COP30 PRESIDENCY ROADMAP

on Enhancing Efforts Towards Halting and Reversing Deforestation and Forest Degradation by 2030

Implementing the Global Stocktake of the Paris Agreement

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FOREWORD

President Luiz Inácio Lula da Silva saw COP30 as the moment when the multilateral climate regime would have to prove that it could deliver: the COP of Truth. "The era of declarations of good intentions has ended: the time for action plans has arrived," he wrote as the conference was about to begin. At the Leaders' Summit in Belém, he went further: "The world needs a clear roadmap to end its dependence on fossil fuels."

That call changed the conversation at COP30. Having listened closely to the intense debate among Parties and non-Party stakeholders, the COP30 Presidency felt bound to pursue the possibility it opened. At the closing plenary, and in the context of the COP being held in the Amazon, I committed to developing, under my responsibility as President of COP30, Roadmaps for implementing two outcomes of the First Global Stocktake, agreed by consensus at COP28 just two years earlier: (i) transitioning away from fossil fuels in energy systems in a just, orderly and equitable manner; and (ii) enhancing efforts towards halting and reversing deforestation and forest degradation by 2030. With their publication, that commitment is fulfilled.

Both transitions depend on finance. The two Roadmaps are therefore presented alongside a third document, Implementing the Baku to Belém Roadmap to 1.3T, which sets out how financing to developing countries for climate action can be scaled up from all public and private sources to at least US$ 1.3 trillion per year by 2035. Read together, the three documents describe what has to change and propose ways forward so that change can be financed and sustained.

All three are the result of a year of extensive consultations with governments, regulators, international organizations, experts, civil society and the private sector, with significant contributions from the advisory committees and Circles of the COP30 Presidency. As I said at the time, they are contributions to the implementation of decisions adopted under the UNFCCC, the Kyoto Protocol and the Paris Agreement. Those decisions were all negotiated to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances. As raised in consultations, the principle lies at the heart of the regime, together with other principles enshrined in the 1992 Convention: the specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable; precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects; the promotion of sustainable development as both a right and a duty; and cooperation to promote a supportive and open international economic system. Far from contradictory, these principles are all mutually supportive.

Common but differentiated responsibilities are often invoked as a line of division between developed and developing countries, yet the record shows that it has not stood in the way of consensus. Year after year, COPs continue to adopt important decisions, many of them with particular attention to the poorest and most vulnerable. As expressed during the consultations, beyond dynamics among countries, common but differentiated responsibilities could also guide implementation within countries, where responsibilities and capabilities are often unequal, given that the climate crisis and wealth inequality are

deeply interconnected. Countries and stakeholders can reflect on the domestic application of this principle alongside the consideration of needs and special circumstances of the most vulnerable.

Belém marked a turning point. In the Global Mutirão decision, Parties resolved "to decisively transition to a focus on the implementation of the Paris Agreement and decisions adopted since its first session," acknowledging that "the transition towards low greenhouse gas emissions and climate-resilient development is irreversible and represents the trend of the future." With the Paris Rulebook complete and a large body of decisions adopted by consensus, the regime has the mandates and instructions it needs. Refinements will continue to be negotiated, but our shared decisions already allow us to focus on implementation. The purpose of the three documents presented by the COP30 Presidency is to help put into practice what Parties have already agreed. We hope they will inform both the international debate and domestic pathways.

What the regime requires now is accelerated action. This shift opens extraordinary opportunities for cooperation, because negotiation and implementation follow different logics. Negotiation is intergovernmental and requires consensus among Parties. Implementation involves all actors, not only States. At the national level, it rests on the sovereign decision of each country, expressed through Nationally Determined Contributions and National Adaptation Plans. It can also take the form of cooperation among countries and non-State actors willing to move together.

Coalitions of developed countries, of developing countries, and of both are already implementing together, even where they hold different positions in the negotiating room. They are joined by the private sector, subnational governments, civil society, Indigenous Peoples and local communities, and academia, working towards concrete, shared objectives.

The restructured Action Agenda presented in Belém was based on the outcome of the First Global Stocktake, achieved by consensus. With its plurilateral and multistakeholder initiatives, the Action Agenda has shown how much such cooperation can achieve in mitigation, adaptation and finance. By consolidating this approach, Belém allows implementation to advance at the pace the crisis demands, while negotiations continue to build consensus. This two-tier multilateralism has all the elements needed to accelerate action towards the goals of the Paris Agreement.

As President Lula said, the time for action plans has arrived. These three documents are offered in that spirit to Parties, to the incoming Presidencies of COP31 and COP32, and to every government, institution and community ready to take part in our global Mutirão against climate change.

André Aranha Corrêa do Lago
President of COP30

INTRODUCTION

Accelerating implementation: the role of the Roadmap

The COP30 Presidency Roadmap on Enhancing Efforts towards Halting and Reversing Deforestation and Forest Degradation by 2030 was announced in the COP30 closing plenary. It responds to the need to support implementation of the outcomes of the first Global Stocktake (GST)[1], in particular its call to enhance efforts towards halting and reversing deforestation and forest degradation by 2030.

