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Scaling Tropical Forest Finance: Perspectives From the Amazon Basin, the Congo Basin, and Borneo

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Summary

The Amazon Basin, the Congo Basin, and Borneo hold approximately 78% of the world's remaining tropical forests. They play a critical role in biodiversity conservation, ecosystem service provision, and hydrological cycles, yet they remain chronically underfinanced.

By 2030, tropical forests will require USD66.8 billion of additional funding for forest conservation (USD15.8 billion), forest restoration (USD33.2 billion), and agroforestry systems (USD17.8 billion). However, current financing relies on declining aid budgets, and it is fragmented to enable territorial-scale action.

Emerging directions to address that gap in forest finance include strengthening landscape approaches; creating longer-term payment structures; and ensuring direct financing for Indigenous Peoples, Local Communities, and Afrodescendant Peoples.

The Tropical Forest Forever Facility (TFFF), launched at the Belém Climate Summit, part of the COP30 process, is projected to generate approximately USD4 billion per year in payments to tropical forest countries. Specifically, it can meet over half of the forest protection sub-component of the finance gap by 2030 if combined with Reduced Emissions from Deforestation and Degradation (REDD+) jurisdictional programs. This represents a turning point toward scaling and integrating tropical forest finance.

Keywords:

Forest Finance; Ecosystem Services; Amazon Basin; Congo Basin; Borneo.

KEY MESSAGES:

1. Socioeconomic Importance of Tropical Forests

- **Tropical forests are biodiversity hotspots.** They contain over half of the world's known species, including 62% of global terrestrial vertebrate species and 72% of bird species (Pillay et al., 2022) and they provide ecosystem services for carbon, energy, and water (Smith et al., 2023).
- **Over 1 billion rural people** live within or in close proximity (≤ 5 km) to tropical forests; most are in low-income situations (Newton et al., 2020), including many Indigenous Peoples, Afrodescendant Peoples, and Local Communities.
- The IPCC estimates that **Agriculture, Forestry, and Other Land Use (AFOLU) mitigation options are more cost-effective** ways to reduce net emissions: approximately 3.5–3.6 GtCO₂-eq per year can be achieved at 0-20 USD tCO₂-eq⁻¹ with an additional 4 GtCO₂-eq yr⁻¹ costing 20-50 USD tCO₂-eq⁻¹ (IPCC, 2022).
- Estimates of the value of **tropical forest ecosystem services range from USD1,837 to USD2,355 per hectare per year**, underscoring the economic value of tropical forests (for details, see Table 1).
- However, primary **tropical forest loss this decade**, driven by agricultural growth (Sims et al., 2025) and increasingly by wildfires and other disturbances (Lapola et al., 2023), **remains higher than ten years earlier**, and reached a record 6.7 million hectares lost in 2024 and 4.3 million hectares in 2025 (Goldman et al., 2025, 2026).

2. Limits to Traditional Forest Financing

- Current efforts regarding forest conservation and restoration have been concentrated in advanced and higher-income economies as a result of public spending patterns, whereas **unmet needs are greater in lower-income countries with tropical-forest-based economies**.
- **Forest finance remains structurally misaligned with tropical forest needs.** In 2023, only USD12.9 billion (17%) of public domestic forest spending was invested by tropical forest countries, while public international forest finance directed toward the tropics reached only USD1.6 billion allocated to tropical countries and regions (UNEP, 2025; Table 2).

- **Official development assistance (ODA) is projected to decline by 15% in 2026**, following a 9% decline in 2025 (OECD, 2025); meanwhile, multilateral funds increased funding but added complexity to financing (Figure 1), suggesting that **concessional finance is unlikely to close the forest finance gap**.
- Existing **public subsidies**, including agricultural credit programs, **could be redirected toward forest-positive activities**, yet this potential remains largely untapped.
- **By 2030, tropical forest regions will require increased funding** for forest protection (USD15.8 billion), forest restoration (USD33.2 billion), and agroforestry systems (USD17.8 billion), totaling USD66.8 billion (FCLP, 2025; UNEP, 2025).

3. Emerging Directions in Forest Finance

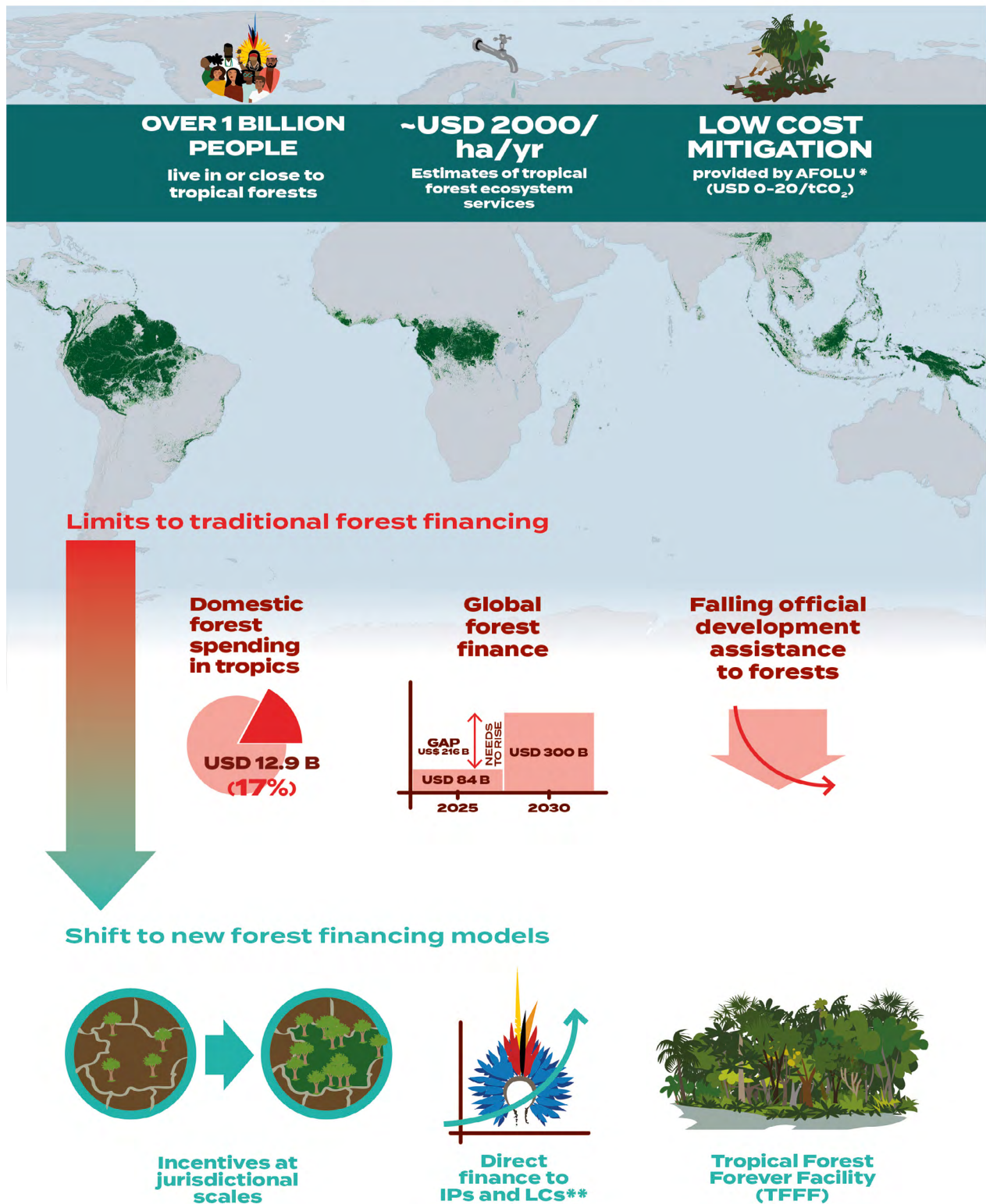
- **New forest finance models** combine concessional grants with credit, equity, and blended finance, engaging the private sector more significantly, through territorial and landscape-scale approaches, longer-term payment structures, and incentives for maintaining standing forests, complementing existing Reduced Emissions from Deforestation and Degradation (REDD+) strategies.
- **Direct financing for Indigenous Peoples, Local Communities, and Afrodescendant Peoples** has gained priority in emerging models with dedicated direct-benefit-sharing mechanisms, though funding for their tenure rights currently **stands at only USD270 million per year, far below identified needs** (Baker & Smith, 2025; Table 3).
- The **Tropical Forest Forever Facility (TFFF)** is a new blended finance structure, designed to **mobilize USD125 billion** and enable long-term annual payments based on tropical forest cover. **More than 60 countries** endorsed its launch declaration, including countries that represent 90% of tropical forest cover (TFFF, 2025; Figure 2).
- **TFFF can meet over half of the finance gap in forest protection by 2030** if combined with REDD+ jurisdictional programs (FCLP, 2025). TFFF also innovates by allocating 20% of resources directly to Indigenous Peoples, Local Communities, and Afrodescendant Peoples (Figure 3).

