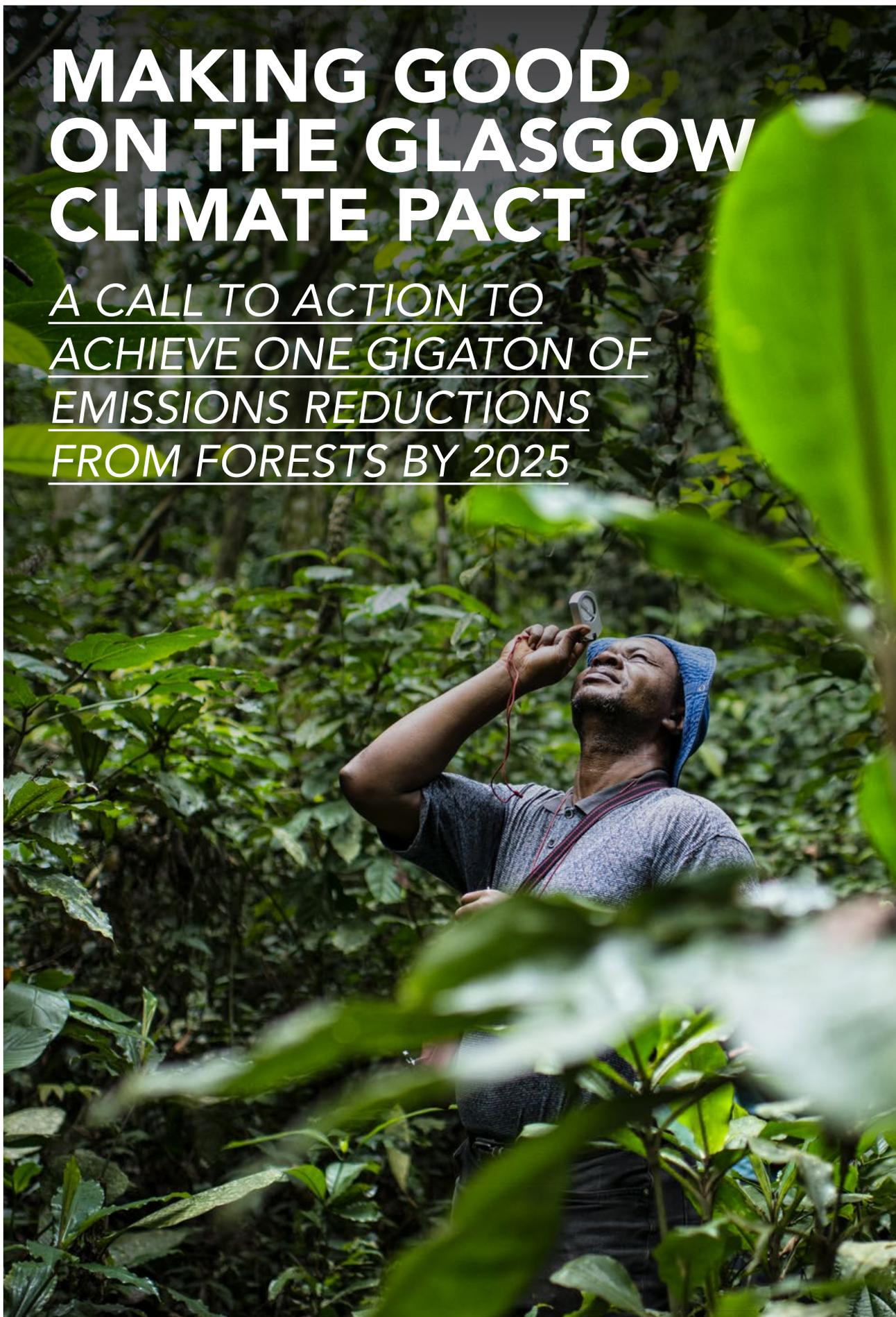


MAKING GOOD ON THE GLASGOW CLIMATE PACT

A CALL TO ACTION TO
ACHIEVE ONE GIGATON OF
EMISSIONS REDUCTIONS
FROM FORESTS BY 2025



UN-REDD
PROGRAMME



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Making good on the Glasgow Climate Pact: a call to action to achieve one gigaton of emissions reductions from forests by 2025

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ACRONYMS

ART-TREES	<u>Architecture for REDD+ Transactions-The REDD+ Environmental Excellence Standard</u>
CAFI	<u>Central African Forest Initiative</u>
COP	<u>Conference of the Parties</u>
ERPA	<u>Emissions Reduction Purchase Agreement</u>
FAO	<u>Food and Agricultural Organization of the United Nations</u>
FCPF	<u>Forest Carbon Partnership Facility</u>
FCPF-CF	<u>Forest Carbon Partnership Facility – Carbon Fund</u>
FREL	<u>Forest Reference Emission Level</u>
FRL	<u>Forest Reference Level</u>
FTEM	<u>Forest Trends Ecosystem Marketplace</u>
GCF	<u>Green Climate Fund</u>
HFLD	<u>High-forest Low-deforestation</u>
IPLCs	<u>Indigenous Peoples and Local Communities</u>
IUCN	<u>International Union for Conservation of Nature</u>
IPCC	<u>Intergovernmental Panel on Climate Change</u>
JDI	<u>Joint Declaration of Intent</u>
LEAF	<u>Lowering Emissions by Accelerating Forest Finance</u>
LoI	<u>Letter of Intent</u>
NDC	<u>Nationally Determined Contribution</u>
REDD+	<u>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</u>
RRI	<u>Rights and Resources Initiative</u>
SBTi	<u>Science-based Targets Initiative</u>
tCO₂e	<u>tons of carbon dioxide equivalent</u>
UNDP	<u>United Nations Development Programme</u>
UNEP	<u>United Nations Environment Programme</u>
UNFCCC	<u>United Nations Framework Convention on Climate Change</u>
WEF	<u>World Economic Forum</u>



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EXECUTIVE SUMMARY

WE ARE IN AN EXISTENTIAL CRISIS, BUT FORESTS CAN DELIVER FOR PEOPLE AND PLANET.

The climate change and biodiversity crises, combined with challenges presented by wars, food insecurity and pandemics, are pushing us to the brink. Fortunately, actions to protect, sustainably manage and restore forests can deliver cost-effective climate change mitigation at scale. These actions can also reverse declines in biodiversity and enhance resilience to climate change. Indigenous Peoples and local communities (IPLCs), recognized as the most effective stewards of forests, often play a key role in achieving these outcomes. Forest-based actions can make an essential contribution to meeting the ambition of the Paris Agreement, with potential to provide nearly 27% of the solution to help avert climate catastrophe¹.

THE GIGATON MILESTONE IS AN ESSENTIAL TOOL TO MEASURE PROGRESS TOWARD CLIMATE AND NATURE GOALS.

Despite widespread recognition that we need forests to fend off the worst of the climate crisis, financing for forest-based solutions, such as REDD+², has been insufficient and slow-moving. To help evaluate financial commitments for emissions reductions from forests, the Green Gigaton Challenge set a goal of

mobilizing funds to pay for the equivalent of one gigaton of high-integrity³ emissions reductions from forests between 2020-2025, and yearly thereafter. This provides a much-needed mid-term milestone to assess progress towards meeting a range of goals and commitments for forests and climate by 2030. If we fail to achieve a gigaton of emissions reductions by 2025, the longer-term goals will be increasingly impossible to attain.

WE ARE NOT YET ON TRACK TO MEET THE MILESTONE.

Although more than half the time has passed to meet the gigaton milestone goal, our analysis shows that only 24% of the necessary commitments for emissions reductions have been made. Worse, only around half of these commitments have been realized through signed emissions reductions purchase agreements and none of the funding for these commitments has been disbursed yet. Existing commitments must be transformed into reality and new commitments must urgently be made to finance forests, or we are at extreme risk of missing the milestone.

AN UNMISTAKABLE INCENTIVE IN THE FORM OF AN INCREASED FOREST CARBON PRICE IS NEEDED.

To enable action at the scale needed to reach the gigaton milestone and 2030 goals, it is imperative that countries have straightforward access to adequate finance to develop and implement ambitious forest-based climate solutions. Finance for forests and the current price of carbon do not reflect the urgency or the scale of the problems we are facing. By committing to pay a higher minimum carbon

1 According to the 2022 Emissions Gap Report, for a 66% chance of limiting global warming to no more than 2°C, we must avoid (or absorb) 15 gigatons of emissions per year by 2030, above the commitments already made by countries. Forest-based solutions provide a crucial annual mitigation potential of around 4 gigatons by 2030, as per information available in Intergovernmental Panel on Climate Change [IPCC] 2019, Roe et al. 2019 and United Nations Environment Programme [UNEP] and International Union for Conservation of Nature [IUCN] 2021.

2 REDD+ is a framework referred to in Article 5.2 of the Paris Agreement, providing guidance on activities and support for reducing emissions from deforestation, reducing emissions from forest degradation, conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

3 This refers to emissions reductions generated at the jurisdictional level (including nested projects) with strong compliance to social and environmental safeguards, and measured, reported and verified following international best practice in carbon accounting.

price, public and private financial actors could become champions of change by unlocking supply and leveraging demand for high-integrity emissions results. A bold first step, like committing to a floor price of USD 30-50⁴ per ton of CO₂e for a substantial volume of emissions reductions, would empower forest countries to transform their economies and catalyze further funding opportunities.

UPFRONT INVESTMENT IN REDD+ READINESS AND IMPLEMENTATION MUST CONTINUE AND BE SCALED UP

to ensure capacity and action to achieve emissions reductions results, with effective measurement, verification and reporting systems and safeguards in place. A higher price for forest carbon combined with reasonable certainty of future payments would go a long way towards attracting upfront finance for REDD+. Increased investment and enhanced access to climate finance is also needed for high-forest, low-deforestation countries, to recognize and reward their historical conservation efforts and resistance to increasing pressures to deforest. Such finance is crucial to secure the multiple benefits that intact forests provide for people and nature.

INTEGRITY IS KEY TO ENSURING REAL, ROBUST EMISSIONS REDUCTIONS.

Integrity is also very relevant when carbon markets are considered. The potential contribution of the voluntary carbon market in scaling up emissions reductions from forests becomes more important as growth of the market accelerates, having quadrupled in value between 2020 and 2021. Whether this generates genuine climate-positive impacts will

depend on alignment with United Nations Framework Convention on Climate Change decisions on REDD+, as well having robust quantification, mechanisms to deal with leakage and reversals, and strong adherence to safeguards, among others. Transitions to nested jurisdictional approaches, aligned and incorporated with REDD+ national strategies and action plans, can help to reduce risks associated with the integrity of standalone projects while facilitating diverse streams of finance.

THERE IS NO PROGRESS WITHOUT EQUITY. FOREST COUNTRIES ARE AT THE HEART OF DELIVERING NEEDED EMISSIONS REDUCTIONS AND IPLCS HAVE A KEY PART IN THIS PROCESS.

IPLCs are on the front line, leading the way with conservation and sustainable management of forests, but their lives are often at risk as land and environmental defenders. It is also important to recognize that discrimination against women and girls, and their exclusion from decision-making processes, can mean their important contributions to forest management and specific uses of forests are overlooked. Access to funding at sufficient volumes for forest-based solutions, with capacity-building as needed, should be facilitated for IPLCs as partners and not just beneficiaries, and with a focus on women.

ALTHOUGH MORE THAN HALF THE TIME TO MEET THE GIGATON MILESTONE HAS PASSED, LESS THAN ONE-QUARTER OF THE NEEDED COMMITMENTS HAVE BEEN MADE. WE URGENTLY NEED TO SCALE UP ACTION AND FINANCE FOR FOREST-BASED MITIGATION TO ACHIEVE THIS MILESTONE AND AVERT CATASTROPHIC CLIMATE CHANGE. IF WE SUCCEED IN THIS GOAL, VITAL TARGETS FOR CLIMATE AND NATURE REMAIN WITHIN REACH.

4 See Golub, Labbate and Cheney's forthcoming paper on pricing forest carbon for more information.

1



1. WE ARE IN AN EXISTENTIAL CRISIS, BUT FORESTS CAN DELIVER FOR PEOPLE AND PLANET

The climate change and biodiversity crises, combined with challenges presented by wars, food insecurity and pandemics, are pushing the planet to the brink. Fortunately, actions to protect, sustainably manage and restore forests can help prevent catastrophe by providing cost-effective climate change mitigation at scale. These actions can also reverse declines in biodiversity and enhance resilience to climate change. Indigenous Peoples and local communities (IPLCs), recognized as the most effective stewards of forests, often play a key role in achieving these outcomes. Forest-based actions can make an essential contribution to meeting the ambition of the Paris Agreement to limit global warming to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C.

The urgency of these climate goals, as well as the key role of forests in reaching them, was stressed in the Glasgow Climate Pact⁵ agreed at the United Nations Climate Change 26th Conference of the Parties (COP26). In addition, the Glasgow World Leaders' Declaration on Forests and Land Use was signed by more than 140 countries whose territories collectively contain over 90% of Earth's forests, focused on halting global deforestation by 2030. These agreements were accompanied by the Global Forest Finance Pledge, a commitment of USD 12 billion for forest-related climate finance between 2021-2025. The Indigenous Peoples' and Local Communities Forest Tenure Joint Donor Statement also made a collective pledge of USD 1.7 billion of financing during the same period, towards the advancement of IPLC's forest tenure rights and greater recognition for their role as guardians of nature. Building on advances in Glasgow, the Forest & Climate Leaders Partnership has been launched, and will meet for the first time at COP27. This Partnership aims to unite government, community and business leaders to accelerate commitments made in Glasgow to halt and reverse forest loss and land degradation, while delivering sustainable development.

The Glasgow commitments build upon numerous existing international initiatives on nature and climate. The Bonn Challenge and the United Nations Decade on Ecosystem Restoration, which aim to accelerate action for restoration by 2030, are two such initiatives. The New York Declaration on Forests and the Lima Challenge endorsement of this Declaration are two more, that set out ten goals to end forest loss and degradation by 2030. The Forest Declaration Platform serves as a multi-stakeholder platform focused on ensuring global forest goals are achieved. The Leaders' Pledge for Nature is another initiative that commits to reversing biodiversity loss by 2030.

Although forests are widely recognized for their contributions to climate change mitigation, commitments and pledges to protect them need to be translated into action. Adequate finance and incentives for forest countries to act before it is too late are essential. A milestone to help track progress towards turning commitments into action and finance is needed to help ensure that 2030 goals remain within reach.

⁵ Descriptions and links to key commitments and initiatives on forests and climate are available in Annex A.



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2. FORESTS ARE CRITICAL, BUT ARE UNDER INCREASING PRESSURE

Forests are a key part of the solution for the climate crisis. For a 66% chance of limiting global warming to no more than 2°C, it is necessary to avoid (or absorb) the release into the atmosphere of 15 gigatons of emissions per year by 2030, above the commitments already made by countries (United Nations Environment Programme [UNEP] 2022a). That is, 15 billion tons of carbon dioxide equivalent (tCO₂e) per year. The actions required to limit global warming to 1.5°C are even greater. Forest-based solutions provide a crucial annual mitigation potential of around 4 gigatons by 2030 (Intergovernmental Panel on Climate Change [IPCC] 2019; Roe *et al.* 2019; United Nations Environment Programme [UNEP] and International Union for Conservation of Nature [IUCN] 2021). Actions to protect, sustainably manage and restore forests can therefore provide nearly 27% of the solution to help avert climate catastrophe.