It does not create new commitments, constitute a negotiated outcome, or seek to establish a new international framework. Rather, it brings together evidence, implementation experiences and solutions to inform discussions on how existing efforts can be accelerated through country-led action and stronger international cooperation. It is a global effort, encompassing action across major forest domains, including tropical, subtropical, temperate and boreal forests, as well as forest-related ecosystems, such as peatlands and mangroves.

The Roadmap draws on a broad multi-stakeholder process. More than 180 contributions were submitted through the UNFCCC website, complemented by over 100 engagements and five official international in-person events. These inputs brought together perspectives and implementation experiences from governments, international organizations, civil society, Indigenous Peoples, Local Communities, the private sector, financial institutions, and the research community.

Drawing on these inputs, available evidence and the many excellent reports produced by institutions that have been working on forests for years[2], the Roadmap organizes its analysis around five forest dimensions and structured in three parts. Part I looks at the national efforts, Part II at international architecture and Part III at finance. The proposals build on this analysis to identify opportunities for accelerating implementation through 2030.

The window to accelerate implementation is narrowing. A substantial set of commitments, knowledge, solutions and implementation experience already exists, but greater pace and scale are needed to translate them into results. This Roadmap seeks to support countries in pursuing pathways that respond to their circumstances and priorities, alongside stronger international cooperation and finance on enhancing efforts towards halting and reversing deforestation and forest degradation by 2030.

Aligning the Roadmap with the first Global Stocktake

Across the diversity of national circumstances, the international community has already agreed on a common forest-related outcome for 2030. The urgency of delivering this outcome is further underscored by the latest science. The 2026 UNEP Limiting Overshoot report assesses what happens if global warming exceeds 1.5°C before returning below it. Sustained warming above 1.5°C raises the risk of triggering tipping points, including in the Amazon rainforest, leading to forest loss that may persist even after temperatures decline[3]. The first Global Stocktake established a clear direction for collective action on forests. Paragraph 33 emphasizes the importance of conserving, protecting, and restoring nature and ecosystems towards achieving the Paris Agreement temperature goal, including through enhanced efforts towards halting and reversing deforestation and forest degradation by 2030, alongside action on other terrestrial and marine ecosystems acting as sinks and reservoirs of greenhouse gases, and conserving biodiversity with social and environmental safeguards, in line with the Kunming-Montreal Global Biodiversity Framework[4]. This implies that the aggregate global forest area should stabilize by 2030, and that this objective should be implemented collectively by all countries, according to their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances, consistent with the Preamble and Article 2.2 of the Paris Agreement.

Paragraph 34 of the GST further notes the need for enhanced support and investment for these efforts, including through financial resources, technology transfer, and capacity-building, in the context of sustainable development and poverty eradication and in accordance with Article 5 of the Paris Agreement. It highlights the importance of results-based payments for policy approaches and positive incentives for activities relating to 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. It also recognizes alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, the non-carbon benefits associated with these approaches.

The challenge

Forests cover roughly one-third of the Earth's land surface, help to regulate the global climate, store vast reserves of carbon, sustain biodiversity, and underpin the livelihoods and cultures of hundreds of millions of people.[5, 6] Agriculture, Forestry and Other Land Use (AFOLU) sector, including deforestation and forest degradation, accounts for roughly 20% of global greenhouse gas emissions during 2010-2019, which highlights the importance of forests to the 1.5°C goal and the relevance of this Roadmap[7]. Their conservation, sustainable use and recovery are central to the world's ability to meet its climate, biodiversity and development goals.

Despite progress in reducing global deforestation rates over recent decades, achieving the global 2030 forest outcome remains a challenge. Based on country-reported data and supplementary estimates compiled by the Food and Agriculture Organization of the United Nations (FAO) for the Global Forest Resources Assessment (FRA) 2025, the estimated global

annual rate of deforestation declined from 17.6 million hectares per year in 1990–2000 to 10.9 million hectares per year in 2015–2025.[5] Even so, deforestation remains considerable and geographically concentrated: tropical forests represent approximately 45% of global forest area but accounted for 88% of global deforestation between 1990 and 2025. Nevertheless, contrasting trends across different regions illustrate that the aggregate decline in global deforestation rates does not capture the full diversity of forest-loss dynamics worldwide.