Recommendations for Policymakers and the Finance Sector:

1. **Prioritize funding for tropical forest regions**, recognizing that they provide ecosystem services that benefit communities at local, regional, and global scales and are essential in addressing the climate, biodiversity, and desertification crises (IPCC, 2022a, 2022b).
2. **Support the Tropical Forest Forever Facility (TFFF)**, a new instrument set to strengthen forest finance integration, by changing incentives for forest conservation and unlocking significant annual revenue for tropical forest countries (FCLP, 2025; TFFF, 2025).
3. **Promote institutional support and legal frameworks** that integrate ecosystem services valuation to inform strategic national and regional priorities, recognizing the full scope of tropical forest ecosystem services across local, regional, and global scales (see Table 1).
4. **Prioritize direct and dedicated finance allocation to Indigenous Peoples, Local Communities, and Afrodescendant Peoples**, strengthening the implementation capacity of representative, locally based organizations.
5. **Adopt forest metrics that are replicable and scalable**, so that data on forest monitoring, conservation outcomes, deforestation, and degradation can be accessible across the tropics.
6. **Increase international climate finance for tropical forest countries**, which currently receive only a fraction of global public spending directed toward forests (UNEP, 2025).
7. **Redirect existing public subsidies**, including agricultural credit programs, toward forest-positive activities (OECD, 2025).
8. **Expand national public funding for forest finance in tropical regions** by creating incentives for biodiversity-based economic activities that demonstrate a direct causal link to forest conservation and are compatible with standing forest ecosystems.
9. **Prioritize blended finance frameworks** that combine concessional finance, guarantees, and outcome-based instruments to close the annual USD66.8 billion gap in tropical forest finance projected by 2030 (FCLP, 2025; OECD, 2025).
10. **Explore variations of the TFFF model** to enable large scale funding for other modalities of forest finance.

Graphical Abstract:

Socioeconomic importance of tropical forests



*AFOLU: Agriculture, forestry, and other land uses;

**IPs and LCs: Indigenous Peoples, Local Communities, and Afrodescendant Peoples

1. Introduction

Tropical forest systems provide climate regulation, water cycling, and biodiversity conservation services that underpin livelihoods and socioeconomic stability far beyond national borders (Hubau et al., 2020; IPCC, 2022a). Research demonstrates that tropical forests function as interconnected components of a single global system, where degradation in one region may generate cascading effects across boundaries (Artaxo et al., 2022; Armstrong McKay, 2022; IPCC, 2022b). At the same time, forest conservation and restoration are among the most cost-effective nature-based solutions for climate change mitigation (IPCC, 2022b). However, despite their importance, tropical forests remain underfinanced and under threat.

Translating the value of tropical forests into economic metrics remains a barrier to attracting capital at the required scale (Rizkiah & Abdelli, 2025). Recent initiatives convened in the context of the United Nations Framework Convention on Climate Change (UNFCCC) sought to increase forest finance. For example, the Baku to Belém Roadmap and the Circle of Finance Ministers have outlined relevant strategies to reform multilateral finance,

improve access to climate finance, and unlock investment opportunities with the goal of scaling financing for developing countries up to USD1.3 trillion annually by 2035 (COP29 and COP30 Presidency, 2025). Among the proposed new revenue streams for tropical forests, the Tropical Forest Forever Facility (TFFF) signals a growing recognition that conserving and protecting tropical forests requires integrated finance mechanisms commensurate with the global benefits these ecosystems provide.

This issue brief presents research on tropical forests in the Amazon Basin, the Congo Basin, and Borneo that supports the case for forest finance mechanisms that recognize tropical forests as providers of global ecosystem services.¹ **Section 2** reviews the socioeconomic and ecological importance of tropical forests. **Section 3** presents some of the limits of traditional forest finance structures, including early carbon markets. **Section 4** examines emerging directions in financing conservation of tropical forests. **Section 5** analyses the TFFF as an innovation in forest finance that brings together several of the emerging directions discussed in the previous section. **Section 6** offers a brief conclusion.

1 Borneo is an illustrative case within the broader Southeast Asia–Pacific tropical forest region, reflecting the focus of the Science Panel for Borneo. However, Borneo’s case should be seen in perspective, while also considering the importance of other tropical forests in the region, including in the Mekong River Basin, Indonesian Papua, and Papua New Guinea (Cámara-Leret et al., 2020; de Bruyn et al., 2014).

2. Socioeconomic and Ecological Importance of Tropical Forests

Tropical forests are among the planet’s life-support systems, regulating global climate through carbon sequestration and moisture recycling, which generates continental-scale precipitation (Costanza et al., 2017; Dasgupta, 2021; Smith et al., 2023; Spracklen et al., 2012). They also are biodiversity hotspots, with over half of the world’s known species, including 62% of global terrestrial vertebrate species and 72% of bird species (Pillay et al., 2022). Tropical forests deliver important and varied contributions to life on Earth. Amazon Basin forests play an important role in nutrient, hydrological, and energy cycles. For example, moisture-recycling studies show that Amazon forest evapotranspiration contributes a substantial share of agricultural rainfall in central-western Brazil: up to 40% of monthly precipitation in the area known as the arc of deforestation and up to about one-third of annual rainfall in parts of Mato Grosso and Mato Grosso do Sul (O’Connor et al., 2021; Mattos et al., 2024). Congo Basin forests regulate climate across sub-Saharan Africa and sequester carbon at roughly six times the rate of the Amazon (Hubau et al., 2020), while Borneo’s peat forests store carbon equivalent to decades of emissions in South Asia (Page & Hooijer., 2016; Sasmito et al., 2025). However, recent evidence indicates that degraded and deforested areas in these biomes may now function as net carbon sources (Gatti et al., 2021; Hubau

et al., 2020), underscoring the urgency of halting further loss.

This ecological importance is also matched by the mitigation potential of land-based systems. The IPCC estimates that Agriculture, Forestry and Other Land Use (AFOLU) options could provide approximately 8–14 GtCO₂-eq yr⁻¹ of mitigation potential between 2020 and 2050 at costs below USD100 tCO₂-eq⁻¹, with approximately 3.5–3.6 GtCO₂-eq yr⁻¹ (25-40%) available below USD20/tCO₂-eq (IPCC, 2022). Although this estimate includes agricultural and land-use options beyond tropical forests, it demonstrates that forest-related and land-based mitigation can represent a comparatively cost-effective component of global climate action when supported by adequate governance, safeguards, and finance.

Table 1 presents economic valuations of ecosystem services provided by tropical forests across the Amazon Basin, the Congo Basin, and Borneo. Global estimates range from USD1,837 to USD2,355 per hectare per year, pointing to the substantial economic benefits of these forests to the global community. Direct comparison across studies is limited by differences in the services included, spatial scale, service variability, and valuation methods applied, so figures should be interpreted as indicative rather than definitive. Nonetheless, taken together, this set of studies demonstrate that

the ecosystem services provided by tropical forests are substantive. Beyond valuation, a central challenge that remains is translating these ecosystem service estimates into enforceable payment mechanisms, as the

existence of large economic value does not create the institutional conditions through which forests can generate contractible revenue streams.

Scale	Source	Key Finding	Ecosystem Services and Policy Implication
Global	De Groot et al., 2012	Median value of tropical forests' ecosystem services estimated at USD2,355 per ha/yr	Carbon sequestration, water regulation, food and timber provisioning, habitat; market prices undervalue tropical forests; policy should internalize non-market services in land-use decisions
Global	Taye et al., 2021	Median value of forest ecosystem services: USD1,837 per ha/yr	Carbon sequestration, water regulation, biodiversity, non-timber forest products; reliance on single-service valuations underestimates total forest value
Amazon Basin	J. C. A. Baker et al., 2026	Amazon Basin rainfall generation valued at median of USD59.4 per ha/yr; Brazilian Legal Amazon: USD19.6 ± 7 billion/yr	Rainfall generation and moisture recycling, but translating rainfall into contractible payments presents significant challenges given natural variability in precipitation
Congo Basin	World Bank Group, 2025	Congo Basin forests had an estimated total asset value of USD23.2 trillion in 2020	Carbon storage, climate regulation, domestic provisioning services, and natural capital accounting; Congo Basin retains around 90.9 billion tons of carbon, equivalent to 333.5 billion tons of CO ₂ ; significant for meeting global climate goals
Borneo	Brander et al., 2018	Estimates annual ecosystem-service value of the Baleh watershed at USD180.33 million/yr	Carbon sequestration, sediment regulation, flood regulation, freshwater provision, forest conservation, and species conservation; valuation of Borneo's forested watersheds indicates substantial public benefits that are often excluded from land-use decisions

Table 1. Economic Valuation of Ecosystem Services at Different Scales Across the Tropics.²

Summary of selected valuation studies of tropical forest ecosystem services at global, regional, and local scales, covering services such as carbon sequestration, water regulation, biodiversity conservation, provisioning services, and cultural values. The use of different methods and ecosystem-service categories lead to varying estimates that illustrate how standing tropical forests generate substantial economic value that is often excluded from land-use and finance decisions.