In addition to their role in sequestering and storing carbon, forests help regulate global and local climate through biophysical cooling, especially in the tropics (Lawrence *et al.* 2022). Forests also provide services that support climate change adaptation and underpin progress towards at least 11 of the 17 Sustainable Development Goals (Seymour and Busch 2016). Protection, sustainable management and restoration of forests can also reduce people's vulnerability to climate impacts. This can be especially important for women and girls, as vulnerability to climate change and climate impacts is often strongly gendered. Ecosystem-based adaptation involving forests can, for example, help to reduce people's exposure to the impacts of floods and landslides (Kapos *et al.* 2019). Forests sustain biodiversity, help regulate water flows and prevent soil erosion, and contribute to providing food, fuel, fresh water and other tangible resources (Ojea *et al.* 2016; Food and Agricultural Organisation of the United Nations [FAO] 2022). Forest-based products such as handicrafts and medicinal plants can be important for local livelihoods, especially for women. Intact forests are integral to global and planetary health. Reducing deforestation and forest degradation is critical to managing risks related to the emergence of future zoonotic diseases and global pandemics like COVID-19 (Bernstein *et al.* 2022). Forests also provide a range of livelihood and spiritual benefits for

those who live in and depend on them. This is particularly relevant for IPLCs.

The degree to which these contributions can be realized is subject to the increasing risk of climate change impacts on forests (Anderegg *et al.* 2022a) and the challenges of addressing drivers of forest loss. Although some studies show steady or gently declining rates of net forest loss since the 1990s (FAO 2020; Ometto *et al.* 2022), a recent study has suggested that emission of biomass and soil carbon from tropical forest clearance doubled between the periods 2001-2005 and 2015-2019, largely attributed to agricultural expansion (Feng *et al.* 2022). Forests also face increasing risks from diseases, insects and fire due to anthropogenic climate change (Allen *et al.* 2010; Hoegh-Guldberg *et al.* 2018; Anderegg *et al.* 2022b; Tyukavina *et al.* 2022; UNEP 2022b). Degraded forests tend to be more vulnerable to these pressures than those that are intact. Forests, except for those in boreal zones, have been showing less resilience since the year 2000 (Forzieri *et al.* 2022). This is widely thought to be the result of decreased water availability, extreme climate events and human activity (Boulton, Lenton and Boers 2022; Forzieri *et al.* 2022).

Investment in forests is urgently needed to help address and reverse these trends. This can also help to protect against the worst effects of climate change and forest loss for IPLCs and women and girls (and particularly on IPLC women and girls). This investment also makes economic sense. Natural climate solutions can contribute more than one-third of the cost-effective ways to mitigate climate that are needed until 2030 to keep global warming below 2°C (Griscom *et al.* 2017). Within this, the forest sector offers a critical contribution to achieving cost-effective climate change mitigation (Griscom *et al.* 2017; Busch *et al.* 2019; Austin *et al.* 2020; Grafton *et al.* 2021). Indeed, investment in reducing and reversing forest loss can help to “flatten the curve of the global economy's costs of transition to climate stability” (Edwards 2021). To keep global warming within levels agreed in the Paris Agreement and ensure the continued services forests provide for people and the planet, financing and action for forests are needed now more than ever.



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3. FORESTS NEED FUNDING

The global challenge to tackle climate change and deforestation is being addressed under multiple international frameworks and agreements. Under the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement requires countries to set their own national targets for emissions reductions and adaptation. Known as the Nationally Determined Contributions (NDCs), these targets recognize the differing responsibilities and capabilities of countries and require countries to submit national greenhouse gas inventories to the UNFCCC. Article 5 of the Paris Agreement encourages Parties to implement and support actions to reduce emissions from deforestation and forest degradation, conserve forest carbon stocks, sustainably manage forests and enhance forest carbon stocks (also known as REDD+) in developing countries. Mitigation activities in the forest sector must be transparently reported and aligned with NDCs and national greenhouse gas inventories.

Meeting national and international targets for forests and climate more broadly will require mobilizing significant funding for REDD+ from public and private sources. As discussed in McDermott *et al.* (2022) and Maniatis *et al.*

(2019), most funding for REDD+ has historically come from public donors. A combination of bilateral (particularly from Norway and Germany) and multilateral donors have provided funding to eight main climate funds supporting REDD+ ⁶ (Climate Funds Update n.d.). This funding has been instrumental in enabling actions and finance for forests to date, directed at the three phases of REDD+:

- *readiness (preparing the necessary elements for REDD+, in line with the UNFCCC Warsaw Framework, which is detailed in Box 1)*
- *implementation (of national policies and measures, strategies and actions plans, capacity-building and technology transfer)*
- *results-based activities (that undergo full measurement, reporting and verification) (UNFCCC 1/CP.16, paragraph 73)*

⁶ According to Climate Funds Update these are: Amazon Fund, Forest Investment Program, Green Climate Fund (GCF), UN-REDD Programme, Forest Carbon Partnership Facility (FCPF), Central African Forest Initiative (CAFI), BioCarbon Fund and Congo Basin Forest Fund.



BOX 1

WARSAW FRAMEWORK FOR REDD+

At UNFCCC COP19, Parties adopted seven decisions (9/CP.19, 10/CP.19, 11/CP.19, 12/CP.19, 13/CP.19 and 15/CP.19) outlining the requirements for countries to receive results-based payments for REDD+ activities, collectively known as the Warsaw Framework for REDD+. Under Decision 1/CP.16 (paragraph 71) of the UNFCCC, countries undertaking REDD+ activities should develop the following, in the context of their national circumstances:

- A REDD+ National Strategy or Action Plan that sets out the policies and measures to be implemented to address drivers of deforestation and forest degradation or to implement the + activities
- A Forest Reference Emission Level (FREL) or Forest Reference Level (FRL), that is a benchmark for estimating the volume of emissions reductions achieved from REDD+ activities
- A robust and transparent national forest monitoring system, with, if appropriate, subnational monitoring and reporting as an interim measure
- A system for reporting on how safeguards are being addressed and respected, as well as periodic summaries of information on safeguards

Results also need to be fully measured, reported and verified with a technical assessment of the FRL/FREL conducted (Decision 9/CP.19 paragraph 3).⁷ The Lima REDD+ Information Hub was established on the REDD+ Web Platform (Decision 9/CP.19) as a means to publish information on the results of REDD+ activities, and corresponding results-based payments (paragraph 9), with an aim to increase the transparency of information on REDD+ (paragraph 10).

3.1 FINANCE FOR REDD+

Countries are finding it difficult to access “upfront finance” for REDD+ preparation and implementation, to generate emissions reductions results. This upfront finance can also be an important source of support for stakeholder engagement processes, including with IPLCs and women, and the integration of a gender approach into REDD+ planning and implementation. For example, the Forest Carbon Partnership Facility (FCPF) Readiness Fund, which has deployed USD 314 million in financing from 2008 onward to help countries develop the preparation and building blocks of REDD+, is set to close in December 2022 (Forest Carbon Partnership Facility [FCPF] 2022). FCPF’s Capacity Building Program for Forest-De-

pendent Indigenous Peoples and Southern Civil Society Organizations, which has allocated USD 15 million to more than 100 sub-projects to support stakeholder engagement in REDD+, is also due to close in 2022.

The situation for results-based payments, which are intended to compensate for the costs of emission reductions, is not any better. There are currently limited long-term, predictable options for countries to access results-based financing. The Green Climate Fund (GCF) and other financing entities have been encouraged by the UNFCCC (Decision 9/CP.19) “to channel adequate and predictable results-based finance in a fair and balanced manner”. The GCF implemented a REDD+ results-based payments pilot programme, but by 2020 all of the USD 500 million funding had been allocated, to just 8 countries (Green Climate

⁷ The Warsaw Framework for REDD+ recognizes national and, as an interim step, subnational measuring, reporting and verifying of results. This is referred to as “jurisdictional REDD+” in this report.

Fund [GCF] n.d.).⁸ It is not yet clear when a second phase of this programme will be funded. The Forest Carbon Partnership Facility-Carbon Fund (FCPF-CF), which was set up to pilot incentive payments for REDD+ efforts in developing countries, is due to close in 2025. A small number of countries or jurisdictions have also signed bilateral or multilateral cooperation agreements that take the form of declarations or letters of intent, as commitments to pay for emissions reductions, although these are not seen as a widely accessible option for results-based payments.

For many countries, the level of investment required to carry out the necessary transformations to their technical, political, economic and regulatory systems to effectively prepare for and implement REDD+ and achieve emissions reductions has not yet been realized (Maniatis *et al.* 2019; United Nations Development Programme [UNDP] 2021; Mansourian *et al.* 2022). A lack of access to ongoing financial incentives causes a significant risk to effective delivery of REDD+ (International Institute for Environment and Development [IIED] 2016) and to NDC implementation (UNDP 2021). Part of the solution to this issue could include diversifying funding sources beyond public donors, with scaled up finance and investment from private and public-private sources. The Lowering Emissions by Accelerating Forest Finance (LEAF) Coalition is one such example. It is a public-private initiative between Norway, the United Kingdom, the United States and a number of leading companies, focused on providing results-based payments that help countries protect their tropical forests. The LEAF Coalition mobilized USD 1 billion of finance in 2021 to pay for emissions reductions at a guaranteed floor price of USD 10 per tCO₂e for the crediting years 2022-2026. However, the emissions reductions in the proposals submitted to date amount to over three times the initial commitment of 100 million tCO₂e, leaving a significant gap to finance the rest. Although the commitment from LEAF has been a welcome contribution to forest finance, it is necessary to urgently and significantly scale up this and similar efforts.

⁸ These are: Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador Indonesia and Paraguay.

3.2 COSTS OF REDD+

It is important to consider the available finance for REDD+ in relation to the costs, which can be broken down into three categories (White and Minang 2011):

- **implementation costs:** *direct costs of implementing the activities to achieve emissions reductions (often called mitigation activities)*
- **opportunity costs:** *costs from a reduction in potential income when REDD+ activities are undertaken instead of other activities*
- **transaction costs:** *costs from establishing and operating a REDD+ programme, including measuring, reporting and verification, monitoring, and the application of safeguards*

Transaction costs in particular have been steadily on the rise. In addition to the Warsaw Framework for REDD+, forest countries face a number of additional carbon, legal and safeguards requirements in order to access results-based payments. These additional requirements have often emerged in response to donor and funder concerns over reference periods, quantification methods and implementation of safeguards, among others. Financing entities often apply their own safeguards frameworks in addition to that of the UNFCCC (McDermott *et al.* 2022), in addition to detailed requirements, for example, on gender. The FCPF-CF has guiding principles that require meeting both the World Bank environmental and social framework and standards, as well as the UNFCCC REDD+ safeguards (McDermott *et al.* 2022). The GCF required countries to meet three different sets of safeguards and requirements in order to access REDD+ results-based payments in their pilot programme: those of the GCF, those of the UNFCCC for REDD+, and those of the 'Accredited Entity' institution, who partners with the GCF to implement projects. LEAF requires countries and jurisdictions to apply the Architecture for REDD+

BOX 2

TOOLS TO ADDRESS MULTIPLE REQUIREMENTS IN HONDURAS AND PERU

Applying multiple safeguards frameworks for different forests and climate projects can require significant human and financial resources. A recent innovative project in Honduras analyzed 12 different safeguards frameworks, representing a total of 16 donors and implementing agencies and 65 climate change projects in country. Based on this analysis, a platform (Salvaguadas+ Honduras n.d.) was developed with a unified safeguards framework for all climate change projects and programmes to support the social and environmental management of projects and reduce the burden of having to apply multiple frameworks. This also included, for example, tools to support the integration of a gender approach into climate change projects. Guidelines for identifying and mitigating risks and impacts related to gender, and for developing a gender assessment and gender action plan for projects, were included in the platform.

A key tool for measuring, reporting and verification, and monitoring of emissions reductions, which forms part of carbon accounting, is a national registry to keep track of credits. One example currently in development is Peru's "National Registration of Mitigation Measures" (RENAMI, according to its Spanish acronym). This will be managed by the Ministry of Environment and will serve as a virtual platform to monitor compliance with Peru's NDC, covering all mitigation measures and initiatives and recording all transfers of emissions reductions (Millar, Carranza and Paniagua 2020). This will help ensure transparency, avoid double counting and generate trust with buyers to secure further climate investment.

Transactions' (ART) The REDD+ Environmental Excellence Standard (TREES) for quantifying, monitoring, reporting and verifying REDD+ emissions reductions and removals, in addition to meeting UNFCCC requirements for REDD+.

Solutions are emerging to help address some issues contributing to rising transaction costs. Transparent and unified safeguards approaches and carbon accounting (for measurement, reporting and verification), such as those used in Honduras and Peru (see Box 2), can help align existing information, while ensuring the integrity of emissions reductions. There are also examples of countries, such as Ghana (see Box 3), focused on "commodity-based emissions reductions", that look to combine financing sources and approaches to achieve emissions reductions, sustainable development and other co-benefits. This is an example of mitigation activities that go beyond REDD+ and the forest sector, which can also help to reduce transaction costs, as it is situated within wider sustainable development activities. However, donors and funders of results-based payments need to be more

aware of the level of effort, expense and human resources required of recipient countries to meet additional standards and to ensure that the prices paid for emissions reductions reflect this.

