forest countries with REDD+ capacity building.

The Emergent Forest Finance Accelerator and use of donor-funded put options/floor prices

Recent studies have highlighted the benefits of public REDD+ results-based finance using put options¹⁰⁸ or other types of price floors rather than fixed price ERPAs. Put options/price floors can provide forest countries with the certainty of a results-based payment while leaving open the option of achieving a higher payment in the future from other private funders. They can also allow for public funding commitments to be recycled if put options are not exercised.¹⁰⁹ This would represent a highly effective leverage of public to private capital. (Donor government ministries can face challenges in accounting for contingent payments over multiple years. However, funding commitments can be drawn down and ring-fenced to operate indefinitely on a revolving basis or otherwise utilized for making payments if a floor price is no longer necessary.)

Climate policy uncertainty results in a tendency to defer investment in GHG abatement with the result that carbon prices will rise as policy is tightened over time. If costs to Gross World Product are expressed in terms of a global carbon price requirement for meeting climate targets then, in financial terms, the international community —including carbon-intensive industries —can be seen as vulnerable to an abatement cost “short squeeze” on the price of carbon.¹¹⁰

The provision by donor governments of put options or floor prices for REDD+ helps to capture this option value, providing forest countries the option of achieving a higher payment in the future.¹¹¹ With increased

¹⁰⁶ Griscom et al. 2020.

¹⁰⁷ See Graham, P., and D. Movius. 2019. *International Mitigation Partnerships for Forests*. Climate Advisers. <https://climateadvisers.org/wp-content/uploads/2020/06/International-Mitigation-Partnerships-for-Forests-FINAL.pdf>; see also

And “Countries.” Climate Teams. Accessed July 2020. <http://climateteams.org/country/>

¹⁰⁸ The writer (seller) of a put option has an obligation to buy the underlying security at the strike price if the option is exercised.

¹⁰⁹ Bodnar, P., Ott, C., Edwards, R., Hoch, S., McGlynn, E.F., and Wagner, G. 2017. Underwriting 1.5°C: competitive approaches to financing accelerated climate change mitigation. *Climate Policy*. doi: 10.1080/14693062.2017.1389687 1.50C; Edwards 2018.

¹¹⁰ Golub et al. 2018; Golub, A., Lubowski, R.N., Piris-Cabezas, P. 2020. Business responses to climate policy uncertainty: Theoretical analysis of a twin deferral strategy and the risk-adjusted price of carbon. *Energy* 205 (117996). doi: 10.1016/j.energy.2020.117996.

¹¹¹ Bodnar et al 2017; Edwards 2018.

private demand, the value of this call option would increase. The higher the value of the call option, the lower the opportunity costs and the higher the potential revenues for avoided deforestation and forest restoration.

Emergent was established in 2019 by the Environment Defense Fund in partnership with the government of Norway, and the Rockefeller, Good Energies and Packard Foundations. Underpinned by donor funded floor prices, Emergent will seek to facilitate and leverage private sector demand above these floor prices and establish benefit-sharing arrangements for market upside for forest countries selling REDD+ credits.¹¹²

The long-term vision for public-private co-funding of jurisdictional REDD+ could be, as under Emergent, a hybrid model of governments underwriting demand with put options/floor prices and private actors competing in a thriving market at higher prices based on supply and demand. Some governments might wish to acquire REDD+ credits directly as part of Article 6 trading to help achieve a portion of their own emission reduction targets, rather than as output-based aid to support forest countries to achieve NDC goals. In this case they might make direct bids rather than underwrite floor prices.

When forest countries “export” jurisdictional REDD+ credits either under Article 6 or to private buyers of offsets, and make a corresponding adjustment to prevent double counting under the Paris Agreement, they may require a higher price from buyers than the donor funded floor price.

The Gigaton REDD+ Bid platform, including via Emergent, could enter into a series of ERPAs with forest countries and sub-national jurisdictions on behalf of both donor governments (either as the underwriters of the floor price or as outright buyers) and on behalf of private buyers either at the floor price or at higher prices.

The buy side: Incentivizing private sector buyers to participate in the Gigaton REDD+ Bid

Private buyers that have made funding commitments to the Gigaton REDD+ Bid platform would need to commit, at a minimum, to paying the same price for credits as the public floor price, e.g., US\$10/tCO₂e. Where forest countries negotiate higher prices than the floor price with the Gigaton REDD+ Bid platform, individual private buyers would be free not to participate at the higher price point. Private buyers would also of course be able to negotiate directly with forest country jurisdictions at higher prices. A sign of success for the Gigaton REDD+ Bid platform would be if it resulted in subsequent additional private sector demand materializing at higher prices as part of a growing competitive market. However, it will be important to incentivize “early mover” investors with privileged commercial terms.