When forests are viewed as part of a global system, emergent benefits become apparent that cannot be captured through single-region studies (Folke et al., 2004;

Hubau et al., 2020; Liu et al., 2007). Global comparative research shows that community forest governance consistently delivers positive outcomes for carbon,

² This table is not exhaustive and focuses on studies that estimate forest ecosystem-service value. Other studies assess the economic importance of standing tropical forests through biodiversity-based production, non-timber forest products, and innovation-oriented bioeconomy pathways. For example, WRI's *New Economy of Amazonia* estimates the potential of a standing-forest economy in the Brazilian Amazon, including bioeconomy activities linked to forest conservation, biodiversity-based products, restoration, and low-carbon development (Nobre et al., 2023).

biodiversity, and livelihoods across tropical regions (Fischer et al., 2023), suggesting that cross-regional approaches can yield mutual gains impossible to achieve through fragmented strategies. The distinct but interconnected functions of these forest systems reinforce planetary boundaries and resilience, while their degradation threatens to trigger tipping points with far-reaching consequences that extend well beyond regional boundaries (Armstrong McKay et al., 2022; Lenton et al., 2019). Scientific analysis reveals that addressing these integrated risks requires fundamental restructuring of forest finance mechanisms to address interconnected rather than isolated risks through coordinated targeting of climate finance across tropical biomes (Austin et al., 2025).

In addition to their biophysical functions, tropical forests sustain millions of Indigenous people and many forest-reliant communities, for whom forests are the means of livelihood, and also the territories of their cultural, spiritual, and social reproduction.³ Tropical forests sustain more than one billion rural people living within or in close proximity (≤ 5 km) to forests in tropical countries, many in low-income

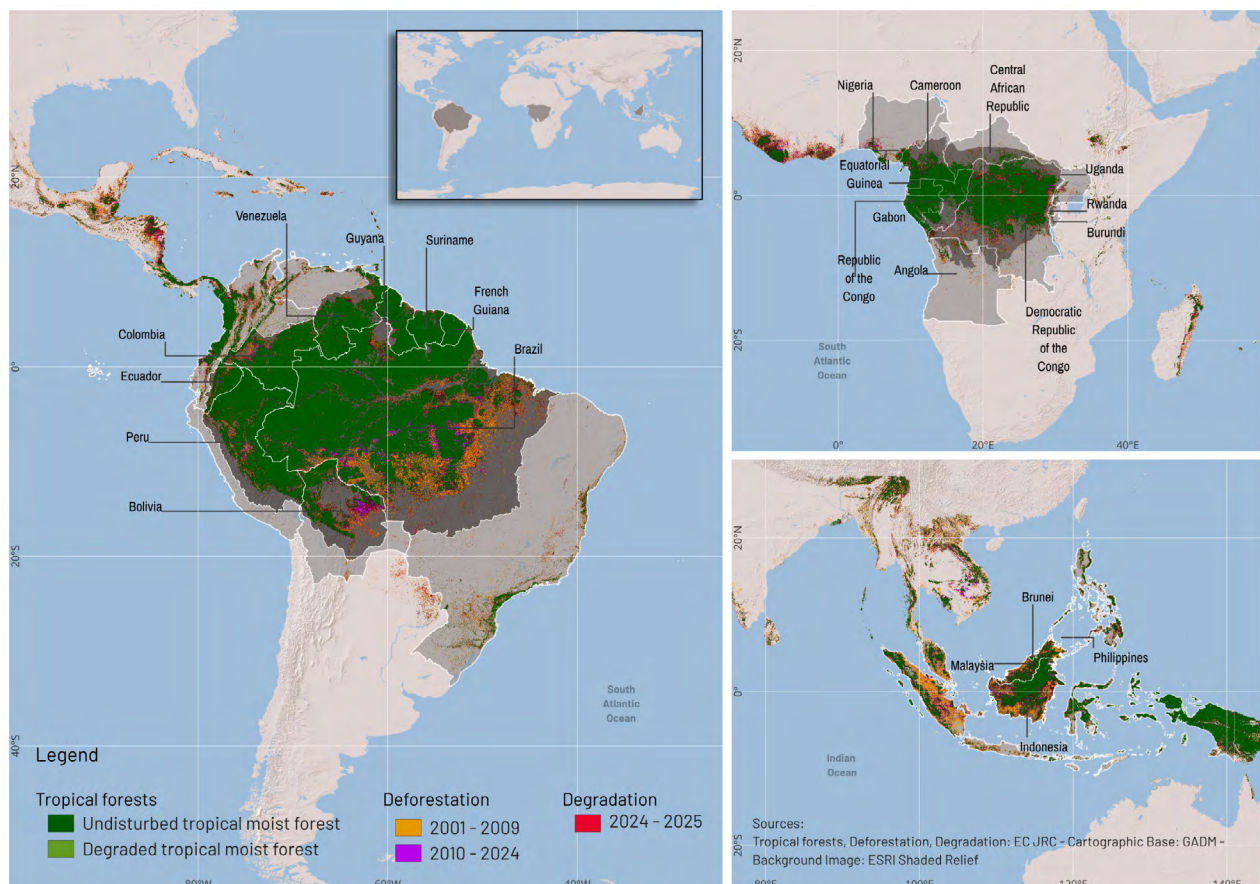
contexts (Newton et al., 2020; World Bank, 2004). The forms this sustenance takes include watershed protection (Franco et al., 2025) and the provision of bioeconomy products and other livelihood practices (IPCC, 2022a). Forest-based communities' stewardship is often embedded in culturally specific relations with land and water, including hunting, gathering, fishing, agroforestry, shifting cultivation, seed and crop management, and other food practices that support food sovereignty and cultural continuity (FAO & FILAC, 2021). Studies indicate that community-managed land practices have been correlated with lower CO₂ emissions (Blackman & Veit, 2018; Garnett et al., 2018) and lower deforestation rates (Baragwanath & Bayi, 2020; Qin et al., 2023; Walker et al., 2020). In this sense, tropical forests provide ecosystem services for local livelihood sustenance.

Despite their importance, tropical forests historically and at present have remained under threat. In Map 1, it is possible to examine deforestation and degradation trends across tropical biomes (Geist & Lambin, 2002; Hosonuma et al., 2012; Sims et al., 2025). Together, the undisturbed tropical forests in the three highlighted

³ In forest and climate finance, the term “Indigenous Peoples and Local Communities” (IPLC) is often used. This issue brief avoids that abbreviation when possible, and refers separately to Indigenous Peoples, Local Communities, and Afrodescendant Peoples, recognizing that Indigenous Peoples hold distinct collective rights under international law and should not be conflated with other groups, as highlighted by the United Nations Permanent Forum on Indigenous Issues, Expert Mechanism on the Rights of Indigenous Peoples, and the Special Rapporteur on the rights of Indigenous Peoples (Barume Kwokwo, 2025). The term “forest-reliant communities” is used here only as an analytical umbrella for communities whose livelihoods, cultures, or territorial governance are materially connected to forest landscapes; it is not intended as a legal category or as a substitute for the self-identification of specific peoples and communities. Terms such as “local communities,” “forest-dependent people,” “forest-proximate people,” and “forest-reliant communities” are used differently across the literature.

biomes represent approximately 78% of global undisturbed tropical forest areas (European Commission Joint Research Centre [EC JRC], 2026).⁴ Globally, primary tropical forest loss this decade remains higher than ten years earlier, reaching a record 6.7 million hectares lost in 2024 and then falling to 4.3 million hectares in 2025 (Goldman et al., 2025, 2026). Evidence indicates that while agriculture is

the leading driver of tropical deforestation (Curtis et al., 2018), the majority of tropical deforestation (>90%) occurs in landscapes where agriculture is the dominant driver of tree-cover loss, and a significant share of tropical deforestation (45%–65%, depending on region) has turned into productive agricultural plots in preceding years (Pendrill et al., 2022; Sims et al., 2025).



⁴ This estimate was calculated using the European Commission Joint Research Centre Tropical Moist Forest dataset (EC JRC, 2026), following the classification and calculation approach developed by Vancutsem et al. (2021). Raw EC JRC data were processed in a GIS to estimate undisturbed tropical moist forest area within the three highlighted geographies—the Amazon Basin, the Congo Basin, and Borneo Island—and then compared with the global area of undisturbed tropical moist forest across the tropics.

Regionally, cattle ranching is the leading deforestation driver in the Amazon Basin, accounting for 41% of global tropical deforestation (Tyukavina et al., 2017); subsistence agriculture drives forest loss in the Congo Basin (Tyukavina et al., 2018), contributing 20% globally; and industrial plantations characterize Borneo deforestation patterns, with palm oil contributing 5% of global deforestation but 50% of Southeast Asia's (Pendrill et al., 2022). The second-most prevalent driver of forest loss globally is wildfires, which have increased in occurrence and persistence (Lapola et al., 2023). With globalization and increasing scarcity of productive land, biome-specific approaches risk overlooking leakage and land-use spillovers, whereby conservation or reforestation in one region may displace agricultural, timber, or land-conversion pressures to other regions through trade and supply-chain responses (Lambin & Meyfroidt, 2011; Meyfroidt et al., 2010; Villoria et al., 2022; zu Ermgassen et al., 2020). Thus, providing ecosystem services has high costs. Because these competing land uses often generate more immediate private returns than standing forests do, conservation entails both direct implementation costs as well as opportunity costs for resource stewards, who may forgo income from agriculture, livestock production, timber extraction, or other forms of land conversion (G20 Sustainable Finance Working Group, 2024).