Forest degradation presents a distinct and multifactorial challenge that can be more difficult to identify. Forest degradation involves a deterioration in forest conditions, while the land retains some of its forest characteristics. It affects biomass, biodiversity and soils, and reduces the forest's capacity to provide environmental, economic, and socio-cultural benefits. National approaches to defining and monitoring forest degradation may also vary considerably. FAO identifies substantial differences across countries in the definitions and criteria applied, the monitoring systems and methods used, and the information available on the extent of degraded forests. No single global indicator adequately captures its full extent or many forms, making it one of the most persistent gaps in the global forest reports. Fire can be an important driver of forest degradation, and burned forest areas therefore provide a useful indicator of the extent of forests affected by fire. The contribution of fire to the degradation of all types of forests depends on factors such as its frequency, intensity, and severity, as well as the ecological context in which fires occur. In this regard, available data indicate that burned forest area increased through the first half of the 2010s and, despite a subsequent decline, remained above levels observed in the 1990s during 2020–2025.

It is also worth mentioning that climate change is making forests increasingly vulnerable to degradation through effects that compound and reinforce one another.[5] Degraded forests store less carbon, lose biodiversity and become even more exposed to new disturbances. The result is a feedback loop in which degradation releases emissions that further worsen climate change.

Broad country participation in forest assessments provides an extensive evidence base, but does not necessarily ensure complete and comparable information on every aspect of forest change. The Global Forest Resources Assesment 2025 reporting process covered most of the world's forest area; countries and territories that did not submit national reports accounted for 1.6% of global forest area in 2025.[5] Information gaps also persist within national reports, and limitations to comparability are particularly pronounced for degradation. Countries and territories reporting official national definitions of forest degradation accounted for about 37% of global forest area; others reported using alternative definitions or operational criteria. Among those that provided definitions or assessment criteria, approximately three-quarters reported having attempted to monitor the extent of degradation.[5] Addressing these limitations is important to establish a clearer baseline of where countries stand and, from there, better understand and address the scale of the challenge ahead.

The drivers of deforestation and forest degradation differ, although some may contribute to both processes, and their relative importance varies substantially across countries, regions, and forest types. At the global level, the main direct drivers of deforestation include legal

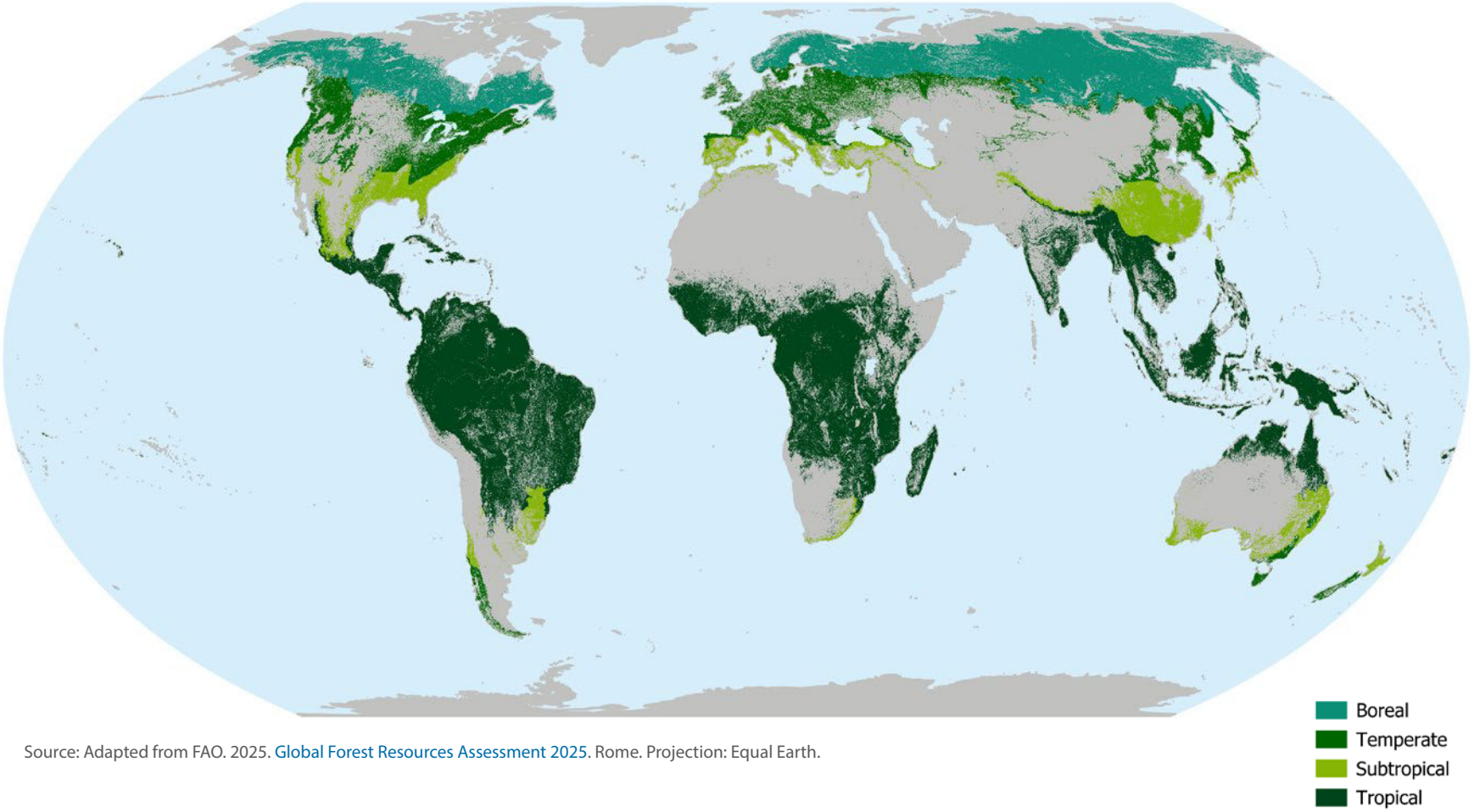
and illegal activities, in areas such as agricultural expansion, infrastructure development including hydroelectric power plants and transport networks, mining, fuelwood collection and urban expansion.[8, 9]