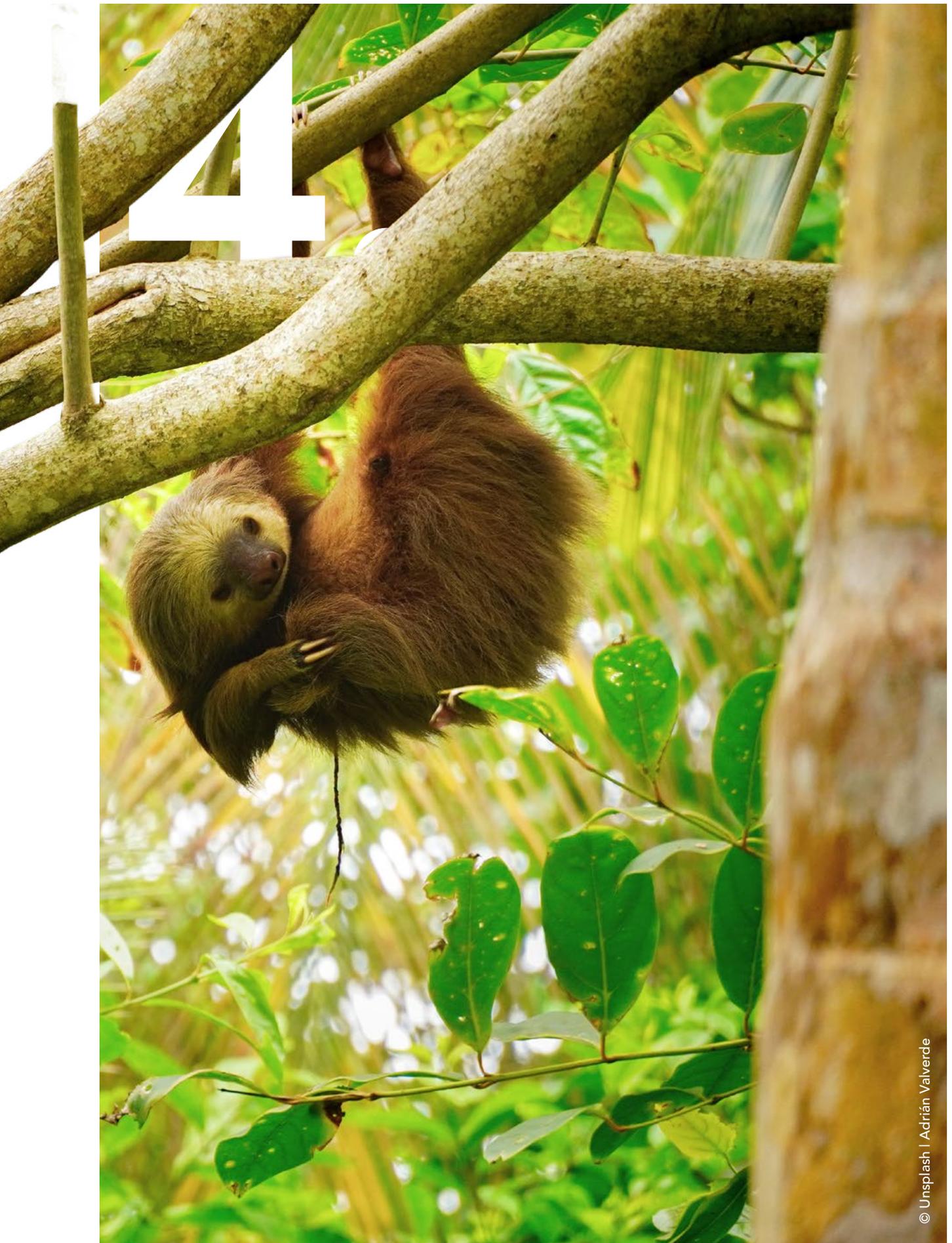
Within the complex landscape of both finance and costs of REDD+, and the urgency of meeting targets for forests and climate, a milestone goal is needed to help track progress on finance and action for forests.

BOX 3

COMMODITY-BASED EMISSIONS REDUCTIONS: EMERGING LESSONS FROM GHANA

The Ghanaian government, with the support of the conservation community and the chocolate industry, is aiming to undertake a “commodity-based emissions reduction programme” (World Economic Forum [WEF] 2022). This approach aims to reduce emissions from deforestation while protecting biodiversity, improving livelihoods and maintaining a supply of cocoa to the global market. The promotion of monoculture, or low-shade, systems in Ghana has led to a reduction in tree cover and diversity on plantations. This has reduced yields and damaged biodiversity. Monoculture practices are also creating wider environmental effects by generating local climatic conditions that reduce rainfall and increase erosion. Recent evidence suggests that agroforestry approaches can provide multiple benefits including the potential to support sustainable yields, improved habitat for biodiversity, enhanced carbon sequestration and income diversification for farmers (Niether *et al.* 2020; Maney *et al.* 2022). With funding from the World Bank, the Ghanaian Forestry Commission and the global chocolate industry have identified six landscapes with intensive cocoa production and high levels of deforestation for the implementation of Landscape Management and Investment Plans (WEF 2022). These plans will be enacted through local communities and tailored to the state of the forest. They will focus on sustainable production in areas of cleared forest and agroforestry in areas of degraded forest. REDD+ finance will contribute to this scheme with Ghana expecting funding from the LEAF Coalition. This is an example where sustainable development approaches beyond REDD+ can help to access and leverage finance, and reduce transaction costs for mitigation activities while achieving multiple benefits.





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4. THE GIGATON MILESTONE: A TOOL FOR ASSESSING PROGRESS TOWARDS ACHIEVING 2030 CLIMATE AND FOREST GOALS

In an effort to spur action to meet the urgent need to scale up financing for forests and climate, the Green Gigaton Challenge was launched in 2020 by Emergent Forest Finance Accelerator, the UN-REDD Programme, Environmental Defense Fund (EDF), Forest Trends and Architecture for REDD+ Transactions (ART). The Challenge sets a goal of mobilizing funds to pay for the equivalent of one gigaton of emissions reductions from forests between 2020 and 2025, and yearly thereafter as an aspirational goal (Edwards 2021). This provides a much-needed mid-term milestone to track progress towards a range of goals and commitments for forests and climate by 2030 and beyond. If a gigaton of emissions reductions is not achieved by 2025, the longer-term goals look increasingly impossible to attain.

The gigaton milestone focuses on high-integrity emissions reductions, which are those “generated with strong compliance to social and environmental safeguards, and measured, reported, and verified following best international practice in carbon accounting” (Edwards 2021). Only emissions reductions achieved from jurisdictional REDD+ programmes, i.e., through integrated approaches to forest and land-use within a legally defined territory, are counted towards the milestone. This includes projects that have been nested within jurisdictional REDD+ by adopting common accounting, crediting, safeguards and other systems agreed with the jurisdiction (Edwards 2022), although to date there are not yet any fully nested projects to be considered in the gigaton assessment.

The key metric for the gigaton milestone in the shorter term is contracted emission reduction purchase agreements (ERPAs), a critical step to ensuring actual emissions reductions. Over the medium term, the metric “will be based on payments made for delivered jurisdictional REDD+ credits” (Edwards 2022) that have been reported to the UNFCCC Lima REDD+ Information Hub.

5



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5. WE ARE NOT ON TRACK TO MEET THE MILESTONE

Analysis of 25 different initiatives and sources of funding for REDD+ was carried out to assess progress toward the gigaton milestone. This analysis shows that nowhere near enough progress is being made to realize the potential contribution of forests to climate change mitigation. By the time Parties to the UNFCCC reconvene at COP27 in November 2022, more than half the time will have passed to meet the gigaton milestone. However, only 24% of the necessary commitments for emissions reductions payments have been made. Furthermore, only around half of these commitments have been realized through signed ERPA. None of the funding for commitments between the period 2020-2025 has been disbursed yet, which is partly due to the time lag from implementation to reporting and verification of results. Furthermore, it remains to be seen whether these commitments will translate into real achievements on the ground, as none have yet been verified as emissions reductions. Existing commitments must be transformed into reality and new commitments must urgently be made to reach the gigaton milestone.



5.1 ASSESSMENT APPROACH

The assessment of progress towards the gigaton milestone considers signed commitments or indications of intent to pay for results achieved in the period 2020-2025⁹, that is, agreements that include both total volume of emissions reductions and corresponding financial commitments. Only emissions reductions achieved or expected to be achieved within the 2020-2025 assessment period have been included. Total committed volumes have been adjusted to reflect this, if the period they cover goes beyond the gigaton assessment period. The assessment does not include funding for REDD+ readiness, capacity building or implementation. Nor does it include REDD+ programmes with results-based payments that are not based on emissions reductions (e.g., payments per hectare of land, such as in some payment for ecosystem services schemes) or those that are yet to be quantified. Analysis was carried out for countries and jurisdictions that have submitted a forest reference emission level or forest reference level to the UNFCCC¹⁰, as well as those that are part of the Forest Carbon Partnership Facility Readiness Fund, which supports tropical and sub-tropical developing countries in preparing to participate in REDD+. A list of all initiatives reviewed, including those that were not considered eligible for the milestone

⁹ The time period for the assessment is 1 January 2020 to 31 December 2024, referred to as 2020-2025.

¹⁰ A full list is available here: <https://redd.unfccc.int/fact-sheets/forest-reference-emission-levels.html>.

since they fell outside the scope or time period ¹¹, is available in Annex B.

ERPAs were the primary form of signed commitments analyzed. These are legally binding contracts between funders and entities undertaking activities that achieve emissions reductions in order to sell them to the funder. These contracts specify the volume of emissions to be reduced over a specified time frame and the price per unit of emissions reduction (usually one ton of carbon dioxide equivalent (tCO₂e)). International cooperation agreements that take the form of declarations or letters of intent to pay for emissions reductions were also included in the analysis, as indicated below and in Table 1.

FOREST CARBON PARTNERSHIP FACILITY-CARBON FUND (FCPF-CF)

To date, the FCPF-CF has signed ERPAs ¹² with 15 countries: Chile, Costa Rica, Cote d'Ivoire, Dominican Republic, Democratic Republic of Congo, Fiji, Ghana, Guatemala, Indonesia, Lao PDR, Madagascar, Mozambique, Nepal, Republic of Congo and Viet Nam. All FCPF-CF ERPAs were reviewed, with their committed volumes and time periods assessed (sourced from schedule 2 of the agreements). The total committed volume of these agreements is 144,259,000 tonnes CO₂e. The volume of contracted emissions reductions was adjusted proportionately when ERPAs included years outside of the

period of analysis for the gigaton milestone (2020-2025), assuming an even spread through time. ¹³ The adjusted figure totals 128,217,780 tCO₂e. The FCPF-CF has agreed a floor price (i.e., minimum price) of USD 5 per tCO₂e, with USD 638 million committed to date within the 2020-2025 gigaton milestone assessment. Call options were excluded from the analysis. These are agreements in principle which give buyers the right, but not the obligation, to purchase emissions reductions additional to the contracted volume.

LEAF COALITION

As mentioned in Section 3.1, the LEAF Coalition mobilized USD 1 billion of finance in 2021 to pay for emissions reductions at a guaranteed floor price of USD 10 per tCO₂e for 2022-2026. In the LEAF Coalition's first Call for Submissions, proposals from 23 jurisdictions (15 countries) were received. ¹⁴ Emergent Forest Finance Accelerator, a non-profit intermediary and partner of the Green Gigaton Challenge, signed Letters of Intent with five jurisdictions and Memorandums of Understanding with six. Additionally, a Memorandum of Understanding has been signed with the Interstate Consortium of the Legal Amazon, a civil society organization repre-

11 These include, for example, Architecture for REDD+ Transactions (ART), which contains fifteen projects that had submitted concept notes for verification under the ART The REDD+ Environmental Excellence Standard (TREES). The World Bank's BioCarbon Fund Initiative for Sustainable Forest Landscapes (BioCarbon-ISFL) currently has five projects receiving funding for implementation. Although the BioCarbon-ISFL 2021 annual report suggests that ERPAs would be signed between 2021 and 2022, none were publicly available at the time of publishing this report.

12 The FCPF-CF has also signed Letters of Intent with Cameroon, Mexico, Nicaragua and Peru; however, information on carbon price, total funding or emissions reductions period is not available for these countries.

13 Emissions reduction volumes were taken from the Schedule 2 section of the signed ERPAs. For the financial commitment calculation, the emissions reductions within the relevant time frame were multiplied by the emissions reductions price in Article IV of the agreements.

14 LEAF proposals and agreements are available at <https://live-leaf-coalition.pantheon.site.io/resources/>. The countries that have submitted proposals are Brazil, Burkina Faso, Costa Rica, Democratic Republic of Congo, Ecuador, Ghana, Guyana, Mexico, Nepal, Nigeria, Uganda, Papua New Guinea and Viet Nam. Brazil submitted proposals for eight states: Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Roraima and Tocantins. The Democratic Republic of Congo submitted a proposal for the Province of Tshuapa. Mexico submitted proposals for two states: Jalisco and Quintana Roo. Ghana and Zambia were listed on the LEAF website, but proposals were not available at the time of preparation of this report. Uganda has submitted a proposal that is not yet available online.

senting eight Brazilian Amazon states that have submitted proposals to the LEAF Coalition.

DECLARATIONS AND LETTERS OF INTENT

PERU:

A Joint Declaration of Intent (JDI) for performance finance for REDD+ in Peru was originally signed in September 2014 and updated in May 2021, with endorsement from the governments of Germany, Norway, the United Kingdom and the United States. In the addendum to the JDI, Norway pledges to contribute NOK 1,500 million in payments for emissions reductions in the period 2022-2025 at a floor price of USD 10 per tCO₂e, to be certified under the ART-TREES standard (this totals approximately USD 13.5 million within the gigaton milestone assessment period).¹⁵

COLOMBIA:

A JDI between Colombia and the governments of Germany, Norway and the United Kingdom was signed in December 2019. Under Modality 2 of the agreement, Norway pledges NOK 400 million per year until 2025 at a carbon price of USD 10 per tCO₂e. The JDI states that as of 1 December 2019 “this constituted USD 43.6 million. The agreed payments total approximately USD 260 million”. Within the gigaton milestone assessment period, payments would total USD 218 million.¹⁶

GABON:

The Central African Forest Initiative (CAFI) signed a Letter of Intent (LoI) agreeing to a maximum of USD 150 million for the period 2016-2025 for verified emissions reductions in Gabon. With a floor price of USD 5 per tCO₂e, CAFI agreed to pay USD 75 million for the period 2016-2020, and USD 75 million for 2021-2025. If certified under ART-TREES, CAFI agreed to pay a guaranteed floor price of USD 10 per tCO₂e up to a USD 150 million maximum over the period 2016-2025. The figures presented in this assessment assume a floor price of USD 10 per tCO₂e.

15 A currency conversion rate of NOK 1 = USD 0.1203 was used in the analysis, the exchange rate as of 31 May 2021 (<https://www.exchangerates.org.uk/NOK-USD-spot-exchange-rates-history-2021.html>). Only three of the four years within the JDI fall into the gigaton milestone assessment time period, and this value is adjusted to account only for the years within the assessment time period.

16 In Table 1, the annual value (NOK 400 million) is multiplied by 5 years to account for the total within the Green Gigaton accounting period.

TABLE 1: PROGRESS TOWARD THE GIGATON MILESTONE: FINANCIAL COMMITMENTS AND PLANNED EMISSIONS REDUCTIONS (2020-2025)

	ERPAs*		Non-ERPA Commitments*		Overall total*	
	Emissions reductions (million tCO ₂ e)	Funding (million USD)	Emissions reductions (million tCO ₂ e)	Funding (million USD)	Emissions reductions (million tCO ₂ e)	Funding (million USD)
FCPF-CF	128.2	638			128.2	638
LEAF Coalition			60	600	60	600
Peru JDI			13.5	135	13.5	135
Colombia JDI			21.8	218	21.8	218
Gabon Lol			15	150	15	150
Total	128.2	638	110.3	1,103	238.5	1,741

* In the case that total commitments extended beyond the gigaton milestone assessment period, they have been adjusted to only include the relevant funding and emissions reductions volume for the period 2020-2025.

5.2 RESULTS OF THE ANALYSIS

Over USD 1.7 billion of funding has been committed to pay for emissions reductions between 2020-2025 at the jurisdictional scale, accounting for just over 238 million tCO₂e (that is, just under 24% of the way to the gigaton milestone). ERPAs signed with FCPF-CF total over USD 638 million in funding for emissions reductions within the assessment period, representing just over 128 million tCO₂e. These account for approximately 54% of the total emissions reductions with funding commitments. LEAF Coalition commitments amount to USD 600 million and represent 60 million tCO₂e emissions reductions within the assessment period (just over 25% of the total). Two declarations and one letter of intent total over USD 503 million in commitments, representing just over 50 million tCO₂e in emissions reductions (21% of the total).



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6. CARBON MARKETS AND OTHER EFFORTS CAN CONTRIBUTE TO FOREST-BASED MITIGATION

While the gigaton milestone focuses on jurisdictional REDD+ (including nested projects), some important progress on forest-based mitigation is being made through carbon markets.