Beyond commodity-driven pressures and wildfires, organized environmental crime—including land grabbing, illegal logging, and land-related violence—may represent an underestimated driver of tropical deforestation, particularly in the Amazon, where insecure land tenure amplifies these dynamics (Azevedo-Ramos et al., 2020; Moutinho & Azevedo-Ramos, 2023). Land grabbing, illegal logging, fraudulent land registration, and land-related violence can form a connected sequence: forests are invaded or illegally claimed, valuable timber is extracted, fire and clearing are used to consolidate occupation, and land is subsequently converted into pasture or speculative assets. In this context, deforestation is not only a by-product of commodity expansion but also a strategy for land grabbing, territorial control, and speculative asset formation (Stabile et al., 2020). Public forests that have not been legally allocated as Indigenous Territories, conservation units, forest concessions, or another recognized tenure category are vulnerable to these dynamics, making land-tenure regularization, law enforcement, and protection of local communities central components of any integrated forest-finance strategy (Moutinho & Azevedo-Ramos, 2023; Rajão et al., 2020).

In sum, coordinated international investment in frameworks that treat tropical forests as shared global

infrastructure can help counter drivers of deforestation (Steffen et al., 2015). Fragmented, regional approaches risk missing the synergies and systemic risks revealed by global analysis. Thus, international conservation strategies are essential to amplify mutual benefits and protect against shared vulnerabilities across these vital forest systems, establishing the imperative for innovative financing mechanisms that can operate effectively across the interconnected tropical forest system (Folke et al., 2004; Gardner et al., 2009; Sullivan et al., 2017; Walker et al., 2020).

lower investment levels; (2) reliance on concessional financing, which may be exposed to short-term funding cycles; and (3) fragmented approaches.

Forest finance is called for as part of the broader Baku to Belém Roadmap to mobilize USD1.3 trillion in international climate finance by 2035 (COP29 Presidency & COP30 Presidency, 2025; FCLP, 2025), yet existing flows remain heavily concentrated in advanced economies. The United Nations Environment Programme (UNEP) estimates that total global forest finance reached USD84 billion in 2023, of which 91% (approximately USD75 billion) came from public finance, with the remainder being private finance (UNEP, 2025). From public domestic spending, only USD12.9 billion (17%) was invested by 31 tropical forest countries (UNEP, 2025, p. 13), with the majority of public spending for forests happening outside of the tropics. Furthermore, UNEP estimates that public international forest finance was only USD2.9 billion, of which 58% (USD1.6 billion) was allocated to tropical countries and regions (UNEP, 2025, p. 17). The distributions of public domestic spending and public international forest finance indicate a structural mismatch between the presence of forests in the tropics and the financing deployed toward forests in the temperate regions.

Tropical forests, instead, remain more dependent on grants and concessional

3. Limits to Traditional Forest Finance

Despite the value of the ecosystem services that tropical forests provide, the scale, composition, and trajectory of current forest finance (which is dominated by public and declining concessional flows) are misaligned with the resources required to meet global climate and biodiversity goals. This reflects a market failure, since ecosystem services provided by tropical forests are public goods that remain insufficiently valued in markets and investment decisions (Stern, 2007; Salzman et al., 2018; Dasgupta, 2021). Traditional forest finance is limited by: (1) finance concentration in the temperate forests, with tropical forests areas receiving

public finance. In 2023, for instance, approximately 80% (USD2.3 billion) of public international forest finance was offered on concessional terms, primarily through official development assistance (ODA) grants, in the form of short-term projects or fragmented foreign governmental support (UNEP, 2025). While such finance remains essential, its project-based and fragmented nature makes it poorly suited to support the long-term institutional capacity, continuity, and incentives required to reduce deforestation. In addition, the dependence on concessional finance is increasingly risky as recent trends suggest that aid budgets are being reduced systematically. Projections from the Organization for Economic Co-operation and Development (OECD) indicate that net ODA is projected to fall by 15% in 2026, following a 9% decline in 2025, with further uncertainty beyond 2026 and disproportionate impacts on least-developed countries and sub-Saharan Africa (OECD, 2025). These trends suggest that donor-based financing models are unlikely to close the forest finance gap and may become less reliable over time. Continued dependence on aid flows leaves tropical forest conservation exposed to volatility in donor countries, rather than stable financing arrangements. At the same

time, existing public subsidies, including agricultural credit programs such as Brazil's Safra Plan, represent large resources that could be redirected toward forest-positive activities, reducing dependence on external capital (OECD, 2025).

Traditional forest finance is also constrained by its reliance on concessional and fragmented public funding.⁵ Investments in sustainable land use and forestry typically involve long time horizons, uncertain returns, and complex governance conditions (Assunção et al., 2025). At the same time, public finance can play a catalytic role beyond direct spending, by aligning incentives; de-risking private investment; and coordinating fiscal, regulatory, and market instruments toward a shared mission of halting deforestation and fostering sustainable economic growth (Rizkiah & Abdelli, 2025).

While carbon markets have been hailed as a potential source of forest finance, to date, results have been disappointing, due to a series of factors. Firstly, the voluntary nature of voluntary carbon markets do not result in a consistent demand for credits. This is exacerbated by uncertainty related

⁵ Besides the issue of public funding, there are also limitations in the surrounding infrastructure and enabling conditions required to deploy capital at scale. While these enabling conditions are not the focus of this issue brief, scaling forest finance depends on clearer taxonomies and eligibility criteria; credible measurement, reporting, and verification (MRV) systems; comparable metrics for deforestation and degradation; due-diligence and safeguard standards; public fund-management capacity; and risk-transfer or risk-mitigation instruments such as guarantees, insurance, first-loss capital, and other blended-finance structures. These elements are particularly important in forest and land-use finance, where uncertainty around additionality, leakage, permanence, governance, and long-term revenue models can limit private capital mobilization (Assunção et al., 2025; Badgley et al., 2022; G20 Sustainable Finance Working Group, 2024; Sills et al., 2014; UNEP, 2025; West et al., 2023).

to the reputational value of investing in forest-based offsets, given the repeated media attacks of some projects (e.g., Guardian, West, etc.). At the same time, the protracted and uncertain process required for registering a voluntary carbon project also creates uncertainty for project developers and investors. Some of these problems can be overcome if landscape level carbon finance was channeled through the rules of Article 6.2. of the Paris Agreement, a funding modality that is still underutilized for the AFOLU sector.

but also poorly structured to address a globally interconnected socio-ecological challenge. Thus, the financing gap framing, while useful, risks oversimplifying the problem as one of monetary scarcity alone. In reality, a transformative approach must also examine the effectiveness and direction of existing financial flows; simply injecting additional capital into current models without addressing their shortcomings risks perpetuating the same inequalities that have contributed to forest loss (Rizkiah & Abdelli, 2025).

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The current global financial architecture for forest conservation remains underfunded relative to identified needs. By 2030, tropical forest regions are estimated to require USD66.8 billion annually to support forest protection (USD15.8 billion), forest restoration (USD33.2 billion), and agroforestry initiatives (USD17.8 billion) (FCLP, 2025; UNEP, 2025). In the context of shrinking aid budgets and the need to scale up financing for tropical forests, existing funding frameworks are ill-equipped to respond to the scale, duration, and transboundary nature of tropical forest loss. Deforestation and forest degradation pressures operate across jurisdictions and generate spillover effects across regions, yet the financial instruments used to address them remain constrained by national, donor, and project-specific boundaries. As a result, current forest finance is not only insufficient in volume

Table 2 synthesizes evidence on the structural limitations of existing tropical forest finance modalities, with sources highlighting quantitative funding gaps rather than proposing solutions, reflecting the diagnostic state of the literature. Existing forest finance mechanisms reveal a weak dialogue between the financial sector and academia to translate research evidence on forest value and conservation effectiveness into actionable policy (Börner et al., 2017; Ferraro & Kiss, 2002; Salzman et al., 2018). Current climate finance targeting demonstrates systematic misalignment between funding allocation and conservation effectiveness across tropical biomes, with the Congo Basin receiving only 11% of international funding despite being the world's largest net carbon sink (Assunção et al., 2025; Austin et al., 2025; Hubau et al., 2020).