Companies that commit to the Gigaton REDD+ Bid would have the benefit in corporate social responsibility terms of being part of the “early mover” coalition. Additionally, by co-funding donor or multilateral results-based payments for jurisdictional REDD+ credits, private actors would enjoy the “halo” effect of investing in verified emissions reductions with credibility in the eyes of governments. This can help overcome one challenge highlighted above: private companies’ fears that project-based carbon offsets will not be recognized under national REDD+ programs or by their own governments.¹¹³

In addition to these benefits, in order to secure support from private actors to commit funds to the Gigaton REDD+ Bid, early movers could be treated as “first close” fund investors securing privileged terms for accessing jurisdictional REDD+ credits. Such terms could be structured as follows:

- To reduce the risk for private actors of committing to a fund or platform that failed to achieve critical mass (perhaps defined as a minimum of 0.5 Gt and US\$5 billion), funding “soft circle”

¹¹² Emergent 2020.

¹¹³ CDP 2018.

pledges would not become contractual obligations until the “first close” minimum target has been achieved.

- Early participation could put “first close” bidders on equal terms with each other at the front of the queue on a “first come, first served” basis for delivery of issued and verified REDD+ credits at a given price level, as multiple jurisdictions deliver volumes to the Gigaton REDD+ Bid platform.
- “First close” private investors would benefit from being part of a large-scale platform that secured access to more competitive pricing. Forest country jurisdictions should be attracted by the opportunity to secure very large-scale funding from the Gigaton REDD+ Bid platform. For example, if a jurisdiction were able to secure a US\$10/ tCO₂e price for 50 million tons of historical emissions reductions and an ERPA forward agreement for a further 450 million tons (with a total value of US\$500 million), that could be more attractive than holding out for a \$15/tCO₂e price for 10 million tons, to be benefit of both the jurisdiction and private investors.
- Private buyers could be treated as senior “Tier 1” investors, prioritized over public buyers in receiving REDD+ credits even where they bid the same price as public buyers.
- Private buyers could be given preferential access over public buyers to issued credits from historical emissions reductions (defined for example under the ART TREES methodology as being for the four years prior).
- Private buyers could be offered, in addition to their firm bid, call options at higher strike prices for additional credits acquired by public buyers. (Call options on REDD+ credits offer the potential to create a sizable abatement reserve, helping businesses to manage the risk of an abatement short squeeze without compromising the net global GHG abatement target).¹¹⁴
- Private buyers could also have the option to specify the jurisdiction from which they wished to source REDD+ credits. For example, agribusiness and food companies may wish to prioritize specific jurisdictions from where they source commodities.

The Gigaton REDD+ Bid platform will want to attract later second round private sector buyers and bids at higher prices in the future. These would be incentivized by the proven success of jurisdictional REDD+ in delivering results.

As suggested above, in order to provide predictable demand to forest country jurisdictions, the Gigaton REDD+ Bid platform could both operate on a “first come, first served” basis and also enter into ERPA contracts. There are risks associated with both these approaches. Under a “first come, first served” approach forest country jurisdictions might have concerns that the bid had already been filled and demand supplied before their own verified credits could be sold. Conversely, under ERPA agreements there is a concern on the part of funders that committing funds (and thus reducing the US\$10 billion funding available for other counterparties) does not guarantee the forest country will meet emission reduction targets.

There are ways to reduce these risks. The best solution is for the REDD+ Bid to be sufficiently large. Hence our proposal of an initial Bid starting at US\$10 billion. That would reduce the risk that the Gigaton REDD+ Bid platform runs out of capital before a forest country jurisdiction is able to make sales. It also creates a clear seriousness of intent, raising the likelihood that further funding rounds would be available. Secondly, under an ERPA model, the Gigaton REDD+ Bid platform could prioritize jurisdictions that have demonstrated an ability to meet historical emissions reductions targets or which appear close to meeting emission reduction targets under high-integrity accounting methodologies.

For tropical forest countries, the main incentive to accelerate ambitious REDD+ actions would be because the Gigaton REDD+ Bid platform provides predictable large-scale demand. Forest countries

¹¹⁴ Golub et al. 2020.

could, as envisaged by Emergent, also choose to negotiate ERPA contracts that included a profit sharing mechanism whereby, if a flourishing market for jurisdictional REDD+ credits were to emerge over time at higher prices, those countries would be able to share a percentage of the “upside” value.

High environmental integrity jurisdictional REDD+ credits

The Gigaton REDD+ Bid strategy, through higher prices and higher levels of demand, would allow donor governments to prioritize, or push for improvements in REDD+ accounting methodologies to ensure the highest environmental integrity, including ensuring no double-counting of reductions. (This could include, for example, ART-TREES and the California Tropical Forest Standard, Verified Carbon Standard’s Jurisdictional and Nested REDD+ Standard; and the Forest Carbon Partnership Methodological Framework).¹¹⁵ A high-profile Gigaton REDD+ Bid would also help to accelerate clarification of Paris Agreement rules on reference levels and the period for calculating historical emissions.