Important activities causing forest disturbances that can lead to degradation include unsustainable logging and timber extraction, unsustainable fuelwood collection and charcoal production, overgrazing in forests, and overhunting—which can in turn cause defaunation, the depletion of animal populations with consequences for seed dispersal, forest regeneration and ecological function. Other disturbances, including uncontrolled fire, drought, storms, pests and diseases, can contribute to forest degradation.[10] Assessing forest degradation requires interpreting changes in forest condition in relation to the ecological characteristics of each forest type, the nature and duration of disturbances, and the extent and timescale of recovery. The occurrence of isolated instances of disturbance is insufficient to establish degradation; its effects on forest condition and functions, and the persistence of those effects, also need to be considered. In tropical forests, degradation is often associated with fire, poorly managed selective logging, edge effects, and fragmentation.[11] In dry forests, repeated drought, fire, overgrazing and overharvesting of forest resources, including fuelwood, can contribute to degradation and constrain natural regeneration.[12] Temperate and boreal forests can be particularly affected by disturbances such as fire, pests, and severe weather.[5]

Both deforestation and forest degradation are also shaped by underlying social, economic and institutional conditions, including markets and commodity prices, policies and incentives, governance and institutional capacity, land and resource rights, poverty, landlessness, conflict, technological change, and investment. These factors interact differently across territories. Where activities such as clearing, logging, mining, hunting or land occupation occur illegally, limited capacity to detect violations and enforce applicable sanctions can allow these pressures to persist or expand. Low probabilities of detection and sanction reduce the expected costs of non-compliance, placing lawful land and forest uses at a competitive disadvantage. Climate change can also intensify pressures on forests through changes in temperature, precipitation, drought, fire, pests, and other disturbances.

Figure 1 illustrates the areas of incidence of forests across tropical, subtropical, temperate and boreal climatic domains. Across and within these domains, the evolution of these forests cover differs in their ecological characteristics, biological processes and responses to disturbance, including the capacity and timescales for regeneration. The drivers of deforestation and forest degradation, the forms these processes take and their consequences for forest functions also vary substantially. These ecological differences intersect with distinct patterns of land use, livelihoods, governance and tenure, as well as unequal access to finance, technology, technical expertise and information. Figure 1 provides a broad context for understanding this diversity, while national and local assessments are needed to identify the pressures and conditions that shape action in particular landscapes. Given this diversity, there is no single pathway to halting and reversing deforestation and forest degradation: different national and local circumstances require different combinations of policy and implementation approaches. Countries' experiences in developing and applying these approaches provide a foundation for further progress, and international cooperation can help adapt them and scale up their implementation.

Figure 1. Location of areas of incidence of boreal, temperate, subtropical and tropical forests according to the Food and Agriculture Organization of the United Nations (FAO)