Mechanism	Current scale	Key limitations	Examples
Public domestic spending	USD12.9 billion/yr	Little fiscal capacity of developing countries to allocate; public spending instead concentrated in developed economies (UNEP, 2025; OECD, 2025)	National budgets of countries
Public international forest finance; ODA	USD1.6 billion/yr	Fragmented; depends 80% on ODA, which is declining in 2024–2026 (OECD, 2025; UNEP, 2025)	Germany, United Kingdom, and Norway bilateral forest programs
Payments for ecosystem services	USD36–42 billion/yr; <i>no aggregate data for tropical forests</i>	Access barriers and uncovered full opportunity costs (Salzman et al., 2018)	National programs in Costa Rica (FONAFIFO), China, Mexico, Vietnam, Guatemala, and Gabon
Results-based finance and REDD+	USD341 million/yr	Leakage and permanence hard to verify; politically fragile (Horn, 2023; Watson et al., 2025)	Amazon Fund; GCF REDD+ results-based payments; Forest Carbon Partnership Facility (FCPF); ART-TREES transactions
Voluntary carbon markets	USD342.5 million/yr, voluntary market	Recent issues in measurement, reporting, and verification (MRV); price instability after media reports (Guardian, 2023; Forest Trends' Ecosystem Marketplace, 2025)	REDD+ credits; improved forest management credits; and afforestation, reforestation, and revegetation (ARR) credits
Biodiversity credits and offsets	USD11.7 billion/yr in investment; USD8 million/yr in credit issuance	Biodiversity outcomes difficult to standardize and compare; demand unclear (Carter et al., 2026)	Biodiversity credits; biodiversity offset markets; biodiversity net gain units
Conservation trusts and endowments	USD1.9 billion/yr, assets managed; <i>no aggregate data for tropical forests</i>	Data often not reported due to private nature; unevenly capitalized; depends on investment returns (Bath et al., 2020)	Protected area endowment funds in Latin America, Africa, and Asia
Private return-seeking finance	No reliable aggregate data	Debt-for-nature swaps depend on debt profile and guarantee structure (Carter et al., 2026)	Conservation impact bonds; private equity
Green and sustainability bonds	USD1,026 billion/yr; <i>no aggregate data for tropical forests</i>	Capital-market debt instruments with monitoring dependent on issuer disclosure and external screening (Climate Bonds Initiative, 2026).	Sovereign green or sustainability bonds; corporate bonds, Uruguay and Dominican Republic's forest-linked sovereign green bond

Table 2. Existing Tropical Forest Finance Mechanisms. Scale, limitations, and illustrative examples of select mechanisms used to finance tropical forest conservation, including mechanisms primarily based on public budgets, market-based mechanisms, and private-based mechanisms. Existing forest finance remains fragmented, is often reliant on public budgets, and does not provide sufficient funding for tropical forests conservation.

Climate finance remains fragmented and misaligned with the systemic, cross-boundary nature of tropical forest dynamics, treating tropical forests as isolated systems and failing to capture how deforestation in one biome can undermine conservation—and financial stability—elsewhere (Garrett et al., 2013; Meyfroidt et al., 2010). This systematic underinvestment creates vulnerabilities where conservation efforts cannot match economic pressures driving deforestation, while displacement effects enable increased forest loss in regions with inadequate financing despite high conservation potential (Bovarnick et al., 2010; Miller et al., 2013). Forest systems in the Amazon Basin exemplify these compound financial risks through interconnected carbon market instability and agricultural commodity exposure that create important vulnerabilities for conservation financing (Börner et al., 2015; West et al., 2020).

Additionally, the example of Brazil's Amazon Fund reveals how political changes can undermine long-term conservation financing mechanisms, creating uncertainty that discourages private investment in forest conservation (Horn, 2023; Rajão et al., 2020). Recent years have seen significant reductions in deforestation rates in the Brazilian Amazon, demonstrating that political commitment and enforcement can deliver results even within existing finance

structures. However, public and private investment in livestock and soy expansion has historically far exceeded investment in forest protection and restoration, creating a structural financial asymmetry that payment mechanisms must overcome (Curtis et al., 2018; Goldman et al., 2025).

Central banks recognize forest loss as material risk operating through multiple channels, including supply chain contagion, stranded asset creation through transition risks, and physical risk amplification (Bolton et al., 2020; Network for Greening the Financial System, 2023). Research identifies forest-related risks as material for financial stability due to the interconnected exposure across institutions and jurisdictions, but the current financial architecture fails to capture these systematic risk interactions, creating vulnerabilities where regional forest loss triggers cascading impacts across global financial systems (Dikau & Volz, 2021).

Traditional financing mechanisms face structural limitations related to additionality, governance, and externalities of the markets in which they operate. For instance, early REDD+ projects faced persistent challenges related to additionality, leakage, and permanence that constrained their effectiveness, with implementation falling far short of expectations due to institutional constraints,

measurement difficulties, and political economy challenges (Sills et al., 2014). Unregulated, project-based carbon markets may also create additional systematic risks, according to previous research documenting overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon (West et al., 2023, 2020). The Congo Basin faces distinct risk profiles where governance challenges interact with financial mechanisms to create compound vulnerabilities affecting both conservation outcomes and community welfare (Ernst et al., 2013; Mayaux et al., 2013). Governance challenges such as unclear land tenure and limited access to markets prevent the effective deployment of traditional financing tools, creating systematic barriers through power imbalances that undermine both forest governance and finance mechanisms (Börner et al., 2017; Justice et al., 2001; Pattanayak et al., 2010). Additionally, Borneo demonstrates unique financial risk profiles created by the interaction between peat fire and palm oil dependencies (Austin et al., 2017; Page & Hooijer, 2016). In short, externalities from peat fire events remain unpriced in current financial systems, creating underinvestment in conservation relative to conversion for industrial agriculture, while generating economic losses extending across Southeast Asian economies through health impacts (Kopplitz et al., 2016).

4. Emerging Directions in Forest Finance

This section reviews five developments in the forest finance literature: (1) the shift from project-based financing toward territorial-based approaches; (2) the move toward longer-term financing arrangements; (3) the expansion of direct finance to Indigenous Peoples, Afrodescendant Peoples, and Local Communities; (4) the recognition of standing forests in payment design; and (5) efforts to value natural capital and translate forest assets and ecosystem services into accounting, pricing, and payment methodologies. Scaling also depends on improving enabling conditions across fiscal, legal, and institutional fronts, without which new finance models risk replicating fragmentation in existing ones (Rizkiah & Abdelli, 2025).

An emerging direction in tropical forest finance is the shift from isolated, project-based interventions toward territorial, landscape-level, and national-scale approaches. Project-level conservation efforts may be vulnerable to leakage, where deforestation pressures are displaced rather than reduced at the system level (Villoria et al., 2022). They may also face structural limits in scaling finance, because many carbon-based mechanisms must demonstrate

additionality, prevent leakage, and guarantee permanence at the level of individual projects or programs, creating transaction costs and methodological constraints that limit their reach. Jurisdictional or territorial approaches respond to some of these limitations by aligning incentives across entire political and ecological units (states, departments, nations, or territories), enabling coordination between forest governance, land-use planning, environmental monitoring, and financial flows. This shift is also consistent with the architecture of REDD+ under the Warsaw Framework, anchored in Article 5.2 of the Paris Agreement. The framework was deliberately designed around national-scale implementation in part to coordinate domestic action and reduce risks of leakage and reversals across jurisdictions (Voigt et al., 2025).⁶ Evidence from comparative analyses across tropical biomes suggests that deforestation drivers operate at scales larger than individual projects, reflecting political economy dynamics, commodity markets, and infrastructure expansion that require system-wide responses (Curtis et al., 2018; Hosonuma et al., 2012). Public finance plays a catalytic role in this context by aligning incentives and coordinating fiscal and regulatory

instruments toward a shared mission of halting deforestation while fostering sustainability (Rizkiah & Abdelli, 2025). This is also in line with REDD+ as enshrined in the Paris Agreement (Voigt et al., 2024). By internalizing these dynamics, jurisdictional finance frameworks can better address displacement risks; support broader ecosystem services such as carbon storage, water regulation, and biodiversity conservation; and align conservation finance with public policy objectives.

Another trend concerns the transition from project-based grants toward longer-term and more predictable financing arrangements, as stable incentives can reduce deforestation and enable coordinated land-use decisions (Börner et al., 2017; G20 Sustainable Finance Working Group, 2024; Jayachandran et al., 2017). For example, Figure 1 shows that aggregate annual contributions to selected climate and environmental funds — namely the Global Environmental Facility (GEF), the Green Climate Fund (GCF), the Adaptation Fund (AF), and the Climate Investment Funds (CIF) — have increased over time in real terms, especially after the initial capitalization

6 Under the UNFCCC and the Paris Agreement, jurisdictional approaches refer to state, provincial, or national government-level interventions to govern natural resources, particularly related to forests (Voigt et al., 2024). It should be noted that jurisdictional approaches are not free of challenges. In Brazil and other tropical forest countries, jurisdictional models still face unresolved challenges related to land tenure; carbon rights; benefit-sharing; and the right of free, prior, and informed consent (FPIC) for Indigenous Peoples, traditional peoples, and local communities whose territories and landscapes may be included within jurisdictional accounting areas.

of newer funds, such as the launch of CIF in 2009 and the Paris Agreement in 2015. However, the increase in aggregate funding has created a more complex architecture, in which countries need to navigate multiple eligibility criteria, project templates, and approval procedures (Skovgaard et al., 2023). While there are commitments to streamline project evaluation processes (G20, 2024), an independent evaluation of the GCF indicates that these reforms

have not yet translated into shorter approval timelines (GCF Independent Evaluation Unit, 2025), and in some cases, it may take two years to approve full projects. Carbon project registration is subjected to similar evaluation processes and timeframes, rendering this funding modality ineffective. An integrated forest finance model calls for reducing transaction costs and fragmentation among funds.