Compliance carbon markets¹⁷ are created and regulated by mandatory national, regional or international carbon emissions reduction regimes, whereas voluntary carbon markets enable companies and individuals to purchase carbon offsets with no intended use for compliance purposes (Government of Singapore Investment Corporation, Singapore Economic Development Board and McKinsey 2021). Carbon credit transactions within voluntary carbon markets are not centrally regulated, as entities can buy and trade carbon credits through bilateral transactions (Forest Trends' Ecosystem Marketplace [FTEM] 2022)¹⁸. The value of the global voluntary carbon market quadrupled from 2020 to 2021. During this same period, trading in credits from forestry and land-use projects in the voluntary carbon market reached almost USD 1.7 billion, for more than 285 million tCO₂e (FTEM 2022).

Market trends suggest that there will continue to be growing demand for carbon credits from forestry projects (FTEM 2022; Sylvera 2022). Indeed, rising demand and increasing prices could have a positive feedback effect, increasing the quantity and integrity of credits, as well as further incentivizing conservation of forests (Sylvera 2022). However, increasing demand will not immediately translate into increasing supply due to the lag between the creation of new credit programmes and the availability

of those credits on the market (Sylvera 2022). In addition, barriers related to integrity must be addressed (see Section 7.3 for more information).

Carbon markets could have an increasingly important role in meeting climate targets if they align with UNFCCC decisions on REDD+ and have mechanisms to ensure robust quantification, and deal with issues related to leakage (that is, displacement of emissions outside of the intervention area) and reversals (the non-permanence of emissions reductions results achieved) and adherence to safeguards, with promotion of gender equity, among others. While the implementation of forest-based mitigation actions often takes place at the local level, and may be done through projects, approaches for overall carbon accounting at the jurisdictional level help to ensure integrity of results. Jurisdictional REDD+, including nested interventions, is perceived to offer the most feasible path to achieving critical high-integrity emissions reductions at scale, "supporting forest country governments to implement ambitious policies at national, state or province level" (Edwards 2021). Transitions to nested jurisdictional approaches, aligned and incorporated with REDD+ national strategies and action plans, will be essential in achieving these emissions reductions at scale, and with high integrity.

Incentives for other forest-based mitigation efforts can also be important for achieving the emissions reductions results needed to meet targets on forests and climate. Traditional results-based payment schemes and carbon markets have thus far failed to provide adequate financing for another key source of forest-based mitigation: countries and areas that have high forest cover and low levels of deforestation (see Box 4). Efforts such as these, with forest countries and IPLCs at the core, are needed to achieve the gigaton milestone goal.

17 According to Forest Trends' Ecosystem Marketplace briefing on The Art of Integrity: State of Voluntary Carbon Markets, carbon credits from forests are currently eligible in some national or sub-national compliance markets, including California, New Zealand, Australia and Colombia, but are not eligible in many others, such as the European Union Emissions Trading System. The launch of the UN's Carbon Offsetting and Reduction Scheme for International Aviation (known as CORSIA) also allows credits verified under either the ART-TREES or Verra's Verified Carbon Standard's Jurisdictional and Nested REDD+ methodologies.

18 If these voluntary carbon market credits are transferred internationally, the mitigation contribution may or may not remain with the NDC of the originating country depending on whether the emission reduction is "authorized" or not.

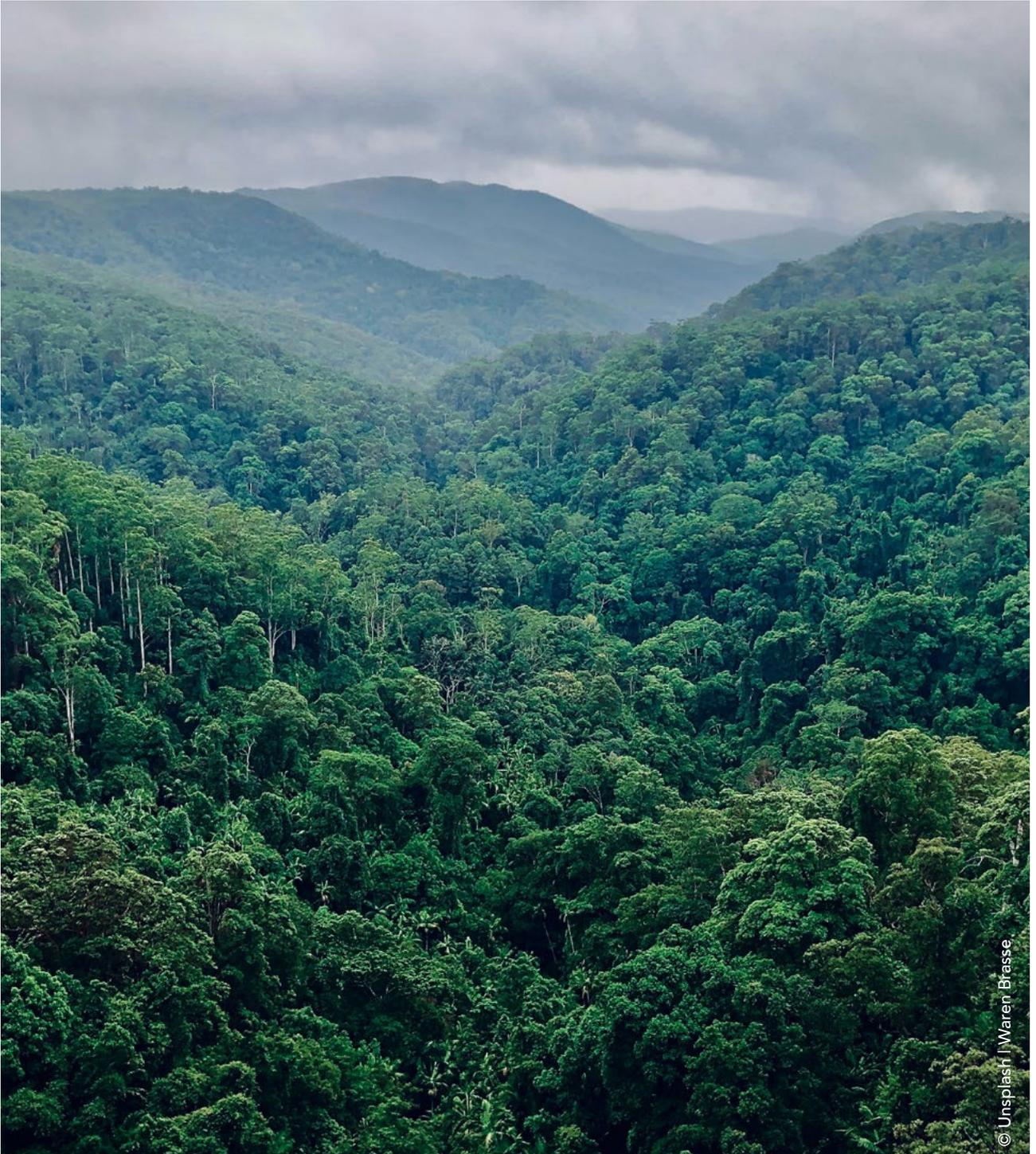
BOX 4

HOW CAN HIGH-FOREST LOW-DEFORESTATION COUNTRIES CONTRIBUTE TO GENERATING EMISSIONS REDUCTIONS?

Countries with high forest cover and low deforestation rates (high-forest low-deforestation, or HFLD countries) store 18% of tropical forest carbon worldwide (Fonseca *et al.* 2007). Even within some deforesting countries, large areas of intact forest have successfully managed to avoid high deforestation rates, so that some subnational jurisdictions can also be described as HFLD. Indigenous peoples and local communities have often played a key role in these outcomes. However, due to historically low deforestation rates, these territories are often not considered for REDD+ interventions and are typically excluded from international climate finance for mitigation (Van Dam 2020).

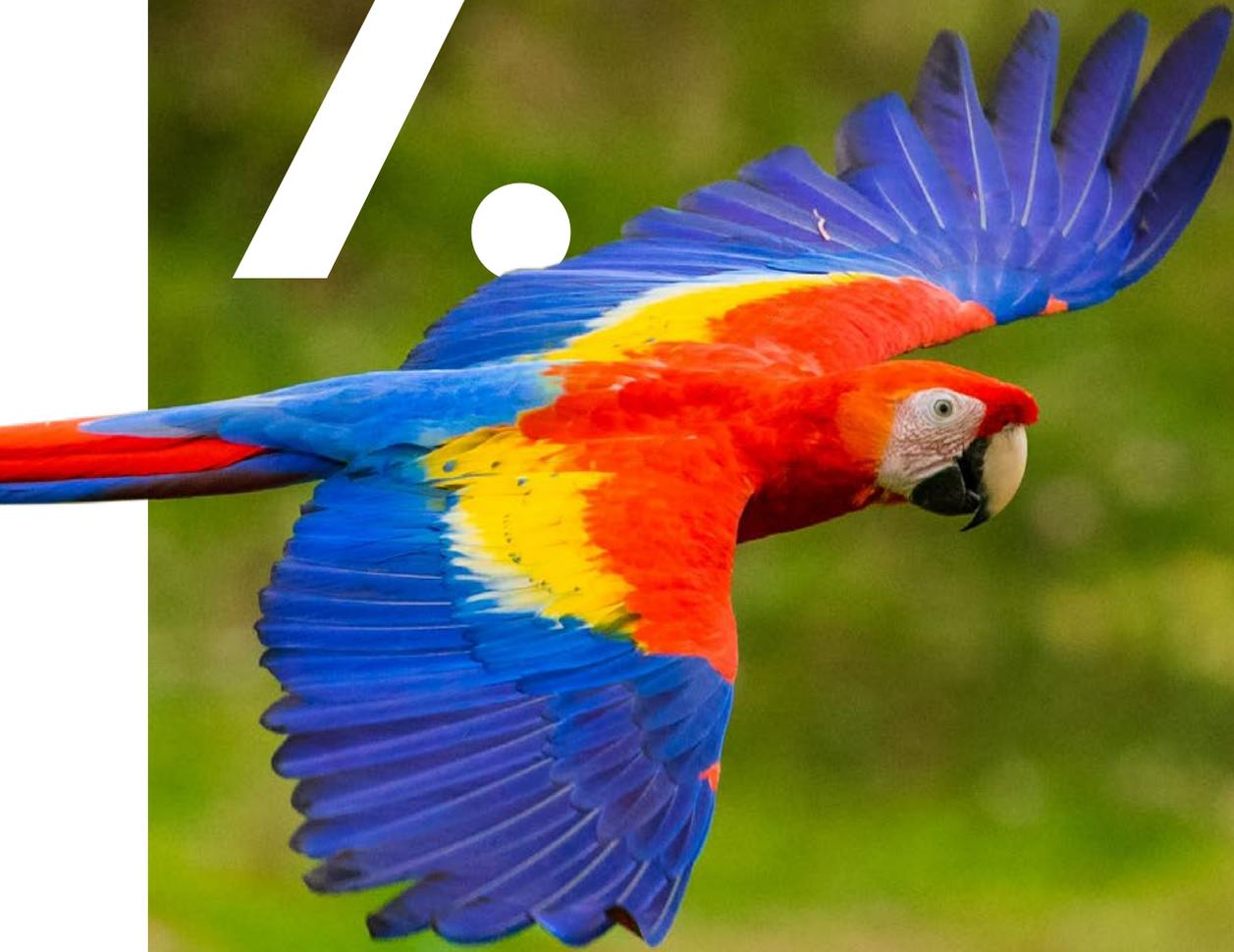
In 2019, at the Conference on Climate Finance for HFLD Countries, in Paramaribo, Suriname, the Krutu of Paramaribo Joint Declaration on HFLD Climate Finance Mobilization was signed, calling attention to the need for international finance to support these countries (United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation [UN-REDD Programme] 2019). A statement by four members of the Forests for Life Partnership (World Conservation Society, Re:wild, World Resources Institute and Rainforest Foundation Norway 2021) recommended that the LEAF Coalition should provide a means of financing HFLD credits to help address rising economic, infrastructural and demographic pressures to deforest while recognizing the role that stable tropical forests play in mitigating climate change.

The justification for HFLD countries supplying carbon credits relies on the assumption that there is an ongoing and rising cost to resisting ongoing pressure for deforestation. Failure to provide suitable market or non-market mechanisms to support HFLD countries may increase the burden on the public sector to make up the shortfall. However, some argue that HFLD credits are not additional (do not represent emissions reductions) and therefore should not be sold as offsets (Streck *et al.* 2021). There has been increasing debate about emerging incentives for maintaining high levels of forest cover and how they can address the question of additionality for REDD+ (Fonseca *et al.* 2007; Funk *et al.* 2019). As a start, a new crediting approach for HFLD countries has been introduced within the ART-TREES standard (ART Secretariat 2021). Given the importance of these forests not only for carbon storage, but also considering the multiple benefits they provide for people and nature, it is vital that access to sufficient climate finance is rapidly improved (Forests for Life Partnership 2022).



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7. IT IS TIME TO FINANCE FORESTS

Finance for forests and the current price of carbon do not reflect the urgency or the scale of the problems that the planet faces. They also fail to reflect the true value of forests in tackling climate change and equitable. REDD+ can achieve results at scale, but continued upfront investment to ensure supply of emissions reductions results, as well as a strong financial demand signal, will be needed to enable forest countries to achieve ambitious and equitable outcomes. REDD+ is faced with a “chicken-and-egg” problem (Edwards 2020). Demand-side actors are reluctant to commit to payments for forest emissions reductions without a visible supply, while supply of emissions reductions is not going to materialize without a clear signal that payments are on their way. The assessment of progress towards the gigaton milestone shows that this demand signal is still yet to reflect the true value of forests.

In order to realize the full mitigation potential of forests, it will be necessary to focus on incentives (adequate forest carbon price and certainty of sufficient volume of future payments), investment (to generate results) and integrity (of emissions reductions results). It is also vital that actions and finance for forests and climate include effective and equitable participation and benefits sharing, in line with relevant safeguards and with a focus on gender equality.

7.1 GENERATING INCENTIVES FOR FOREST CARBON

An unmistakable incentive in the form of an increased forest carbon price is needed. There is widespread agreement that current forest carbon prices (approximately USD 5-10 per tCO₂e) are insufficient to incentivize reducing deforestation (Edwards 2021). The price needs to be fair, break-even or higher to compete against the pursuit of other land uses (Golub, Labbate and Cheney forthcoming), and to adequately compensate for costs associated with implementing mitigation activities (Section 3.2). Estimates of the supply of emissions reductions¹⁹ and associated costs vary across geographies, with an average price of USD 30-50 per tCO₂e.²⁰ At this price, REDD+ could offer a cost-effective contribution to the pathway to net-zero emissions targets from current emissions trends (Golub, Labbate and Cheney Forthcoming; Fuss, Golub and Lubowski 2021; Griscom *et al.* 2020; and Rakatama *et al.* 2017), while also increasingly competing with alternative land uses. However, this is a long way from the current average forest carbon prices.

19 Supply of emissions reductions results is related to cost, as explained in Golub, Labbate and Cheney's forthcoming paper on pricing forest carbon, as “each country or jurisdiction has a relatively small pool of inexpensive emissions reductions and further reductions can only be achieved with a higher unit cost per ton of carbon. An expansion of REDD+ also means greater competition with other land use alternatives and higher forgone revenues per ton of carbon”.