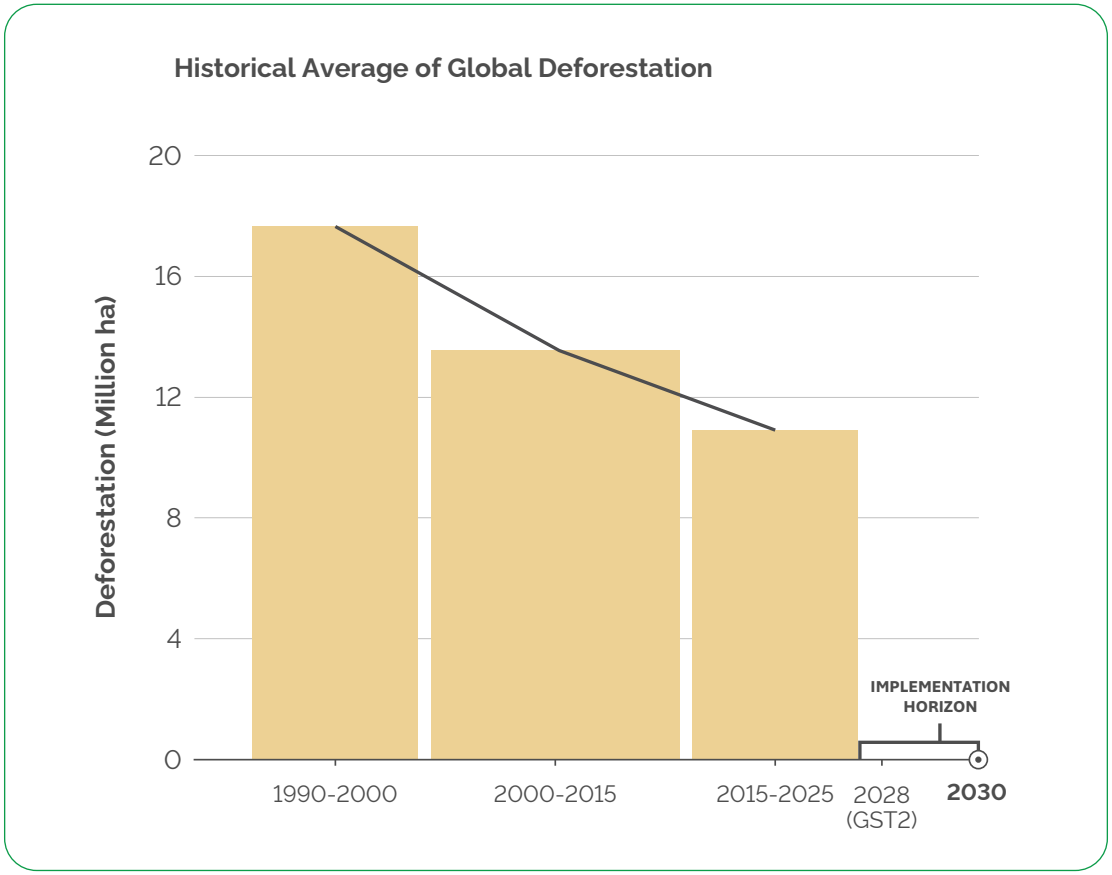
Source: Adapted from FAO. 2025. Global Forest Resources Assessment 2025. Rome. Projection: Equal Earth.

The Global Stocktake and the implementation gap

Current trajectories suggest that existing policies and measures are insufficient to achieve the global 2030 forest outcome. Figure 2 places average annual deforestation rates for successive historical periods, illustrating the scale of the reduction still required. Achieving this reduction will depend on stronger implementation and support, alongside efforts to reverse forest loss and address degradation. With only a few years remaining, achieving the Global Stocktake outcome will require a significant acceleration in the pace and scale of implementation.

The period from COP30 through 2030, including the process leading up to the second Global Stocktake, therefore represents a critical implementation time window.

Figure 2. Deforestation trajectory towards 2030



Source: Climate Policy Initiative (CPI) and COP30 Presidency, with data from FAO, Global Forest Resources Assessment (FRA 2025), Table 10, world totals, p. 18.

Note: Historical values represent average annual deforestation rates for 1990–2000, 2000–2015 and 2015–2025, expressed in million hectares per year. The 2030 endpoint represents the objective of halting deforestation and provides a reference for assessing the remaining implementation gap. Countries not reporting these FRA variables may represent a non-negligible share of global deforestation.

The growing costs and risks of delayed action

The costs and risks of failing to act expeditiously increase as forest loss and degradation continue. Forests help to regulate fundamental components of the Earth System. They store and remove carbon, influence climate and hydrological cycles, protect soils, sustain biodiversity and ecological connectivity, and support ecosystem resilience. Continued deforestation and degradation weaken these functions and can drastically impact forests' capacity to withstand and recover from disturbance. Climate change intensifies these pressures through rising temperatures, changing precipitation patterns, drought, fire, pests, and other disturbances. In turn, forest loss and degradation can exacerbate climate change and related impacts.