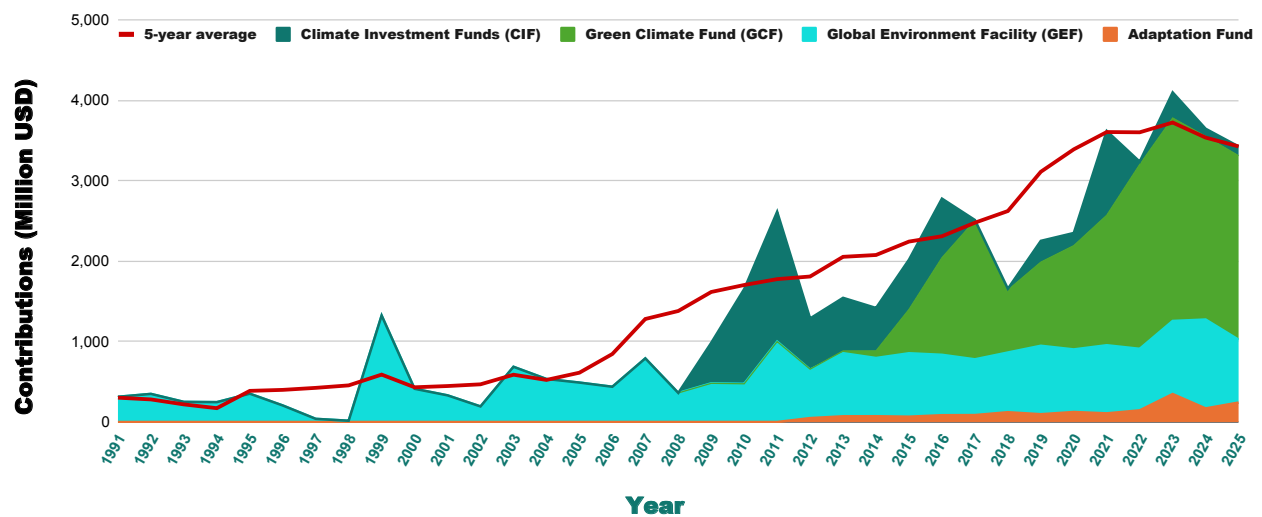


Figure 1. Annual Fund-Level Contributions to Selected Multilateral Climate and Environmental Financial Intermediary Funds, in Million USD. The graph shows total annual contributions to the Global Environmental Facility (GEF), Green Climate Fund (GCF), Adaptation Fund, and Climate Investment Funds (CIF). These funds are presented as illustrative examples of major multilateral financing channels that can support forest-related activities, but their mandates are broader than tropical forest finance and include climate mitigation, adaptation, biodiversity, land degradation, chemicals and waste, clean technology, resilience, and other environmental and development priorities. The values therefore represent total fund-level contributions, not amounts allocated to tropical forest countries or tropical forest conservation specifically. Amounts are adjusted to 2025 purchasing power⁷. Source: Graph created using data from World Bank (2026).

⁷ Calculations for four financial intermediary funds managed through the World Bank Group. In addition to these previously described multilateral funds, climate finance flows through bilateral agreements, development banks, and results-based payment mechanisms that are not fully captured in Table 4. Another method to track finance is by verifying budget expenditures. In 2023, international public finance for forests totaled approximately USD2.9 billion, with the World Bank, Germany, the United Kingdom, and Norway as main donors and tropical forest countries such as the Democratic Republic of the Congo, Peru, and Brazil among the main recipients (UNEP, 2025). Other initiatives attempt to monitor the implementation progress of climate- and nature-related commitments. The Nature4Climate Commitment Tracker compiles more than one hundred pledges and commitments announced by specialized groups monitoring REDD+ and indicates that USD4 billion has been approved for dedicated REDD+ activities since 2008 (Watson et al., 2025).

A third emerging trend is the growing effort to engage the private sector in tropical forest finance, reflecting the recognition that public budgets and ODA remain insufficient to meet the scale of finance required (CPI, 2025; OECD, 2025). Private-sector engagement is increasingly pursued through blended finance instruments, such as the Responsible Commodities Facility (RCF), a green bond blended finance vehicle to provide low interest credit lines to zero-deforestation agriculture (WEF 2026, MacGillivray et al. 2025), the new Catalytic Capital for the Agricultural Transition (CCAT) initiative, which provides risk capital to blended finance funds. These initiatives can be further scaled up when supported by public programs such as the GCF's support to the RCF or Brazil's Eco Invest program, which uses catalytic concessional capital and exchange rate hedging to mobilize external private capital for eligible ecological-transition sectors, including specific auctions for investments in the Amazon region and bioeconomy interventions (Government of Brazil, 2026).

Engaging the private sector can also involve carbon markets, such as the approach of jurisdictional REDD+ transactions, especially from February 2020 with the creation of ART-TREES, which aggregate public and private demand for high-integrity forest carbon credits issued by national and subnational forest governments (LEAF Coalition, 2026). These mechanisms are part of a broader shift toward instruments that link private-sector

investment to measurable environmental outcomes (OECD, 2025; Carter et al., 2026). This trend is not as a replacement for public finance, since public investment and philanthropy remain crucial to the biodiversity-finance landscape despite the growing role of return-seeking mechanisms (Carter et al., 2026). Private capital requires predictable revenue streams, so that governments and multilateral development banks remain central to improving the risk-return profile of investments and creating enabling conditions for private finance (OECD, 2025; Carter et al., 2026). Scaling private-sector participation in tropical forest finance depends on public policies that mitigate risks, while ensuring strong ecological and social safeguards (OECD, 2025; Carter et al., 2026).

In addition to increasing engagement from the private sector, another emerging trend in climate and forest finance is increasing direct financing for Indigenous Peoples, Local Communities, and Afrodescendant Peoples. These forest-reliant communities manage or hold customary rights over approximately 37% of the world's remaining natural lands (Garnett et al., 2018), with an overall tendency that areas managed and/or owned by Indigenous Peoples have low-intensity land uses (Garnett et al., 2018; Walker et al., 2020). In the Amazon Basin, granting collective rights to Indigenous Territories and Protected Areas promotes secondary forest regrowth (Baragwanath et al., 2023) and lowers deforestation rates (Qin et al.,

Yet, these groups and their territories receive only a small portion of funding from climate finance. One estimate indicates that they receive only 1% of official development assistance (ODA) for climate finance (Fabris, 2025), with resources intermediated through governments, multilateral agencies, or international NGOs rather than reaching local communities directly. Another estimate indicates that funding for land tenure rights and forest guardianship, which is an enabling

condition for forest-based communities to continue to manage those territories, stands at just USD270 million per year (Baker & Smith, 2025). In response to these gaps, there is growing emphasis on mechanisms that direct financing to locally led conservation. Shandia's Seven Principles for Direct Financing (Table 3), co-designed by the Global Alliance of Territorial Communities (GATC), exemplifies a framework for direct financing.

Principle	What It Means in Practice
We are key actors	Indigenous Peoples (IPs) and Local Communities (LCs) must lead all phases of funding and decision-making in their territories, with full respect for free, prior, and informed consent (FPIC).
Our territories are inseparable from us	Finance must reinforce territorial rights across all IPs' and LCs' territories. Solidarity among IPs and LCs is essential—no region can be sacrificed for another.
We know what is best for our territories	Finance must align with IPs' and LCs' strategies and rely on their own institutions. Flexibility is required to reflect diverse governance arrangements.
We have legitimate community governance	Finance must support inclusive leadership chosen through traditional governance systems, prioritizing women, youth, and elders.
We need stability	Finance must be predictable and long-term, respecting territorial protection as a core priority and recognizing complex political realities.
We can learn together	Finance should strengthen capacities in line with IPs' and LCs' structures. Donors must adapt to languages, decision-making processes, and cultural expressions.
We must have access to all information	Finance must be transparent and accountable to both donors and IPs' and LCs' organizations. Monitoring and reporting should be culturally appropriate and accessible.

Table 3. The Shandia Principles for Direct Financing to Indigenous Peoples and Local Communities⁸ Source: Derived from Global Alliance of Territorial Communities (2025).

A fourth innovation is the gradual shift from financing mechanisms focused exclusively on avoided deforestation toward approaches that recognize the value of maintaining

forest cover. As highlighted in Section 2, tropical forests provide continuous ecosystem services (e.g., climate regulation, moisture recycling, and biodiversity

⁸ While these principles reflect extensive practitioner experience and territorial leadership perspectives, it is important to note that they have not been peer-reviewed, nor do they represent a formally consented normative standard across all IPs and LCs bodies. They are presented here as an example of an emerging governance framework by local organizations.

conservation) that far exceed the marginal benefits of incremental deforestation reductions (Costanza et al., 2017; Seymour et al., 2022). However, results-based REDD+ frameworks have been linked to verified emissions reductions, which have generated fewer payment opportunities for high-forest, low-deforestation countries and jurisdictions than for places with higher historical forest loss (Hubau et al., 2020; Jung & Kim, 2025; Streck, 2021). While REDD+ was intended to also promote sustainable forest management (Sills et al., 2014), research indicates that countries with high-forest cover and low deforestation have received under USD 2 billion in climate finance from 2007 to 2019 (The Nature Conservancy, 2024).

22 To address this, jurisdictional, territorial, and landscape-based mechanisms have emerged that combine payments for standing forest area with traditional REDD+ financing based on verified emissions reductions (Sunderlin et al., 2024).⁹

Finally, related cross-cutting developments in forest finance include the numerous efforts to value natural capital and translate forest assets and ecosystem services into accounting, pricing, and payment methodologies. These efforts include natural capital accounting (Dasgupta, 2021; World Bank Group, 2025), spatial ecosystem-service valuation

(Strand et al., 2018), payments for ecosystem services (Börner et al., 2017), biodiversity-credit methodologies (Salzman et al., 2018), and forest-asset accounts that attempt to measure forests as stocks of natural wealth and flows of ecosystem services (World Bank Group, 2025). In tropical forest contexts, these approaches can help inform payment design and strengthen the case for direct financing.