20 As specified in Golub, Labbate and Cheney, the lower figure of USD 30 per tCO₂e is the average total REDD+ cost reported by Rakatama *et al.* 2017, and the upper figure of USD 50 per tCO₂e corresponds to the average cost of REDD+ for cost-efficient supply. For more information, see Bush *et al.* 2019 and Griscom *et al.* 2017.

By committing to pay a higher minimum carbon price, public and private financial actors could become champions of change by unlocking supply and leveraging demand for high-integrity emissions results. A bold first step, like committing to a floor price of USD 30-50 per ton of CO₂e, for a substantial volume of emissions reductions results would empower forest countries to transform their economies. This commitment would incentivize investment to help overcome the barriers of achieving sustainable development alongside forest mitigation. The public demand signal would also provide reassurance to private actors and catalyze their further (and scaled up) commitments to pay for emissions reductions. An attractive price of forest carbon combined with reasonable certainty of future payments would also go a long way to attracting upfront finance for REDD+.



7.2 UPFRONT FINANCE FOR REDD+: INVESTMENT IS NEEDED NOW MORE THAN EVER

In addition to incentives, like higher forest carbon price, continued and additional investment in upfront finance for REDD+ readiness and implementation (see Section 3.1) is needed to support countries to implement forest-based mitigation activities. This could also be an important source of support for stakeholder engagement processes, with strong involvement from IPLCs and women, and with a focus on equity. The lack of adequate, long-term finance could make countries reluctant to invest substantial time and money into implementing emissions reductions programmes and ensuring the permanence of outcomes. Indeed, an analysis of conservation outcomes in Ecuador after an interruption of payments for ecosystem services showed that forest loss increased once payments had stopped due to the continuation of deforestation drivers (Etchart *et al.* 2020).

Upfront investment in REDD+ should be predictable and reliable, to help address the risks of reversals (the non-permanence of results) in reducing deforestation (Appiah and Gbeddy 2018; Scheba 2018; Duker *et al.* 2019). This investment could support forest countries to continue developing and implementing their REDD+ national strategies and action plans, and finance actions on the ground to generate emissions reductions results. Finance from public institutions to complement and incentivize private investment would help forest countries to overcome the barriers of achieving sustainable development alongside forest mitigation.

Diverse sources of funds could be catalyzed to provide this upfront finance. One innovative example from Viet Nam focuses on addressing social, economic and environmental needs in forest-based climate mitigation, with collaboration between the government, private sector and local communities (see Box 5). Further investment from bilateral and multilateral sources could continue and be scaled up, with private and blended finance, through new readiness and implementation funding opportunities. Private financial institutions such as pension funds and philanthropic institutions could provide longer-term financing than private sector corporations or national governments. For example, the recently launched Bezos Earth Fund has committed USD 10 billion to fight climate change and protect nature. Philanthropic investments could also enable advancements in high-risk but high-impact areas for

forest conservation by making investment less risky and mobilizing additional private finance (Blended Finance Taskforce 2018).

Funding for these investments could be mobilized through alternative financing models, such as green bonds and debt for nature swaps. For example, the Amazonia for Life Declaration calls for “conditioned debt forgiveness in exchange for permanent moratoria on industrial extraction in key priority areas and Indigenous territories and protected areas” (Amazonia for Life Declaration n.d.; Quintallina, Léon and Josse 2022), as a way to protect the Amazon rainforest. Additionally, investments could be designed to strengthen synergies and complement non-REDD+ streams of finance, such as for biodiversity conservation, climate change adaptation, landscape restoration or sustainable development goals.

BOX 5

BALANCING SOCIAL, ECONOMIC AND ENVIRONMENTAL NEEDS IN FOREST-BASED CLIMATE MITIGATION IN VIET NAM

Viet Nam has successfully increased its forest cover from 28% to 42% over the last three decades (WEF 2022). It now aims to stabilize forest cover at 43% while increasing the proportion of forest under sustainable management. In April 2021, the Minister of Agriculture and Rural Development launched the Forest Development Strategy, with an aim to balance economic, social and environmental needs (Ministry of Agriculture and Rural Development 2021). The Strategy looks to increase the value of forest product exports by 5% per year through productivity increases in existing forests. It also aims to increase incomes of the Indigenous Peoples and women and men from local communities who manage the forests, by providing them with capacity building and technical assistance to improve livelihoods (WEF 2022). Viet Nam aims to deliver this strategy through a jurisdictional REDD+ programme that encompasses 4.26 million hectares of forest and involves collaboration between the government, businesses and local communities with funding from the LEAF Coalition (WEF 2022). In the Letter of Intent between Emergent and Viet Nam, there is a commitment of 5.15 million tCO₂e at a total value of USD 51.5 million.

7.3

IT IS ESSENTIAL TO ENSURE THE INTEGRITY OF EMISSIONS REDUCTIONS

To ensure that forest-based mitigation activities contribute to global efforts to mitigate climate change, there is consensus that emissions reductions from forests must be real and robust, with high integrity. This is key to realizing the full contribution of forests to global climate goals by 2030.

In the context of the gigaton milestone (see Section 4), integrity refers to emissions reductions generated in line with social and environmental safeguards and best practices for carbon accounting (Edwards 2021). This is consistent with guidance and requirements from the UNFCCC for REDD+. As discussed in Section 3, mitigation activities in the forest sector must be transparent and aligned with NDCs and greenhouse gas inventories as reported to the UNFCCC. The Warsaw Framework further outlines requirements for countries to receive results-based payments from REDD+ activities. Implementing REDD+ safeguards, which have a focus on avoiding adverse impacts for people and nature, can also promote and achieve additional social and environmental benefits, sometimes called multiple benefits, co-benefits or non-carbon benefits. These benefits can be important for local communities and economies, for example improving agricultural productivity by protecting watersheds, helping to prevent floods and soil erosion, and supporting biodiversity, among others. Achieving multiple benefits from emissions reductions programmes helps to demonstrate high-integrity and can be a synergistic means of

unlocking additional and diverse financing (McDermott *et al.* 2022). As an example, in its REDD+ results-based payments pilot programme, the GCF included a 2.5% premium in the payment amount for providing information on the nature, scale and importance of non-carbon benefits, including their contribution to the long-term sustainability of REDD+ (United Nations Environment Programme World Conservation Monitoring Centre [UNEP-WCMC] 2019; GCF 2017).

Integrity is also particularly relevant when carbon markets are considered. While the gigaton milestone focuses on jurisdictional REDD+ (including nested projects), market payments for project-based forest mitigation have seen rapid growth over the past few years (see Section 6). As some projects make the transition to become fully nested within jurisdictional approaches, it will be important to consider the integrity of emissions reductions results.²¹

New guidance and initiatives have been focused on defining and improving principles for integrity in the voluntary carbon market. These include the Tropical Forest Credit Integrity (TFCI) Guide, the Integrity Council for the Voluntary Carbon Market (Integrity Council), the Science-Based Targets Initiative (SBTi) and the Voluntary Carbon Market Integrity Initiative (VCMi) (see Annex B for further description and links).

There is emerging consensus, for example from the “Core Carbon Principles” currently under consultation from the Integrity Council (Integrity Council for the Voluntary Carbon Market [IC-VCM] n.d.), and from TFCI guidance, that high-integrity forest carbon emissions reductions should be aligned at minimum with the following principles:

21 There have been concerns about the integrity of carbon credits due to issues including subjective and inflated baselines, lack of additionality, inadequate permanence, leakage effects and double counting at the project level, as well as insufficient consultation and participatory processes, for example with IPLCs. See, e.g., Keohane and Seymour 2021, Miltenberger *et al.* 2021, Kotsialou, Kuralbayeva and Laing 2022 and Pan *et al.* 2022 for further information.

- **Additionality:** *the emissions reductions or removals from the mitigation activity would not have happened without REDD+ efforts, or the incentive created by carbon credit revenues*
- **Permanence:** *the emissions reductions or removals should be durable and long-lasting, or if they have a risk of reversals, these should be compensated*
- **No double-counting:** *the emissions reductions or removals should only be counted once towards achieving mitigation targets or goals*
- **Registry:** *a registry should be used to “uniquely identify, record and track mitigation activities and carbon credits issued to ensure credits can be identified securely and unambiguously” (IC-VCM n.d.)*
- **Robust independent validation and verification:** *there should be robust and independent third-party validation and verification of mitigation activities*
- **Robust quantification:** *the emissions reductions or removals should be “robustly quantified, based on conservative approaches, completeness and sound scientific methods” (IC-VCM n.d.)*
- **Robust safeguards:** *while undertaking the mitigation activities, robust social and environmental safeguards should be applied*

Of particular importance, high-integrity forest emissions reductions must be generated with full, inclusive and effective participation of IPLCs and women.

On the demand side, forest carbon credits must not be seen as a license to pollute. The use of credits must enable rapid decarbonization, not delay it.

Improving integrity on both the supply and demand side can mitigate some of the concerns surrounding carbon markets. This needs to be achieved in the short term to ensure the contribution of these markets to meeting global climate goals. Whether the voluntary carbon market generates genuine climate-positive impacts will depend on alignment with UNFCCC decisions on REDD+, as well as robust quantification, mechanisms to deal with

leakage and reversals, and adherence to safeguards, among others. Transitions to nested jurisdictional approaches, aligned and incorporated with REDD+ national strategies and action plans, can help to reduce risks associated with integrity, while facilitating diverse streams of finance. Ensuring integrity may also help to drive up prices in voluntary carbon markets.





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8. THERE IS NO PROGRESS WITHOUT EQUITY

Forest countries are at the centre of delivering needed emissions reductions. Indigenous Peoples and local communities have a key role to play in this.

IPLCs are on the front line. They are not only leading the way in the conservation and sustainable management of forests (Fa *et al.* 2020; Walker *et al.* 2020; Alejo *et al.* 2021) but often put their own lives at risk as land and environmental defenders (Global Witness 2022). The role of IPLCs in forest management and use is often ignored or obscured. Indigenous Peoples live in areas that represent almost 20% of the world's tropical forest carbon (Rights and Resources Initiative [RRI] *et al.* 2018) and coincide with areas containing an estimated 80% of global terrestrial biodiversity (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services [IPBES] 2019). Although IPLCs are recognized as the most effective stewards of forests (Food and Agricultural Organisation of the United Nations [FAO] and Fund for the Development of the Indigenous Peoples of Latin America and the Caribbean [FILAC] 2021), they often have insecure rights to their land and the carbon stored within it (RRI 2021). Securing land rights can be an effective policy for reducing deforestation (Baragwanath and Bayi 2020), and should be considered a necessary pre-condition for effective, successful and equitable implementation of REDD+ (Kapos *et al.* 2022).

Very limited funding has been made available to support IPLCs to secure land tenure and resource rights. Only 11% of the USD 2.7 billion of funding disbursed to projects supporting IPLC land tenure and forest management between 2011 and 2020 was directed towards tenure projects (Hatcher, Owen and Yin 2021; RRI and Tenure Facility 2021). Despite the significant role that IPLCs have in protecting forests, they are not often directly allocated funding to support them in this role (Quintallina, Léon and Josse 2022). Most funding is not channelled directly to IPLC organizations, but rather is given through intermediaries (Hatcher, Owen and Yin 2021). There are, however, exceptions to this, such as an innovative REDD+ programme in Ecuador that puts Indigenous Peoples at the centre of its activities (see Box 6).

Forest-related mitigation activities need to explicitly recognize the traditional knowledge and uses of forests by Indigenous Peoples and local communities, and facilitate their direct access to finance, and capacity-building, as necessary. These actions should also explicitly serve the needs of women and avoid re-enforcing gender inequalities (Agarwal 2009; Khadka *et al.* 2014; Larson *et al.* 2015; Westholm and Arora-Jonsson 2015; Bayrak and Marafa 2017; Svarstad and Benjaminsen 2017; Arneth *et al.* 2019; Michael *et al.* 2020; Löw 2020). It is important to recognize that women and men depend on and use forests in different ways, have different cultural relations with forests and have different land access rights (Leach, Metha and Prabhakaran 2016; Arora-Jonsson *et al.* 2019; Maharani *et al.* 2019; Löw 2020). Discrimination against women and girls, and their exclusion from decision-making processes, can mean their important contributions to forest management and specific uses of forests are overlooked. Vulnerability to climate change is also gendered. This is particularly true where gender intersects with poverty, conflict and being Indigenous. Women also often have additional burdens related to looking after children and/or vulnerable family members during conflicts and natural disasters.

Gender-blind climate mitigation policies risk widening inequalities. They are also less effective and less sustainable (Adams *et al.* 2014). Gender considerations need to be integrated into the different levels and types of financing mechanisms for forests and climate. In fact, gender-responsive climate policies can create synergies between gender equality and the goals related to climate mitigation, land degradation and biodiversity (Elias *et al.* 2021). Data from 2016 showed that projects addressing climate change and women's rights accounted for only 0.01% of all worldwide funding (UNDP 2016). There are signs of progress, however. For example, the GCF now promotes climate investments that advance gender equality and reduce gender- and climate-related risks (GCF 2019). In addition, after COP26, the Rights and Resources Initiative released a call for climate funding to go directly to women's organizations, to secure land rights for women and to recognize indigenous and local community women in leadership (RRI 2022).