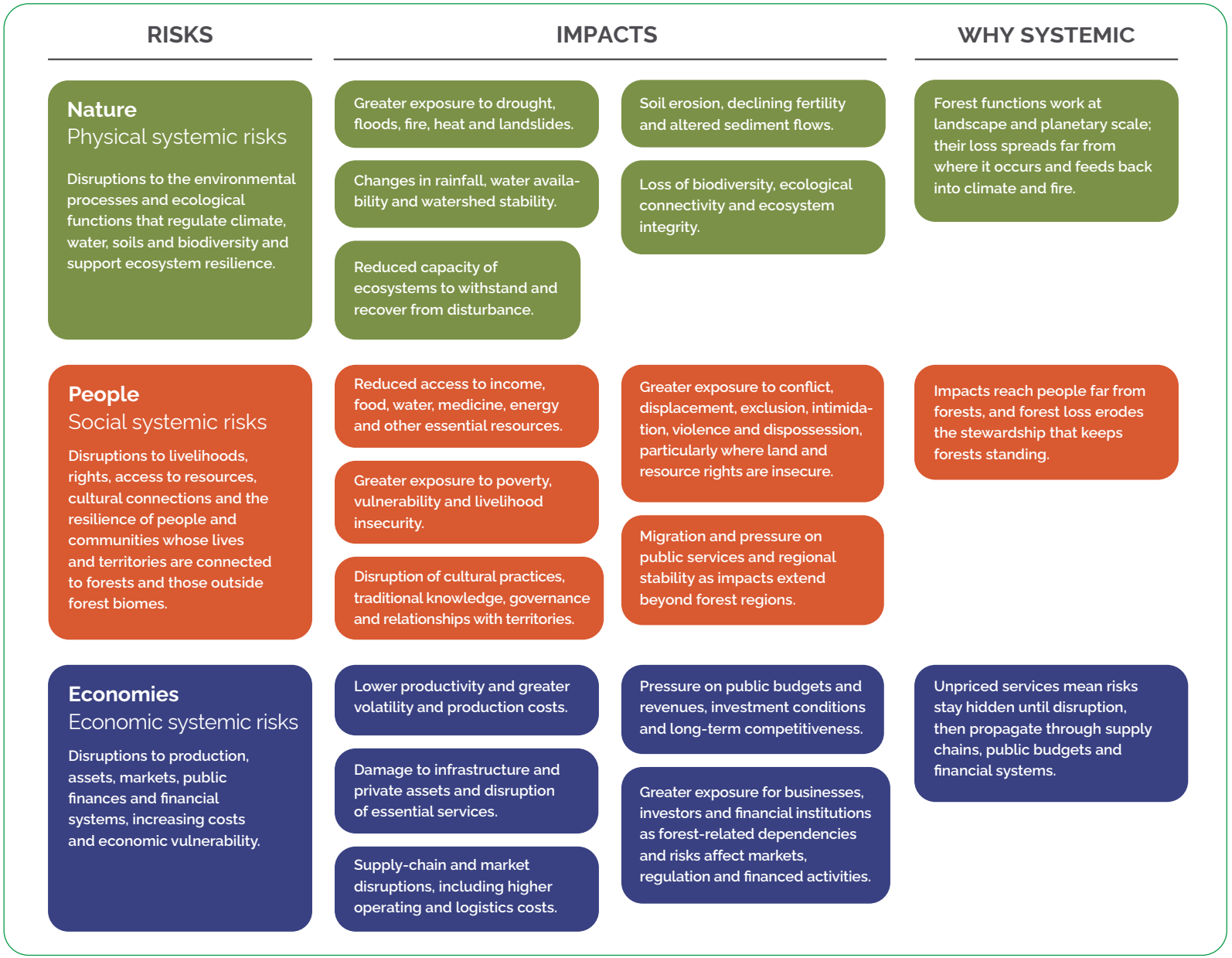
In some forest systems, interacting pressures and feedback loops can increase the risk of nonlinear changes and potential tipping dynamics. In the Amazon, increasing temperatures, droughts, deforestation, fire and other disturbances are placing increasing stress on the ecosystem. By 2050, an estimated 10–47% of Amazonian forests could be exposed to compounding disturbances capable of triggering unexpected ecosystem transition.[13] Recent evidence, however, does not support a single, basin-wide tipping point. Instead, critical thresholds are already being crossed at local and regional scales through changes in temperature and fire regimes, canopy loss, fragmentation and defaunation, which can progressively undermine forest resilience.[14] In boreal forests, warming and interacting disturbances, including drought, fire and insect outbreaks, can contribute to forest mortality and regeneration failure, with the potential for shifts towards less forested states. Substantial uncertainty remains the thresholds and geographic scale at which such transitions may occur.[15]

The risks arising from deforestation and forest degradation can become systemic as they extend across locations and sectors. Changes in forest conditions and associated declines in the capacity of forests to provide ecosystem services can create risks for food production, water, energy security, public health, infrastructure, and livelihoods. Indigenous Peoples, Local Communities and other forest-dependent populations can face particularly direct impacts where forest loss affects territories, livelihoods, food security, cultural practices, and traditional knowledge systems. As risks materialize, resulting impacts can propagate across regions and economic systems through supply chains, markets and infrastructure, increasing vulnerability far beyond forest frontiers.

Physical and social impacts can, in turn, translate into economic and financial risks. Declining ecosystem functions and services can reduce productivity, increase infrastructure and production costs, disrupt supply chains, increase pressure on public budgets, and affect long-term competitiveness way beyond the area where the forests are located. Illegal logging, land grabbing, illegal mining and other illicit activities can further distort markets, reduce public revenues, undermine legitimate businesses, and weaken institutions. As many forest-related dependencies and risks are not fully reflected in market prices and investment decisions, their economic consequences may remain underestimated until disruptions materialize.

As these risks accumulate and spread, the consequences of delayed action can become more severe and costly. Accelerating efforts to halt and reverse deforestation and forest degradation is therefore not only about avoiding further forest loss, but also about reducing interconnected climate, environmental, social, and economic risks.