Integrated forest finance mechanisms that recognize tropical forests as providers of global environmental services are needed at scale (Chiavari & Costa, 2025). Crossing tipping points in the Amazon could disrupt South American water and food markets through reduced rainfall (Beveridge et al., 2024; Leite-Filho et al., 2021; Lovejoy & Nobre, 2018); further degradation in peatlands in the Congo Basin could destabilize water cycles, affecting African GDP (Hubau et al., 2020); and more frequent peat fires in Borneo already generate billions in annual losses across Southeast Asia (Kopplitz et al., 2016; Page & Hooijer, 2016). These interconnected risks illustrate why single-region approaches are insufficient. These points also highlighted the fact that the emergence of integrated financing mechanisms represents a unique opportunity for aligning financial incentives with the socioeconomic and ecological value of tropical forests.

9 For example, Finance for Resilient Landscapes, launched by Proforest, Conservation International, and The Nature Conservancy in 2026, seeks to connect landscape and jurisdictional initiatives in Brazil and Indonesia with companies and financial institutions to scale finance for nature-positive production and conservation.

5. The Case of the Tropical Forest Forever Facility (TFFF)

The Tropical Forest Forever Facility (TFFF) illustrates emerging directions in forest finance. Announced by the government of Brazil at COP28 in Dubai and launched at the Belém Climate Summit, the facility combines (1) an innovative capitalization structure designed to mobilize private capital through sponsor capital; (2) forest monitoring metrics that are comparable across tropical countries; (3) long-term financing for standing forests; and (4) performance-based incentives that can complement existing mechanisms, such as REDD+. Developed with broad international support, the TFFF Launch Declaration was signed by more than 50 tropical forest and potential investor countries. For this reason, the TFFF is used here as a case study to illustrate how integrating forest finance aspects could strengthen conservation of tropical forests.

First, unlike traditional forest finance mechanisms that rely primarily on grants and concessional funding, the TFFF structure includes a global investment fund (the Tropical Forests Investment Fund, see Figure 2). This structure is innovative because it uses sponsor capital (primarily, of public sources) as risk-

bearing debt rather than as one-off grant funding. By taking a lower repayment priority and absorbing greater risk, approximately USD25 billion in sponsor capital from sovereign wealth funds is designed to leverage up to USD100 billion in senior debt from debt capital markets, pension funds, insurance companies, and institutional investors. The sponsor capital is allocated in fixed-income assets, which exclude coal, peat, oil, and gas. The interest returned from these investments pays back investors and enables long-term funding. The difference in the interest received and the amount paid to investors create a margin used to pay eligible tropical forest countries for forest conservation (TFFF, 2025). In this sense, the facility illustrates a broader movement in forest finance toward blended-finance structures that use concessional capital, guarantees, and other instruments to bring private investors while still maintaining a public-interest objective (Lay et al., 2018).

The second innovation is the use of comparable funding allocation metrics across tropical forest countries (Figure 3). Provided that they meet the eligibility criteria of the mechanism (see below), countries will receive ~USD4 per year for each hectare of forest observed in their territory in the preceding year. Any deforestation, however, would be penalized with a reduction in payments

CAPITALIZATION STRUCTURE

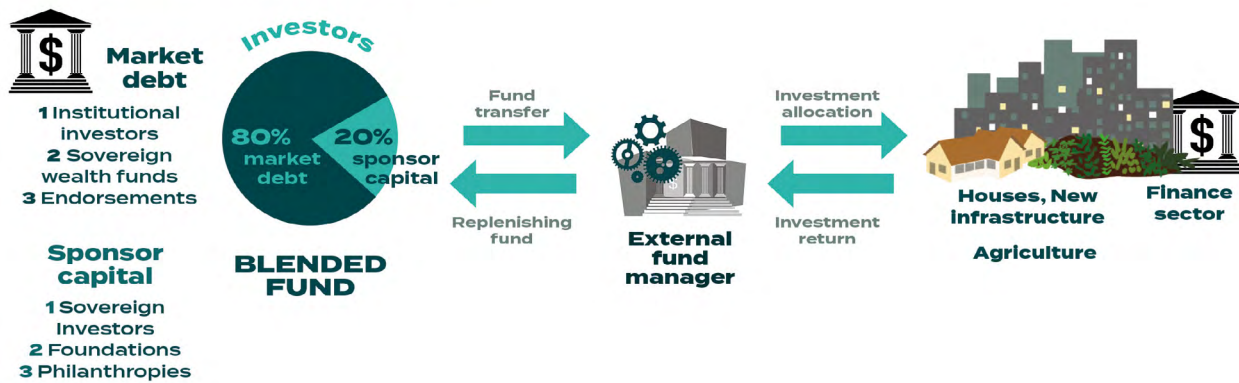


Figure 2. Tropical Forest Forever Facility Capitalization Structure. To generate funds for the TFFF, a Tropical Forests Investment Fund (TFIF) is created. TFIF combines sponsor capital from sovereign investors, foundations, and philanthropy with debt capital markets, pension funds, insurance companies, and institutional investors. An external fund manager allocates capital to an investment portfolio, and returns generated through the portfolio are used to repay investors and replenish the fund.

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worth 100 times the annual value (i.e., USD400/ha), aligning incentives and disincentives for conservation and deforestation.¹⁰ By relying on standardized metrics for forest cover, deforestation, forest degradation, and reforestation, the TFFF can support more comparable finance allocation across countries, complementing instruments that are harder to aggregate across projects, such as carbon markets (West et al., 2023, 2020) and biodiversity-based credits (Carter et al., 2026). To access the fund, countries need to meet eligibility requirements that include (a) annual forest cover reporting, (b) a minimum commitment of 20% dedicated fund allocation to Indigenous Peoples and Local Communities, (c) reaching adequate public fund management,

and (d) a standard satellite monitoring system. The requirement of 20% allocation to Indigenous Peoples, Afrodescendant Peoples, and Local Communities is a meaningful distributive innovation because it creates a dedicated funding channel for locally led conservation (TFFF, 2025). This design allows the facility to award forest conservation across the tropics at the landscape level, and it increases incentives for monitoring forest cover.

Third, at full capitalization, the TFFF is expected to generate approximately USD4 billion per year in forest payments, representing a significant increase in financing for tropical forests. The Forest & Climate Leaders' Partnership (FCLP),

¹⁰ The use of forest extent as a basis for allocating tropical forest finance has antecedents in earlier proposals. A 2018 proposal for a Tropical Forest Finance Facility linked countries' allocations to both forest-protection performance and natural forest extent, using standardized satellite monitoring (Lay et al., 2018). The *Tropical Forests Mechanism* subsequently developed this approach into a more explicit per-hectare framework for rewarding standing forest while applying substantially higher deductions for deforestation (Amazônia 2030, 2024).

FOREST PAYMENT PROCESS

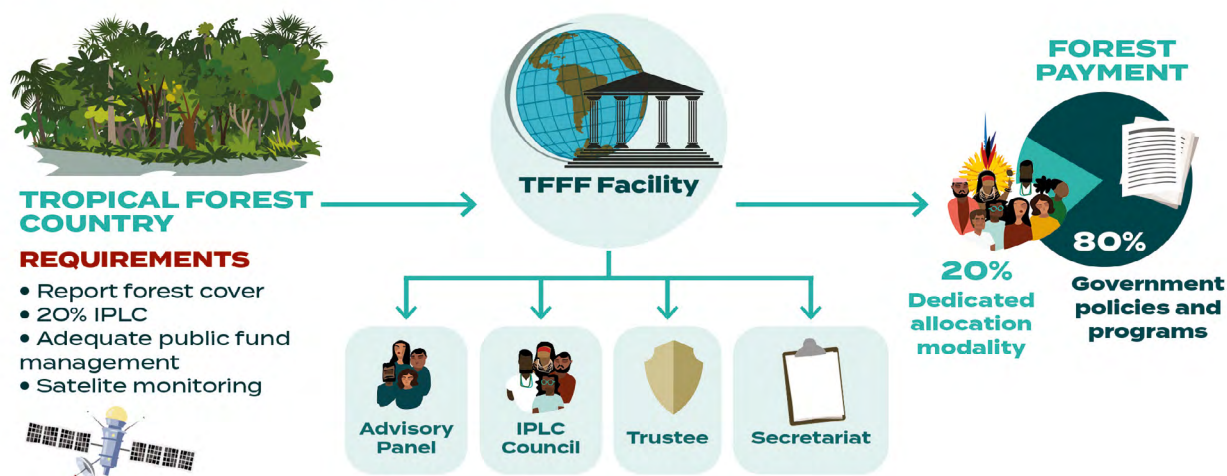


Figure 3. Tropical Forest Forever Facility Forest Payment Process. Forest payments are transferred to eligible tropical forest countries through the facility, based on forest cover reporting, public fund management, and satellite monitoring. At least 20% of forest payments are allocated to Indigenous Peoples, Afrodescendant Peoples, and Local Communities (abbreviated above as IPLC for space), while the remainder supports direct payments to forest stewards and government policies for forest conservation. Source: Authors' illustration, based on TFFF Concept Note 3.0 (2025).