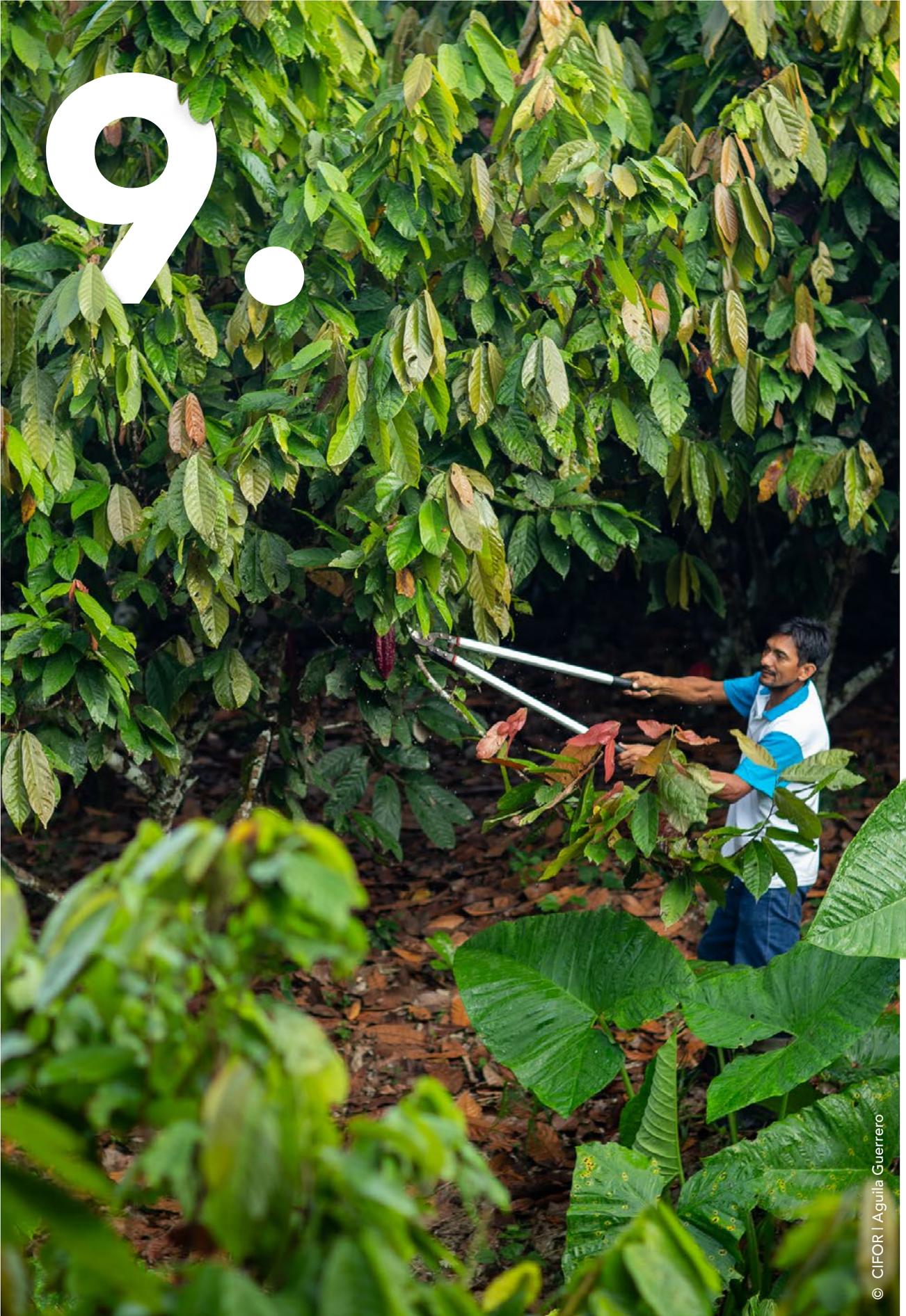
Without explicit consideration of inequalities and representation of IPLCs and women (and IPLC women), REDD+ risks re-enforcing these inequalities (Kapos *et al.* 2022). Aligning REDD+ and other forest-related nature-based solutions with global goals for nature and people, such as the Sustainable Development Goals, can help enhance and promote equity throughout the planning and implementation of programmes (McDermott *et al.* 2020). This focus on equity also contributes to successful social and environmental outcomes for forest-based mitigation efforts. REDD+ programmes that focus on financing community actions and have well-defined benefits-sharing plans (including explicit recognition of Indigenous Peoples and local communities and women) are most successful in their social outcomes as well as providing the right conditions for environmental outcomes (Pauly and Tosteson 2022).

BOX 6

INDIGENOUS PEOPLES AT THE CENTRE OF REDD+ IN ECUADOR

Ecuador has put Indigenous Peoples at the centre of its REDD+ activities, recognizing them as the best guardians of the forest (WEF 2022). Ecuador's Socio Bosque Programme, established in 2008, guarantees payments to the poorest private and communal landholders in return for forest conservation activities. To date, such agreements cover 630,000 hectares of forest (UNDP 2018). The Programme encourages gender-inclusive participation at all levels of stakeholder engagement, decision-making, capacity building and training. Both women and men with titles can submit lands into the programme, and all community members are invited to participate in the programme's meetings and trainings. In 2021, an implementation plan in the Pastaza province of Ecuador was formalized and signed with seven Indigenous nations. This plan has USD 52 million in REDD+ funding with a focus on traditional agroforestry systems and foods (WEF 2022). It involves helping over 100 families to develop traditional agroforestry systems and to carry out market research to identify regionally favoured crops and buyers. It also works on establishing incentives and agreements for the restoration and conservation of over 1,600 hectares of land and water courses (WEF 2022).





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9. A CALL TO ACTION

Limiting global warming in line with the Paris Agreement ambition, as reinforced in the Glasgow Climate Pact, requires large greenhouse gas emissions reductions and removals from all sectors in the very near term. Not only do forests have great potential for contributing to climate change mitigation, but they also generate exceptional returns for people and the planet. Forest countries and IPLCs are at the heart of implementing actions needed for forest-based climate change mitigation.

Investing in forests is essential for sustaining life. However, assessment of progress toward the gigaton milestone shows that action and finance for forests are currently not sufficient to meet global targets and avoid climate catastrophe. Existing commitments must be transformed into reality and new commitments must urgently be made to finance forests if we are to have any hope of meeting the milestone.

This will require urgent and concerted efforts from a range of public and private actors. The volume of finance for forests and the current price of carbon do not reflect the urgency or the scale of the problems that the planet is facing. An unmistakable incentive in the form of an increased forest carbon price is needed. By committing to pay a higher minimum carbon price, public financial actors could become champions of change by unlocking supply and leveraging demand from private and blended finance for high-integrity emissions results. Upfront investment in REDD+ readiness and implementation must continue and be scaled up to ensure capacity and action to achieve emissions reductions results, with effective measurement, verification and reporting systems and safeguards in place. Further investment from bilateral and multilateral sources, a number of which are winding down funding for REDD+ readiness activities, must continue and be scaled up with private and blended finance. There are also contributions to be made from innovative funding sources, such as philanthropic institutions and alternative financing models like green bonds and debt for nature swaps.

Integrity is key to ensuring real, robust emissions reductions and the full contribution of forests to global climate goals, including through the growing role of the voluntary carbon market. Whether this is a force for good will depend on alignment with UNFCCC decisions on REDD+, as well as robust quantification, mechanisms to deal with leakage and reversals, and adherence to safeguards, among others.

Actions and finance for forests and climate must include effective and equitable participation and benefits sharing, in line with relevant safeguards. This must recognize the traditional knowledge and uses of forests by Indigenous Peoples and local communities, and the different use of forests by women and men. It is equally important to facilitate direct access to funding at sufficient volumes with capacity building as needed for Indigenous Peoples and local communities, and for women. There is no progress without equity.

ALTHOUGH MORE THAN HALF THE TIME TO MEET THE GIGATON MILESTONE HAS PASSED, LESS THAN ONE-QUARTER OF THE NEEDED COMMITMENTS HAVE BEEN MADE. WE URGENTLY NEED TO SCALE UP ACTION AND FINANCE FOR FOREST-BASED MITIGATION TO ACHIEVE THIS MILESTONE AND AVERT CATASTROPHIC CLIMATE CHANGE. IF WE SUCCEED IN THIS GOAL, VITAL TARGETS FOR CLIMATE AND NATURE REMAIN WITHIN REACH.

REFERENCES

- Adams, L., Sorkin, L., Zusman, E. and Harms, N. (2014). *Effective. Efficient. Equitable*. Gender and Climate Finance Policy Brief. Asian Development Bank.
- Agarwal, B. (2009). Gender and forest conservation: The impact of women's participation in community forest governance. *Ecological Economics* 68(11), 2785–2799. doi: 10.1016/j.ecolecon.2009.04.025.
- Alejo, C., Meyer, C., Walker, W.S., Gorelik, S.R., Josse, C., Aragon-Osejo, J.L. et al. (2021). Are indigenous territories effective natural climate solutions? A neotropical analysis using matching methods and geographic discontinuity designs. *PLOS ONE* 16(7), e0245110. doi: 10.1371/journal.pone.0245110.
- Allen, C.D., Macalady, A.K., Chenchouni, H., Bachelet, D., McDowell, N., Vennetier, M. et al. (2010). A global overview of drought and heat-induced tree mortality reveals emerging climate change risks for forests. *Forest Ecology and Management* 259(4), 660–684. doi: 10.1016/j.foreco.2009.09.001.
- Amazonia For Life Declaration (n.d.). Urgent call for global pact to protect 80% of the Amazon by 2025. <https://amazonia80x2025.earth/declaration/>. Accessed 6 September 2022.
- Anderegg, W.R., Wu, C., Acil, N., Carvalhais, N., Pugh, T.A., Sadler, J.P. and Seidl, R. (2022a). A climate risk analysis of Earth's forests in the 21st century. *Science*, 377(6610), pp.1099–1103.
- Anderegg, W.R.L., Chegwiddden, O.S., Badgley, G., Trugman, A.T., Cullenward, D., Abatzoglou, J.T. et al. (2022b). Future climate risks from stress, insects and fire across US forests. *Ecology Letters* 25, 1510–1520. doi: 10.1111/ele.14018.
- Appiah, D.O. and Gbeddy, S.E.A. (2018). A synthesis of the implementation ambivalence of REDD+ in Sub-Saharan Africa and Southeast Asia. *Forest and Society* 2(1), 92–111. doi: 10.24259/fs.v2i1.2918.
- Architecture for REDD+ Transactions Secretariat (2021). Executive Summary. *The REDD+ Environmental Excellence Standard (TREES) 2.0*. Winrock International: Arlington, VA. <https://www.artredd.org/wp-content/uploads/2021/12/TREES-2.0-August-2021-Executive-summary.pdf>.
- Arneth, A., Denton, F., Agus, F., Elbehri, A., Erb, K., Osman Elasha, B. et al. (2019). Framing and Context. In *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems*. Shukla, P.R., Skea, J., Calvo Buendia, E., Masson-Delmotte, V., Pörtner, H.-O., Roberts, D.C. et al. (eds.). IPCC. Chapter 1. 77–129. <https://www.ipcc.ch/srccl/>.
- Arora-Jonsson, S., Agarwal, S., Pierce Colfer, C.J., Keene, S., Kurian, P. and Larson, A.M. (2019). SDG 5: Gender Equality – A Precondition for Sustainable Forestry. In *Sustainable Development Goals: Their Impacts on Forests and People*. Pierce Colfer, C.J., Winkel, G., Galloway, G., Pacheco, P., Katila, P. and de Jong, W. (eds.). Cambridge: Cambridge University Press. 146–177. <https://www.cambridge.org/core/books/sustainable-development-goals-their-impacts-on-forests-and-people/sdg-5-gender-equality-a-precondition-for-sustainable-forestry/404C863FEA0B-B058A6020CBB733D6541>.
- Austin, K.G., Baker, J.S., Sohngen, B.L., Wade, C.M., Daigneault, A., Ohrel, S.B., Ragnauth, S. and Bean, A. (2020). The economic costs of planting, preserving, and managing the world's forests to mitigate climate change. *Nature communications*, 11(1), pp.1–9.
- Baragwanath, K. and Bayi, E. (2020). Collective property rights reduce deforestation in the Brazilian Amazon. *Proceedings of the National Academy of Sciences* 117(34), 20495–20502. doi: 10.1073/pnas.1917874117.
- Bayrak, M.M. and Marafa, L.M. (2017). Livelihood Implications and Perceptions of Large Scale Investment in Natural Resources for Conservation and Carbon Sequestration: Empirical Evidence from REDD+ in Vietnam. *Sustainability* 9(10), 1802. doi: 10.3390/su9101802.
- Bernstein, A.S., Ando, A.W., Loch-Temzelides, T., Vale, M.M., Li, B.V., Li, H. et al. (2022). The costs and benefits of primary prevention of zoonotic pandemics. *Science Advances* 8(5), eabl4183. doi: 10.1126/sciadv.abl4183.
- BioCarbon Fund Initiative for Sustainable Forest Landscapes (2021). 2021 Annual Report. World Bank. https://biocarbonfund-isfl.org/sites/isfl/files/2021-10/ISFL%202021%20Annual%20Report_Web_120dpi_Sprds.pdf.
- Blended Finance Taskforce (2018). *Better Finance Better World: Consultation Paper of the Blended Finance Taskforce*. London. <http://businesscommission.org/our-work/new-consultation-paper-better-finance-better-world>.
- Boulton, C.A., Lenton, T.M. and Boers, N. (2022). Pronounced loss of Amazon rainforest resilience since the early 2000s. *Nature Climate Change* 12(3), 271–278. doi: 10.1038/s41558-022-01287-8.
- Busch, J., Engelmann, J., Cook-Patton, S.C., Griscom, B.W., Kroeger, T., Possingham, H. and Shyamsundar, P. (2019). Potential for low-cost carbon dioxide removal through tropical reforestation. *Nature Climate Change*, 9(6), pp.463–466.
- Climate Funds Update (n.d.). <https://climatefundsupdate.org/>. Accessed 2 September 2022.
- Duker, A.E.C., Tadesse, T.M., Soentoro, T., Fraiture, C. de and Kemerink-Seyoum, J.S. (2019). The implications of ignoring smallholder agriculture in climate-financed forestry projects: empirical evidence from two REDD+ pilot projects. *Climate Policy* 19(sup1), S36–S46. doi: 10.1080/14693062.2018.1532389.