Figure 3. The Interconnected Systemic Risks of Deforestation and Degradation



Source: Climate Policy Initiative (CPI) and COP30 Presidency.

Building on existing efforts

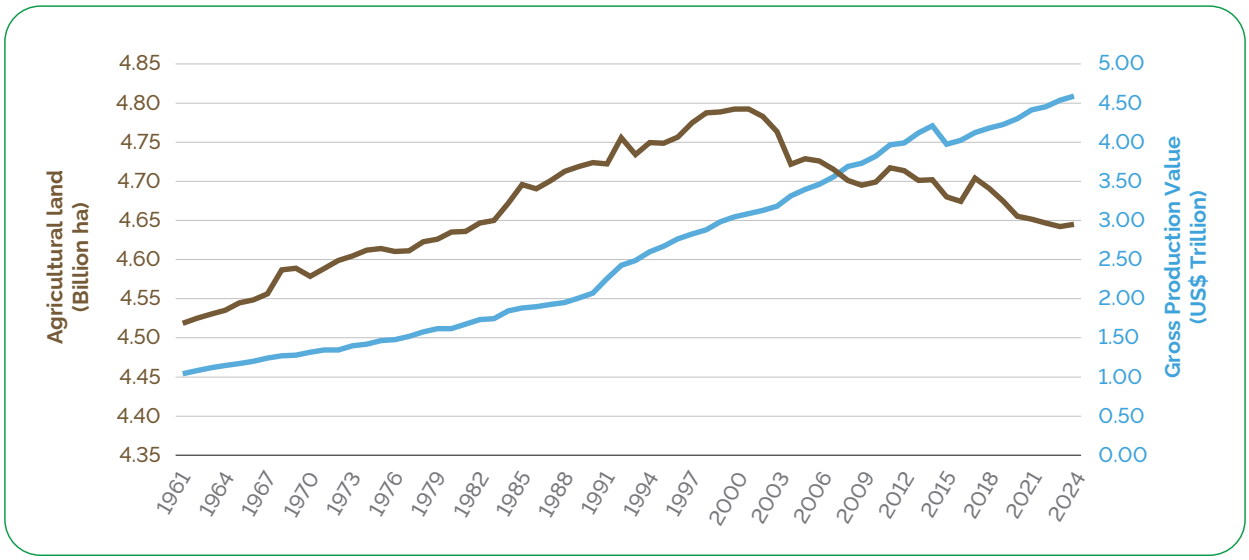
Accelerating implementation does not require starting from scratch: a substantial set of solutions and approaches already exists and can be built upon. Countries have developed policies, legal and institutional frameworks, monitoring systems, economic instruments, partnerships, and other mechanisms to meet their needs. These domestic efforts coexist and interact with decades of experience in international cooperation on forests, climate and sustainable development, from Agenda 21[16] to the current UNFCCC and Paris Agreement architecture, which have expanded the resources, knowledge and mechanisms available to support action in this domain. Nationally Determined Contributions[17], National Adaptation Plans[18] and the Enhanced Transparency Framework[19] perform different functions. Together, this accumulated national and international experience provides a substantial base on which accelerated implementation can be built.

Tailoring solutions require inclusive and holistic approaches. Indigenous Peoples and Local Communities are recognized through legal and customary systems as rights-holders with entitlements over lands, territories and resources recognized through legal and customary systems. Across many forest landscapes, they govern, use and manage forests through their own institutions, knowledge systems, customs and practices. These forms of governance and stewardship can contribute to forest conservation and sustainable use, the maintenance of biodiversity and ecosystem functions, and the recovery of degraded forests. Where policies and interventions affect lands, territories and resources over which Indigenous Peoples and Local Communities hold rights, implementation must take into consideration these frameworks.

Inclusive approaches also require attention to gender. Women, including Indigenous, Afro-descendant and local community women, often hold weaker rights to land and forest resources and have less voice in decision-making than men.[20, 21] Gender-responsive approaches, consistent with Target 23 of the Kunming-Montreal Global Biodiversity Framework[22] and the Belém Gender Action Plan adopted under the UNFCCC,[23] can strengthen both the fairness and the effectiveness of forest action.

Designing effective solutions requires adapting policy and implementation approaches to fit different national circumstances. Forest contexts, drivers, development priorities, and institutional capacities vary, and require different combinations of interventions. What works well in one setting may need to be redesigned for another, and no single intervention is likely to address the multiple, interacting drivers of forest loss and degradation on its own. Forest action does not need to come at the expense of development. In many countries that industrialized earlier, substantial forest conversion preceded or accompanied economic development, at a time when agriculture accounted for a larger share of economic activity and increasing agricultural output depended heavily on expanding cultivated and grazed land. The conditions facing countries today are different. Advances in agricultural productivity and technology have expanded opportunities to increase production on land already in use. Economic activity has become less land-intensive in many contexts, and the contributions of standing forest to climate stability, biodiversity conservation and the protection of water basins are far better understood. At the global level, agricultural land area and gross agricultural production value have followed different trajectories over the past six decades, illustrating that changes in agricultural output and agricultural land use are not necessarily coupled (Figure 4). These historical trajectories therefore do not determine future development pathways.