in collaboration with the government of Brazil and with the support of the UNEP, estimates that the TFFF alone could meet approximately one quarter of the estimated annual finance gap for tropical forest conservation by 2030 (25% of USD15.8 billion; FCLP, 2025, p. 29; TFFF, 2025). Combining TFFF with jurisdictional REDD+ programs could meet more than 50% of the forest protection needs by 2030 (FCLP, 2025, p. 27). Figure 1 provides another indicative benchmark for TFFF's impact in financing, although not a strict comparison, since the selected financial intermediary funds (FIFs) have different mandates and accounting structures. A recurring USD4 billion annual flow dedicated to tropical forest conservation would be comparable to the upper

range of annual contributions historically mobilized across major climate and environmental FIFs combined. Because the facility is designed as an endowment-like investment vehicle, it seeks to provide recurring flows rather than relying primarily on one-off grants. In that way, it is estimated that after 40 years, retained capital would replace sovereign investment (TFFF, 2025, p. 41), enabling long-term perspective in financing tropical forests. This responds to evidence that funding uncertainty may undermine conservation (Lay et al., 2018; Miller et al., 2013).

Finally, the TFFF strengthens incentives for integrated forest monitoring by linking country-level payments directly

to forest-cover performance, with deductions applied for deforestation and forest degradation. Based on 2025 forest-area estimates, Table 4 shows that full capitalization could generate USD4.2 billion in annual payments across eligible countries. Due to estimated deductions of USD1.2 billion for deforestation and USD577 million for forest degradation, the final payments would yield approximately USD2.3 billion.¹¹ For instance, the Democratic Republic of the Congo would receive USD457 million in the estimated model under full payment, but because of the deduction in payments would instead receive USD207 million. The TFFF also requires countries with less than 90% of their forests in tropical and subtropical biomes to monitor all forest types (TFFF, 2025, p. 12). In practice, this means that deforestation trends in the Brazilian savanna (i.e., Cerrado) would also need to be monitored for the country to be able to receive forest payments. Deforestation leakage risk is further mitigated if the TFFF works complementarily with REDD+ (TFFF 2025, p. 81-86). The TFFF incentive structure, therefore, offers a simplified

approach to rewarding countries that integrate policies in forest conservation, deforestation reduction, and fire management (Chiavari & Moura Costa, 2025), without the need to rely on approaches that require demonstration of additionality, prevention of leakage and promises of permanence. The approach will be further strengthened with development banks' support and alignment with regional priorities.

The TFFF example offers lessons for integrating forest finance, such as the importance of providing long-term investment predictability that can complement aid-based finance and using standardized forest-area metrics to recognize the value of standing forests (Carter et al., 2026). It should be noted that the USD4 per hectare per year that the TFFF awards is only the base rate for country-level payments; it is not a uniform per-hectare transfer to all forest areas within a country. In fact, national-level flows can be allocated strategically to priority territories. In this sense, the innovation lies in mobilizing predictable flows that

11 Payments are calculated using a base rate of USD4 per hectare of forest, subject to performance-based discounts for deforestation and degradation. For countries with deforestation rates below 0.3% per year, each hectare deforested reduces payments by the equivalent of USD400. This is the case for eight of the ten countries with tropical forests, including Brazil and the Democratic Republic of the Congo. For countries with deforestation rates between 0.3% and 0.5%, each additional hectare deforested is discounted at USD800. While there are no cases of this in the countries listed below, other countries eligible for TFFF meet that criterion, which explains the overall deforestation across all tropical regions being 0.3%. Countries with annual deforestation rates above 0.5% are ineligible for forest payments, which is the case for Indonesia and Bolivia in the estimates generated below. In addition to the deforestation-related discount, a discount is applied toward forest hectares affected by fire on the order of USD140 per hectare.

Selected countries	Tropical forest area (Mha)*		Forest monitoring indicators (%)**		Forest payment (USD million/year)			
	2024	2025	Deforestation	Degradation	Full payment	Deforestation discount	Degradation discount	Final payment
Brazil	324	323	0.22%	0.35%	1,291,880	282,500	156,694	852,686
Democratic Republic of the Congo	115	114	0.28%	0.49%	457,828	128,121	79,116	250,591
Indonesia	111	111	0.51%	0.24%	443,600	450,174	36,688	-
Peru	70	70	0.26%	0.11%	279,252	72,252	10,808	196,193
Colombia	63	63	0.16%	0.13%	250,972	39,139	11,490	200,343
Bolivia	26	26	0.85%	0.88%	103,248	176,244	31,689	-
Venezuela	41	41	0.04%	0.10%	162,972	5,838	5,962	151,172
Papua New Guinea	39	39	0.06%	0.14%	154,912	9,115	7,542	138,256
Gabon	24	24	0.05%	0.05%	95,484	4,997	1,623	88,864
Republic of the Congo	23	23	0.12%	0.13%	92,088	10,867	4,251	76,970
Total across all tropics***	1,061	1,058	0.30%	0.39%	4,232,532	1,269,760	577,741	2,385,032

* Tropical forest area includes undisturbed tropical moist forest, degraded tropical moist forest, and forest regrowth.

** Rates include changes between 2024–2025 calculated as total deforestation in 2025 divided by undisturbed tropical moist forest area in 2024, while degradation includes the category of degradation not followed by deforestation.

*** Estimate includes all tropical moist forests available in JRC. Actual values will depend on meeting other eligibility requirements set by the TFFF Secretariat.

Table 4. Estimated Annual Forest Payments Under Full Capitalization for the 10 Countries With the Largest Tropical Forest Area. Estimates assume a base payment of USD4 per ha/year applied to eligible areas in 2025, with deductions for deforestation and forest degradation based on 2024–25 forest monitoring indicators. Values are expressed in million USD; actual payments depend on final eligibility requirements, monitoring validation, and allocation rules established by the TFFF Secretariat. Sources: EC JRC (2026), TFFF (2025) and Castle et al. (2026).

countries can allocate strategically to priority territories, complementing regulatory enforcement, land-tenure security, socio-bioeconomy policies, payment for ecosystems services programs, and other conservation finance tools. The creation of the TFFF is a highly relevant step toward closing persistent gaps in forest finance across

the Amazon Basin, the Congo Basin, and Borneo. Its impact will depend on continued capitalization, strong implementation, credible national allocation systems, greater regulatory reforms, and the ability of investors to treat tropical forests as worth their full value.

6. Conclusions: Financial Redirection Strategies

This issue brief highlights a persistent challenge: **forests in the Amazon Basin, the Congo Basin, and Borneo function as global infrastructure for climate regulation, water cycling, biodiversity conservation, and sustainable livelihoods, yet the financing for them remains insufficient.**

The result is chronic underinvestment in tropical forests and a widening gap between what science identifies as necessary and the level of financing delivered. A coherent response requires a redirection of forest finance. Effective integration must operate at territorial and landscape scale, deploy comparable monitoring methods, and align incentives with ecosystem-service provision. Payment structures should reflect the value of ecosystem services as established by scientific research, rather than uniform frameworks (Strand et al., 2018).

To bridge the financing gap, it is necessary to build on the momentum from Brazil's COP30 presidency to unlock the facility's potential. Combining mechanisms like jurisdictional REDD+ and the TFFF mark a significant innovation over previous project-based approaches, and this can meet over half of the finance gap in forest

protection (FCLP, 2025). Integrated tropical forest finance must also direct more predictable flows toward tropical deforestation frontiers and toward mechanisms that can withstand political and market cycles. Governance arrangements need to move toward the most effective stewards by enabling direct access, long-term security, and accountability consistent with rights-based safeguards.

Unlocking this potential depends on addressing structural challenges, such as reshaping power dynamics to enhance direct engagement in decision-making informed by evidence of conservation effectiveness and establishing governance frameworks that prioritize ecological integrity based on long-term sustainability (Young & Castro, 2021). Progress will also depend on reinforcing environmental enforcement, improving land-tenure security, and designing financial mechanisms that are sufficiently predictable, adaptable, and institutionally resilient to operate across political and economic cycles (Azevedo-Ramos et al., 2020). By embedding these enabling conditions into emerging forest-finance architectures, current initiatives can enable lasting conservation outcomes and more equitable development pathways.

The case for mobilizing finance to maintain tropical forests is grounded in evidence. This issue brief shows that the global benefits of forest conservation far outweigh the investment costs, yet current financing mechanisms remain insufficient and fragmented. In this context, the TFFF represents a crucial innovation in aligning forest finance with scientific evidence that calls for scaling financial mechanisms in ways that recognize the priceless ecosystem services tropical forests provide. As time passes, the cost of climate inaction continues to rise. The evidence presented in this issue brief supports a straightforward conclusion: the cost of inaction exceeds the cost of integrated forest finance. The brief provides a clear case for the development of innovative financial strategies that can scale forest finance to ensure the long-term preservation of tropical forests as critical global infrastructure for climate, water, biodiversity, and sustainable livelihoods.

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