- Edwards, R. (2020). *A Gigaton REDD+ Bid Strategy*. Washington D.C: Forest Trends. <https://www.forest-trends.org/publications/a-gigaton-redd-bid-strategy/>.
- Edwards, R. (2021). *The Green Gigaton Challenge: Bringing REDD+ to Scale Primer*. Washington, D.C.: Green Gigaton Challenge. https://www.greengigaton.com/uploads/1/3/4/7/134750777/green_gigaton_challenge_primer_june_2021.pdf.
- Edwards, R. (2022). *Defining 'What Counts' towards the GCC Goal*. Washington, D.C.: Green Gigaton Challenge. <https://www.greengigaton.com/defining-what-counts-toward-the-ggc-goal.html>.
- Elias, M., Ihalainen, M., Monterroso, I., Gallant, B. and Paez Valencia, A.M. (2021). *Enhancing Synergies between Gender Equality and Biodiversity, Climate, and Land Degradation Neutrality Goals: Lessons from Gender-Responsive Nature-Based Approaches*. Rome: Biodiversity International. <https://www.cifor.org/knowledge/publication/8173/>.
- Etchart, N., Freire, J.L., Holland, M.B., Jones, K.W. and Naughton-Treves, L. (2020). What happens when the money runs out? Forest outcomes and equity concerns following Ecuador's suspension of conservation payments. *World Development* 136, 105124. doi: 10.1016/j.worlddev.2020.105124.
- Fa, J.E., Watson, J.E., Leiper, I., Potapov, P., Evans, T.D., Burgess, N.D. et al. (2020). Importance of Indigenous Peoples' lands for the conservation of Intact Forest Landscapes. *Frontiers in Ecology and the Environment* 18(3), 135–140. doi: 10.1002/fee.2148.
- Feng, Y., Zeng, Z., Searchinger, T.D., Ziegler, A.D., Wu, J., Wang, D. et al. (2022). Doubling of annual forest carbon loss over the tropics during the early twenty-first century. *Nature Sustainability* 5(5), 444–451. doi: 10.1038/s41893-022-00854-3.
- Fonseca, G.A.B. da, Rodriguez, C.M., Midgley, G., Busch, J., Hannah, L. and Mittermeier, R.A. (2007). No Forest Left Behind. *PLOS Biology* 5(8), e216. doi: 10.1371/journal.pbio.0050216.
- Food and Agricultural Organization of the United Nations (2020). *Global Forest Resources Assessment 2020: Main Report*. Rome. <https://www.fao.org/documents/card/en/c/ca9825en>.
- Food and Agricultural Organisation of the United Nations and Fund for the Development of the Indigenous Peoples of Latin America and the Caribbean (2021). *Forest governance by indigenous and tribal peoples. An opportunity for climate action in Latin America and the Caribbean*. Santiago: FAO. doi: 10.4060/cb2953en.
- Food and Agricultural Organisation of the United Nations (2022). *The State of the World's Forests 2022. Forest Pathways for Green Recovery and Building Inclusive, Resilient and Sustainable Economies*. The State of the World. Rome. doi: 10.4060/cb9360en.
- Forest Carbon Partnership Facility (2022). *Annual Report 2022*. Washington D.C.: World Bank. https://www.forestcarbonpartnership.org/sites/fcp/files/documents/2022/FCPF%202022%20Annual%20Report_WEB.pdf.
- Forest Trends' Ecosystem Marketplace (2022). *The Art of Integrity: State of Voluntary Carbon Markets, Q3 Insights Briefing*. Washington D.C. <https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2022/>.
- Forests for Life Partnership (2022). *Statement on the Credibility of HFLD Credits in Global Carbon Markets, 14 June*. <https://newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/17658/categoryId/123/Statement-on-the-Credibility-of-HFLD-Credits-in-Global-Carbon-Markets.aspx>. Accessed 29 September 2022.
- Forzieri, G., Dakos, V., McDowell, N.G., Ramdane, A. and Cescatti, A. (2022). Emerging signals of declining forest resilience under climate change. *Nature* 608(7923), 534–539. doi: 10.1038/s41586-022-04959-9.
- Funk, J.M., Aguilar-Amuchastegui, N., Baldwin-Cantello, W., Busch, J., Chuvasov, E., Evans, T. et al. (2019). Securing the climate benefits of stable forests. *Climate Policy* 19(7), 845–860. doi: 10.1080/14693062.2019.1598838.
- Fuss, S., Golub, A., and Lubowski, R. (2021). The economic value of tropical forests in meeting global climate stabilization goals. *Global Sustainability*, 4, E1. doi:10.1017/sus.2020.34.
- Global Witness. (2022) *Annual report 2021: our case for change. United Kingdom*. <https://www.globalwitness.org/en/about-us/annual-report-2021-our-case-change/>.
- Golub, A., Labbate, G. and Cheney, E. (Forthcoming). Pricing forest carbon. Nairobi: United Nations Environment Programme. Unpublished. Government of Singapore Investment Corporation, Singapore Economic Development Board, and McKinsey (2021). *Putting Carbon Markets to Work on the Path to Net Zero. How Investors Can Help Decarbonise the Economy and Manage Risk-Adjusted Returns*. <https://www.mckinsey.com/business-functions/sustainability/our-insights/putting-carbon-markets-to-work-on-the-path-to-net-zero>.
- Grafton, R.Q., Chu, H.L., Nelson, H. and Bonnis, G. (2021). *A global analysis of the cost-efficiency of forest carbon sequestration*. Environment Working Paper No. 185. France: Organization for Economic Co-operation and Development Environment Directorate. www.oecd.org/environment/workingpapers.htm.
- Green Climate Fund (2017). *Terms of Reference for the Pilot Programme for REDD+ Results-Based Payments*. Republic of Korea. <https://www.greenclimate.fund/document/terms-reference-pilot-programme-redd-results-based-payments>.
- Green Climate Fund (2019). *Gender Policy*. <https://www.greenclimate.fund/sites/default/files/document/gcf-gender-policy.pdf>. Accessed 5 September 2022.
- Green Climate Fund (n.d.). *REDD+ Results-Based Payments Pilot Programme*. <https://www.greenclimate.fund/redd>. Accessed 12 September 2022.
- Griscom, B.W., Adams, J., Ellis, P.W., Houghton, R.A., Lomax, G., Miteva, D.A., Schlesinger, W.H., Shoch, D., Siikamäki, J.V., Smith, P. and Woodbury, P. (2017). Natural climate solutions. *Proceedings of the National Academy of Sciences*, 114(44), pp.11645-11650.
- Griscom, B.W., Busch, J., Cook-Patton, S.C., Ellis, P.W., Funk, J., Leavitt, S.M., Lomax, G., Turner, W.R., Chapman, M., Engelmann, J. and Gurwick, N.P. (2020). National mitigation potential from natural climate solutions in the tropics. *Philosophical Transactions of the Royal Society B*, 375(1794), p.20190126.
- Hatcher, J., Owen, M. and Yin, D. (2021). *Falling Short: Donor Funding for Indigenous Peoples and Local Communities to Secure Tenure Rights and Manage Forests in Tropical Countries (2011-2020)*. Oslo: Rainforest Foundation Norway. <https://www.regnskog.no/en/news/falling-short>.
- Hoegh-Guldberg, O., Jacob, D., Taylor, M., Bindi, M., Brown, S., Camilloni, I. et al. (2018). Impacts of 1.5°C Global Warming on Natural and Human Systems. An *IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. Masson-Delmotte, V., Zhai, P., Pörtner, H.-O., Roberts, D., Skea, J., Shukla, P.R., Pirani, A. et al. (eds.). Cambridge: Cambridge University Press. <https://www.ipcc.ch/srccl/>.

- Intergovernmental Panel on Climate Change (2019). Summary for Policy-makers. In: *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. Shukla, P.R., Skeg, J., Buendia, E.C., Masson-Delmotte, V., Pörtner, H.O., Roberts, D.C., Zhai, P., Slade, R., Connors, S., Van Diemen, S., Ferrat, M., Haughey, E., Luz, S., Neogi, S., Pathak, M., Petzold, J., Portugal Pereira, J., Vyas, P., Huntley, E., Kissick, K., Belkacemi, M. and Malley, J. (eds.) Geneva. https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf.
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (2019). *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. Brondizio, E.S., Settele, J., Díaz, S., and Ngo, H.T. (eds.). Bonn: IPBES secretariat. doi: 10.5281/zenodo.3831673.
- Integrity Council for the Voluntary Carbon Market (n.d.). The Core Carbon Principles. <https://icvcm.org/the-core-carbon-principles/>. Accessed 22 October 2022.
- International Institute for Environment and Development (2016). Mozambique's REDD+: the challenge is scaling success. *IIED Briefing Paper-International Institute for Environment and Development*. (17407).
- Kapos, V., Wicander, S., Salvaterra, T., Dawkins, K., Hicks, C. (2019). *The Role of the Natural Environment in Adaptation, Background Paper for the Global Commission on Adaptation*. Rotterdam and Washington, DC: Global Commission on Adaptation. <https://gca.org/reports/the-role-of-the-natural-environment-in-adaptation/>.
- Kapos, V., Vira, B., Harris, M., O'Leary, A. and Wilson, R. (2022). Influence of REDD+ Implementation on Biodiversity, Livelihoods and Well-being. In *Forests, Climate, Biodiversity and People: Assessing a Decade of REDD+*. Parrotta, J., Mansourian, S., Wildburger, C. and Grima, N. (eds.). Vienna: International Union of Forest Research Organizations (IUFRO). Chapter 4. 85–110. <https://www.iufro.org/science/gfep/follow-up-studies/biodiversity-forest-management-and-redd-2021/>.
- Keohane, N. and Seymour, F. (2021). *Forests and International Carbon Markets*. Climate and Forests 2030: Resource for Funders. San Francisco, CA: Climate and Land Use Alliance.
- Khadka, M., Karki, S., Karki, B.S., Kotru, R. and Darjee, K.B. (2014). Gender Equality Challenges to the REDD+ Initiative in Nepal. *Mountain Research and Development* 34(3), 197–207. doi: 10.1659/MRD-JOURNAL-D-13-00081.1.
- Kotsialou, G., Kuralbayeva, K. and Laing, T. (2022). Blockchain's potential in forest offsets, the voluntary carbon markets and REDD+. *Environmental Conservation* 49(3), 137–145. doi: 10.1017/S0376892922000157.
- Larson, A.M., Dokken, T., Duchelle, A.E., Atmadja, S., Resosudarmo, I.A.P., Cronkleton, P. et al. (2015). The role of women in early REDD+ implementation: lessons for future engagement. *International Forestry Review* 17(1), 43–65. doi: 10.1505/146554815814725031.
- Lawrence, D., Coe, M., Walker, W., Verchot, L. and Vandecar, K. (2022). The Unseen Effects of Deforestation: Biophysical Effects on Climate. *Frontiers in Forests and Global Change* 5(756115). doi: 10.3389/ffgc.2022.756115.
- Leach, M., Metha, L. and Prabhakaran, P. (2016). *Gender Equality and Sustainable Development: A Pathways Approach*. 13. New York, NY: UN Women. <https://www.unwomen.org/en/digital-library/publications/2016/8/discussion-paper-series-gender-equality-and-sustainable-development>.
- Löw, C. (2020). Gender and Indigenous concepts of climate protection: a critical revision of REDD+ projects. *Current Opinion in Environmental Sustainability* 43, 91–98. doi: 10.1016/j.cosust.2020.03.002.
- Maharani, C.D., Moeliono, M., Wong, G.Y., Brockhaus, M., Carmenta, R. and Kallio, M. (2019). Development and equity: A gendered inquiry in a swidden landscape. *Forest Policy and Economics* 101, 120–128. doi: 10.1016/j.forpol.2018.11.002.
- Maney, C., Sassen, M. and Hill, S.L. (2022). Modelling biodiversity responses to land use in areas of cocoa cultivation. *Agriculture, Ecosystems & Environment*, 324, p.107712.
- Maniatis, D., Scriven, J., Jonckheere, I., Laughlin, J. and Todd, K., (2019). Toward REDD+ implementation. *Annual Review of Environment and Resources*, 44, pp.373-398.
- Mansourian, S., Duchelle, A.E., Sabogal, C. and Vira, B. (2022). REDD+ Challenges and Lessons Learnt. In *Forests, Climate, Biodiversity and People: Assessing a Decade of REDD+*. Parrotta, J., Mansourian, S., Wildburger, C. and Grima, N. (eds.). Vienna: International Union of Forest Research Organizations (IUFRO). Chapter 5. 111-143. <https://www.iufro.org/science/gfep/follow-up-studies/biodiversity-forest-management-and-redd-2021/>.
- McDermott, C.L., Montana, J., Bennett, A., Gueiros, C., Hamilton, R., Hiron, M. et al. (2020). Transforming land use governance: Global targets without equity miss the mark. *Environmental Policy and Governance*, 1–13. doi: 10.1002/eet.2027.
- McDermott, C.L., Vira, B., Walcott, J., Brockhaus, M., Harris, M., Kumeh, E.M. et al. (2022). The Evolving Governance of REDD+. In *Forests, Climate, Biodiversity and People: Assessing a Decade of REDD+*. Parrotta, J., Mansourian, S., Wildburger, C. and Grima, N. (eds.). Vienna: International Union of Forest Research Organizations (IUFRO). Chapter 2. 21–60. <https://www.iufro.org/science/gfep/follow-up-studies/biodiversity-forest-management-and-redd-2021/>.
- Michael, K., Shrivastava, M.K., Hakhu, A. and Bajaj, K. (2020). A two-step approach to integrating gender justice into mitigation policy: examples from India. *Climate Policy* 20(7), 800–814. doi: 10.1080/14693062.2019.1676688.
- Millar, I., Carranza, A. and Paniagua, V. (2020). Peru: Government launches the 'National Registry of Mitigation Measures' digital platform during 2020 NYC Climate Week, 1 December. <https://www.globalcompliancenesews.com/2020/12/01/peru-government-launches-the-national-registry-of-mitigation-measures-digital-platform-during-2020-nyc-climate-week-29102020/>. Accessed 5 September 2022.
- Miltenberger, O., Jospe, C. and Pittman, J. (2021). The Good Is Never Perfect: Why the Current Flaws of Voluntary Carbon Markets Are Services, Not Barriers to Successful Climate Change Action. *Frontiers in Climate* 3, 686516. doi: 10.3389/fclim.2021.686516.
- Ministry of Agriculture and Rural Development (2021). Vietnam Forestry Development Strategy for the 2021-2030 period, with a vision to 2050, 05 May. <https://www.mard.gov.vn/en/Pages/vietnam-forestry-development-strategy-for-the-2021-2030-period-with-a-vision-to-2050.aspx>. Accessed 2 September 2022.
- Niether, W., Jacobi, J., Blaser, W.J., Andres, C. and Armengot, L. (2020). Cocoa agroforestry systems versus monocultures: a multi-dimensional meta-analysis. *Environmental Research Letters*, 15(10), p.104085.
- Ojea, E., Loureiro, M.L., Alló, M. and Barrio, M. (2016). Ecosystem Services and REDD: Estimating the Benefits of Non-Carbon Services in Worldwide Forests. *World Development* 78, 246–261. doi: 10.1016/j.worlddev.2015.10.002.