The Gigaton REDD+ Bid and financing instruments for upfront capital costs

Predictability of large-scale demand for jurisdictional REDD+ credits would provide forest countries with fiscal space to pursue more ambitious conservation goals. It should also spur the development of financing instruments that can bridge the gap between future results-dependent REDD+ revenue streams and current capital expenditure requirements. For instance:

- The World Bank in 2019 approved a US\$250 million “Fiscal Adjustment and Environmental Sustainability” loan to support the Brazilian state of Mato Grosso’s ambitious sustainable rural development and climate change strategy.¹¹⁶ Development Finance Institutions could scale up such concessional lending to forest country governments once commitments for large volumes of jurisdictional credits have been contracted from a Gigaton REDD+ Bid platform.
- Enhanced bond structures, explicitly linked to REDD+ results-based finance with use of proceeds hypothecated to pro-forest programs, have been proposed to attract lower cost capital to support NDC activities in Brazil and elsewhere.¹¹⁷ A US\$10 billion REDD+ Bid could drive scaling and replication of such instruments.
- Visibility on potential hard currency revenue streams could be especially important in light of the COVID-19 pandemic. For example, the Brazilian Real has declined from US\$1:4 to US\$1:5.3 since early in 2020 largely due to the crisis. And other emerging market economies have endured currency falls. The Grantham Research Institute has recently highlighted the importance of sustainable finance innovations to prevent the COVID-19 pandemic leading to an emerging market sovereign debt crunch.¹¹⁸ Large-scale REDD+ revenue streams could support Sustainable Development Goals (SDG) bonds and “debt for sustainability” swaps.

¹¹⁵ For a discussion of the merits of different standards see:

Chagas, T.; Galt, H.; Lee, D.; Neeff, T. and Streck, C. 2020. *A close look at the quality of REDD+ carbon credits*. Climate Focus. <https://www.climatefocus.com/sites/default/files/A%20close%20look%20at%20the%20quality%20of%20REDD%2B%20carbon%20credits%20%282020%29%20V2.0.pdf>

¹¹⁶ Golub, A., Lubowski, R.N., Piris-Cabezas, P. 2020. Business responses to climate policy uncertainty: Theoretical analysis of a twin deferral strategy and the risk-adjusted price of carbon. *Energy* 205 (117996). doi: 10.1016/j.energy.2020.117996.

¹¹⁷ World Bank 2017; Edwards 2018.

¹¹⁸ Pinzón, A., Robins, N., Hugman, M. “How could sustainable finance help avoid an emerging market sovereign debt crunch?” The London School of Economics and Political Science. Commentary, May 26, 2020. <http://www.lse.ac.uk/GranthamInstitute/news/how-could-sustainable-finance-help-avoid-an-emerging-market-sovereign-debt-crunch/>.

SECTION SIX

Conclusion

The Covid-19 pandemic, as Jared Diamond has suggested: “may motivate us to deal with those bigger issues we have until now balked at confronting” and “prepare us to deal with other existential threats.”¹¹⁹

Given the overwhelmingly strong environmental and economic case for the international community to support tropical forest countries to end deforestation, the strong local benefits to forest countries of conservation, the under-exploited option value of near-term affordable mitigation options, and the consequent enormous untapped demand potential for REDD+ credits from a range of private actors, there is an alignment of interests on the supply and demand sides to achieve scale.

Over the coming decade there should be ample opportunity to deliver US\$50-100 billion in combined international public and private support for REDD+. However, jurisdictional REDD+ demand and supply *must* demonstrate the ability to scale from current levels. Unlocking the first 1 billion tons of supply is the crucial step. It is possible to envisage that efforts by a broader range of donor governments to overcome the initial chicken-and-egg demand and supply problem could unleash a veritable “wall of money” for REDD+.

There is a very strong case for a special US\$10 billion Gigaton REDD+ Bid strategy, focused on catalyzing large-scale private sector funding commitments and on forest countries with the strongest capacity and potential for NCS.

Specific recommendations

The leading REDD+ donors, Norway, Germany, and the UK, could combine efforts to build a broader coalition of donor governments to scale up results-based funding for REDD+ and harness the growing opportunity for much greater levels of private sector co-funding, including by guaranteeing floor prices and other financing to support implementation of high-integrity jurisdictional programs.

The UK could play an especially important role in the run up to COP26 in Glasgow in November 2021, with senior government figures convening CEOs of major companies and investment firms to participate alongside governments in the Gigaton REDD+ Bid.

This could include engagement with the CEOs of airlines, oil and gas and other carbon intensive industries, agribusiness and food companies to make commitments to buying high-integrity jurisdictional REDD+ credits, including via the Emergent Forest Finance Accelerator.

Additionally, given the City of London’s position as a major financial center with a growing focus on climate risk metrics (driven by climate leaders such as Mark Carney, former governor of the Bank of England), there is a strong opportunity to engage with the major global investment platforms to develop products that would enable private savers to offset the residual carbon intensity of their low carbon and climate transition investment strategies.

Success in achieving US\$10 billion in funding commitments prior to COP26 would create a very positive backdrop to international climate negotiations.

¹¹⁹ Diamond, J. “Jared Diamond: lessons from a pandemic.” *Financial Times*. May 30, 2020. <https://www.ft.com/content/71ed9f88-9f5b-11ea-b65d-489c67b0d85d>.