- Ometto, J.P., Kalaba, K., Anshari, G.Z., Chacón, N., Farrell, A., Halim, S.A., et al. (2022) Cross Chapter Paper 7: Tropical Forests. In *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Pörtner, H.-O., Roberts, D.C., Tignor, M., Poloczanska, E.S., Mintenbeck, K., Alegría, A. et al. (eds.). Cambridge and New York, NY: Cambridge University Press. 2369–2410, doi:10.1017/9781009325844.024.
- Pan, C., Shrestha, A., Innes, J.L., Zhou, G., Li, N., Li, J. et al. (2022). Key challenges and approaches to addressing barriers in forest carbon offset projects. *Journal of Forestry Research* 33(4), 1109–1122. doi: 10.1007/s11676-022-01488-z.
- Pauly, M. and Tosteson, J. (2022). Safeguarding natural forests through the voluntary REDD+ scheme. *Nature Plants* 8(8), 861–866. doi: 10.1038/s41477-022-01208-9.
- Quintallina, M., León, A.G. and Josse, C. (2022). *The Amazon against the Clock: A Regional Assessment on Where and How to Protect 80% by 2025*. Red Amazónica de Información Socioambiental Georregenerada, Coordinator of Indigenous Organization of the Amazon River Basin and Stand. earth. <https://amazonwatch.org/news/2022/0905-amazonia-against-the-clock>.
- Rakatama, A., Pandit, R., Ma, C. and Iftekhar, S. (2017). The costs and benefits of REDD+: A review of the literature. *Forest Policy and Economics*, 75, pp.103-111.
- Rights and Resources Initiative (2021). *Status of Legal Recognition of Indigenous Peoples', Local Communities' and Afro-Descendant Peoples' Rights to Carbon Stored in Tropical Lands and Forests*. Washington, DC. <https://rightsandresources.org/publication/carbon-rights-technical-report/>.
- Rights and Resources Initiative (2022). Call to Action Gender-Inclusive Climate Finance Must Not Leave Indigenous, Afro-Descendant, and Local Community Women Leaders Behind. Washington, DC. <https://rightsandresources.org/wp-content/uploads/Call-to-Action-IWD-2022-v2022Jul20-2.pdf>.
- Rights and Resources Initiative and The Tenure Facility (2021). *Scaling-Up the Recognition of Indigenous and Community Land Rights: Opportunities, Costs and Climate Implications*. Washington, DC and Stockholm: Rights and Resources Initiative and Tenure Facility. doi: 10.53892/QMUD8864.
- Rights and Resources Initiative, Woods Hole Research Centre, World Resources Institute, Environmental Defense Fund, Alliance of Indigenous Peoples of the Archipelago, Mesoamerican Alliance of Peoples and Forests et al. (2018). *A Global Baseline of Carbon Storage in Collective Lands*. doi: 10.53892/NQNN6499.
- Roe, S., Streck, C., Obersteiner, M., Frank, S., Griscom, B., Drouet, L. et al. (2019). Contribution of the land sector to a 1.5 °C world. *Nature Climate Change* 9, 817–828. doi: 10.1038/s41558-019-0591-9.
- Salvuardas+ Honduras (n.d.). <https://salvuardashonduras.gob.hn>. Accessed 05 September 2022.
- Scheba, A. (2018). Market-Based Conservation for Better Livelihoods? The Promises and Fallacies of REDD+ in Tanzania. *Land* 7(119). doi: 10.3390/land7040119.
- Seymour, F. and Busch, J. (2016). *Why forests? Why now?: The science, economics, and politics of tropical forests and climate change*. Brookings Institution Press.
- Streck, C. (2016). Mobilizing Finance for REDD+ After Paris. *Journal for European Environmental & Planning Law* 13(2), 146–166. doi: 10.1163/18760104-01302003.
- Streck, C., Howard, A. and Rajão, R. (2017). *Options for Enhancing REDD+ Collaboration in the Context of Article 6 of the Paris Agreement*. Meridian Institute. <https://climatefocus.com/publications/options-enhancing-redd-collaboration-context-article-6-paris-agreement>.
- Streck, C., Pearson, T., O'Sullivan, R., Lee, D., Broekhoff, D., Gillenwater, M. et al. (2021). COMMENT: We must protect intact forests, but CORSIA got it wrong. *Carbon Pulse*, 14 April. <https://carbon-pulse.com/156727/>. Accessed 26 July 2022.
- Svarstad, H. and Benjaminsen, T.A. (2017). Nothing succeeds like success narratives: a case of conservation and development in the time of REDD. *Journal of Eastern African Studies* 11(3), 482–505. doi: 10.1080/17531055.2017.1356622.
- Tyukavina, A., Potapov, P., Hansen, M.C., Pickens, A.H., Stehman, S.V., Turubanova, S. et al. (2022). Global Trends of Forest Loss Due to Fire From 2001 to 2019. *Frontiers in Remote Sensing* 3, 825190.
- United Nations Development Programme (2016). *Gender and Climate Change*. <https://www.undp.org/sites/g/files/zskgk326/files/publications/UNDP%20Gender%20and%20Climate%20Finance%20Policy%20Brief%205-WEB.pdf>.
- United Nations Development Programme (2018). *Environmental and Social Assessment of Ecuador's Socio Bosque Programme*. <https://www.ambiente.gob.ec/wp-content/uploads/downloads/2018/09/ESA-Socio-Bosque-Ecuador-Report-11-09-18-f.pdf>.
- United Nations Development Programme (2021). *Considerations for integrating nature-based solutions in nationally determined contributions: illustrating the potential through REDD+*. United Nations Development Programme: New York, NY. <https://www.undp.org/publications/consideration-integrating-nature-based-solutions-nationally-determined-contributions-illustrating-potential-through-redd>.
- United Nations Environment Programme (2022a). *Emissions Gap Report 2022: The Closing Window — Climate crisis calls for rapid transformation of societies*. Nairobi. <https://www.unep.org/emissions-gap-report-2022>.
- United Nations Environment Programme (2022b). *Spreading like Wildfire - the Rising Threat of Extraordinary Landscape Fires*. A UNEP rapid response assessment. Nairobi. <https://www.unep.org/resources/report/spreading-wildfire-rising-threat-extraordinary-landscape-fires>.
- United Nations Environment Programme and International Union for Conservation of Nature (2021). *Nature-Based Solutions for Climate Change Mitigation*. Nairobi and Gland. <https://www.unep.org/resources/report/nature-based-solutions-climate-change-mitigation>.
- United Nations Environment Programme World Conservation Monitoring Centre (2019). *Planning for REDD+ Benefits Beyond Carbon*. Cambridge, UK. <https://unep-wcmc.maps.arcgis.com/apps/Cascade/index.html?appid=68dcb9f6368b457b914b6ada45678782>.
- Van Dam, C. (2020). *The Economics of Climate Change Mitigation in Indigenous Territories: Discussion Paper*. Washington D.C.: Forest Trends. <https://www.forest-trends.org/publications/the-economics-of-climate-change-mitigation-in-indigenous-territories/>.
- Walker, W.S., Gorelik, S.R., Baccini, A., Aragon-Osejo, J.L., Josse, C., Meyer, C. et al. (2020). The role of forest conversion, degradation, and disturbance in the carbon dynamics of Amazon indigenous territories and protected areas. *Proceedings of the National Academy of Sciences* 117(6), 3015–3025. doi: 10.1073/pnas.1913321117.
- Westholm, L. and Arora-Jonsson, S. (2015). Defining Solutions, Finding Problems: Deforestation, Gender, and REDD+ in Burkina Faso. *Conservation and Society* 13(2), 189. doi: 10.4103/0972-4923.164203.

White, D. and Minang, P. (2011). *Estimating the Opportunity Costs of REDD+: A Training Manual*. Washington, D.C.: World Bank. <https://www.unredd.net/documents/redd-papers-and-publications-90/other-sources-redd-papers-and-publications/understanding-redd-climate-change-840/5446-estimating-the-opportunity-costs-for-redd-a-training-manual-version-1-3-5446.html>.

World Conservation Society, Re:wild, World Resources Institute and Rainforest Foundation Norway (2021). Statement on the Role of High Forest Low Deforestation (HFLD) Credits in the LEAF Coalition (Lowering Emissions by Accelerating Forest Finance). New York, NY. <https://newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/16762/Statement-on-the-Role-of-High-Forest-Low-Deforestation-HFLD-Credits-in-the-LEAF-Coalition-Lowering-Emissions-by-Accelerating-Forest-finance.aspx>. Accessed 18 August 2022.

World Economic Forum (2022). *Forests for Climate: Scaling up Forest Conservation to Reach Net Zero*. Geneva. <https://www.weforum.org/whitepapers/forests-for-climate-scaling-up-forest-conservation-to-reach-net-zero/>.

ANNEXES



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ANNEX A: COMMITMENTS, INITIATIVES AND GUIDANCE ON FORESTS AND CLIMATE

KEY COMMITMENTS AND INITIATIVES ON FORESTS AND CLIMATE

ARCHITECTURE FOR REDD+ TRANSACTIONS (ART):

<https://www.artredd.org/>

The Architecture for REDD+ Transactions (ART) is a global voluntary initiative that seeks to incentivize governments to reduce emissions from deforestation and forest degradation (REDD), as well as restore forests and protect intact forests (+). The REDD+ Environmental Excellence Standard (TREES) is ART's standard for measurement, monitoring, reporting and verification.

BONN CHALLENGE:

<https://www.bonnchallenge.org/>

The Bonn Challenge was developed with goals to bring 150 million hectares of degraded and deforested landscapes into restoration by 2020 and 350 million hectares by 2030. Launched by the Government of Germany and IUCN in 2011, the Challenge surpassed the 150-million-hectare milestone for pledges in 2017.

FOREST & CLIMATE LEADERS PARTNERSHIP:

<https://www.gov.uk/government/news/leaders-will-build-on-glasgow-legacy-to-establish-forests-climate-leaders-partnership-at-cop27#:~:text=The%20Forests%20%26%20Climate%20Leaders'%20Partnership,innovative%20solutions%20to%20ongoing%20problems>

This Partnership will focus on accelerating implementation of the commitment made at COP26 by over 140 countries to halt and reverse forest loss and land degradation, while delivering sustainable development and promoting inclusive rural transformation.

FOREST DECLARATION PLATFORM:

<https://forestdeclaration.org/>

The Forest Declaration Platform fosters political ambition, scales up and accelerates action, and enables accountability to meet the world's 2030 forest goals.

GLASGOW CLIMATE PACT:

<https://ukcop26.org/the-glasgow-climate-pact/>

This global agreement focuses on accelerating action on climate this decade, and completes the Paris Agreement's Rulebook.

GLASGOW WORLD LEADERS' DECLARATION ON FORESTS AND LAND USE:

<https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/>

This was endorsed at COP26 and focuses on halting global deforestation by 2030. It was signed by more than 140 countries whose territories collectively contain over 90% of Earth's forests.

GLOBAL FOREST FINANCE PLEDGE:

<https://ukcop26.org/the-global-forest-finance-pledge/>

This is a pledge made by 11 countries and the European Union to provide USD 12 billion for forest-related climate finance between 2021 and 2025, to contribute toward halting and reversing forest land and degradation by 2030.

GREEN GIGATON CHALLENGE:

<https://www.greengigaton.com/>

The Green Gigaton Challenge is an effort to catalyze funds to transact one gigaton of high-integrity emissions reductions from forest-based natural climate solutions by 2025 and annually thereafter as an aspirational goal.

INDIGENOUS PEOPLES' AND LOCAL COMMUNITIES FOREST TENURE JOINT DONOR STATEMENT:

<https://ukcop26.org/cop26-iplc-forest-tenure-joint-donor-statement/>

This consisted of a collective pledge of USD 1.7 billion of financing to support the advancement of Indigenous Peoples' and local communities' (IPLC) forest tenure rights and greater recognition and rewards for their role as guardians of forests and nature.

LEAF COALITION:

<https://leafcoalition.org/>

The LEAF Coalition (Lowering Emissions by Accelerating Forest Finance) is a public-private initiative focused on providing results-based payments that help countries to protect their tropical forests.

LEADERS' PLEDGE FOR NATURE:

<https://www.leaderspledgefornature.org/>

This is a pledge signed at the COP of the Convention on Biological Diversity in 2021 by leaders from 93 countries. It committed to reversing biodiversity loss by 2030 by sending a united signal to increase global ambition for nature, climate and people.

LIMA CHALLENGE:

<https://unfccc.int/news/lima-challenge-bridging-the-emissions-gap-by-forest-intervention/>

This was signed by 14 forest developing countries in 2014, who endorsed the New York Declaration on Forests goal for 2030. The signatories pledged to reduce forest-based emissions and set more ambitious climate goals with financial support of developed countries.

NEW YORK DECLARATION ON FORESTS:

<https://forestdeclaration.org/about/new-york-declaration-on-forests/>

This is a political declaration, adopted in 2014, calling for global action to protect and restore forests. It has endorsed ten goals to end forest loss and degradation by 2030.

UN DECADE ON ECOSYSTEM RESTORATION:

<https://www.decadeonrestoration.org/about-un-decade/>

Adopted by the UN General Assembly in 2019 (A/RES/73/284) for 2021-2030, the Decade aims to mobilize resources to prevent and reverse ecosystem degradation. This initiative spans all types of ecosystems, from forest to marine.

GUIDANCE AND INITIATIVES ON INTEGRITY IN THE VOLUNTARY CARBON MARKET (SUPPLY SIDE)

INTEGRITY COUNCIL FOR THE VOLUNTARY CARBON MARKET:

<https://icvcm.org/>

This is an independent governance body for the voluntary carbon market. The Integrity Council's mission is to ensure that the voluntary carbon market accelerates in a just transition to reach 1.5°C.

THE TROPICAL FOREST CREDIT INTEGRITY GUIDE:

<https://tfciguide.org/#mission/>

This Guide has been developed for companies interested in purchasing carbon credits in the voluntary carbon market to differentiate between forest carbon credits, to help move the market toward credits with high social and environmental integrity.

VOLUNTARY CARBON MARKETS INTEGRITY INITIATIVE (VCMI):

<https://vcmintegrity.org/>

VCMI is a multi-stakeholder platform to drive credible, net-zero aligned participation in voluntary carbon markets. Immediate priorities are to: develop high integrity guidance for buyers of carbon credits, including on climate claims by businesses; and support access to high-integrity VCM and monitor broader supply-side integrity efforts.

GUIDANCE AND INITIATIVE ON INTEGRITY IN THE VOLUNTARY CARBON MARKET (DEMAND SIDE)

SCIENCE BASED TARGETS INITIATIVE (SBTi):

<https://sciencebasedtargets.org/about-us/>

The Science Based Targets initiative (SBTi) drives ambitious climate action in the private sector by enabling organizations to set science-based emissions reduction targets. The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). SBTi's Corporate Net-Zero Standard is the world's first framework for corporate net-zero target setting in line with climate science. It includes the guidance, criteria, and recommendations companies need to set science-based net-zero targets consistent with limiting global temperature rise to 1.5°C.

ANNEX B: PROJECTS, PROGRAMMES AND INITIATIVES REVIEWED FOR GIGATON MILESTONE ASSESSMENT

Project, programme or initiative	Included Yes (Y) / No (N)	Justification
African Development Bank	N	Funding from the African Development Bank supports REDD+ implementation and capacity building.
Amazon Fund	N	The Amazon Fund only reports on financing for REDD+ readiness and implementation.
ART (Architecture for REDD+ Transactions)	N	The ART database includes information on (i) projects that were not within the gigaton milestone assessment period; (ii) were already covered by other sources (LEAF and the GNU JDI); (iii) or did not have financial commitments for emissions reductions associated with them yet.
BioCarbon Fund	N	This included projects under the Clean Development Mechanism or the Verified Carbon Standard, which did not meet the criteria of the gigaton milestone assessment.
BioCarbon Fund Initiative for Sustainable Forest Landscapes	N	The listed projects do not contain financial commitments for emissions reductions and associated emissions reductions volume.
Central African Forest Initiative	Y	One Letter of Intent for Gabon was included in the assessment.
Center for International Forestry Research REDD+	N	Not applicable due to type and timing of activities.
Clean Development Mechanism	N	Not applicable due to type and timing of activities.
Climate Investment Funds	N	See Forest Investment Program.
FAO REDD+	N	This did not report data on emissions reductions volume and/or finance for emissions reductions.
FCPF-CF	Y	See analysis
Costa Rica's Fondo Nacional de Financiamiento Forestal	N	This did not report information on emissions reductions volume and/or finance for emissions reductions for future REDD+ projects.
Forest Declaration Platform	N	Not applicable.
Forest Investment Program	N	Although the Forest Investment Program is often mentioned as a results-based REDD+ funder and many of the projects calculate projected emissions reductions volumes, they do not provide corresponding financial commitments for them, and it is unclear if there is an intention of sale.
Green Climate Fund	N	All emissions reductions results compensated under Green Climate Fund pilot programme occurred before 2020/
Global Environment Facility	N	GEF funding is directed at REDD+ readiness and implementation.
LEAF Coalition	Y	Results were included (see main analysis).
Norway's International Climate and Forest Initiative	Y	Two Letters of Intent were included (Colombia and Peru).
Plan Vivo	N	There are not yet commitments or results for nested project to include in the analysis.
REDD Early Movers	N	This only contains information for older projects (therefore not in scope of analysis); information for the 2017-2022 agreement could not be found.
REDD+ Impact	N	This is covered by the Verra database (see below).
REDD+ Results Hub	N	This currently only lists payments for results until 2019.
Verra's Verified Carbon Standard Program and Verified Carbon Standard Jurisdictional Nested REDD+	N	There are not yet commitments or results for nested project to include in the analysis.
World Bank Project Database	N	Most REDD+ projects within the World Bank database are a) included in the FCPF-CF ERPA's and the BioCarbon Fund Initiative for Sustainable Forest Landscapes or b) refer to project appraisals without corresponding financial commitments.
World Land Trust	N	Data was not reported on their projects.



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