Figure 4. Global agricultural land area and gross agricultural production value, 1961-2024



Source: FAOSTAT, 2026.

Note: Gross production values in constant 2014–2016 US$ are calculated by valuing annual production quantities at the average producer prices observed during the 2014–2016 base period, thereby removing the effects of price inflation and allowing comparisons of production volumes over time. FAOSTAT data on forest area and change comes from the Global Forest Resources Assessments produced by the Food and Agriculture Organization of the United Nations (FAO).

Sustaining forest action also depends on making conservation, sustainable use and recovery of forests economically viable. In many forest landscapes, incentives and market conditions can favor conversion, while many of the economic and social benefits generated by forests are not fully reflected in markets and investment decisions. Policies and investments can help change these conditions by increasing the value generated from standing and recovering forests and by supporting economic activities compatible with maintaining forest functions. Sustainable forest management, agroforestry, forest-related bioeconomy value chains, payments for ecosystem services and other incentive- and result-based approaches can contribute to this, alongside regulatory measures. Their effectiveness depends on national and local contexts, governance arrangements, safeguards and how benefits are distributed and the availability of adequate financial resources and international cooperation. This is consistent with the first Global Stocktake, which places enhanced efforts towards halting and reversing deforestation and forest degradation in the context of sustainable development and poverty eradication.

The effectiveness and scale of forest action depend on the conditions in which policies and interventions are implemented. Secure land and resource rights, strengthening institutional capacity, access to finance and technical assistance, effective monitoring and law enforcement, and other conditions shape whether forest policies and interventions can deliver lasting results. International cooperation complements domestic efforts by expanding access to resources, knowledge, data and capabilities and by supporting cooperation on challenges that extend across national borders. Achieving the 2030 outcome therefore requires accelerating and combining action across forest landscapes while strengthening the domestic and international conditions that support implementation.

PART I. NATIONAL EFFORTS TO HALT AND REVERSE DEFORESTATION AND FOREST DEGRADATION

Halting and reversing deforestation and forest degradation at the national level is inherently complex, as forests compete for territory with a range of economic activities, such as infrastructure, mining, timber extraction, livestock and agriculture. Their relative weight varies according to each country's land-use systems, economic incentives, governance and environmental conditions. Demographic expansion, internal migration, and development of cities also have an important impact on territorial occupation in all countries. Additionally, to these challenges, forests are pressured by both legal and illegal activities with significant economic weight.

This part examines possible forest national circumstances for actions through three complementary components. It first identifies the main **forest dimensions**, then presents **policy approaches** that can be applied within and across these dimensions and finally considers the **cross-cutting domestic enabling conditions** that are relevant to all of them.

A. FOREST DIMENSIONS

The Roadmap uses five complementary forest dimensions:

1. Conservation.
2. Sustainable forest management, agroforestry and bioeconomy.
3. Combating deforestation.
4. Combating forest degradation.
5. Restoration, reforestation and afforestation.

These dimensions address different but interconnected efforts to halt and reverse deforestation and forest degradation and respond to different forest conditions and pressures. Conservation focuses on maintaining existing forests and their ecological condition. Sustainable forest management, agroforestry and bioeconomy provide different pathways for the sustainable use of forests and trees while generating environmental, social and economic value. Measures to combat degradation address processes that impair forest condition while measures to combat deforestation focus on preventing and reducing the conversion of forests to other land uses. Restoration, reforestation and afforestation provide pathways for recovering forest condition or establishing or re-establishing forest cover.

A.1 Conservation

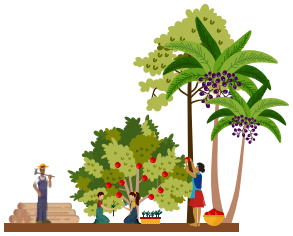


From the perspective of sustainable development, and particularly the goals of international climate change and biodiversity regimes, forest policy sequencing should prioritize the conservation of existing forests, while also supporting sustainable management and restoration efforts. Conserving existing forests is particularly important where forests retain high ecological integrity,[4] as some of their carbon stocks, biodiversity and ecological functions may take decades or centuries to recover once lost, and some losses may not be recoverable within climate-relevant timeframes.[24, 25, 26] Beyond carbon and biodiversity, maintaining standing forests also safeguards the ecosystem services they provide, including climate regulation, stabilization of hydrological cycles, and soil protection. Policy tools for forest conservation include governance arrangements, regulations and management approaches that define permitted uses, establishing safeguards, and support to monitoring and enforcement.

The Convention on Biological Diversity[27] defines *in-situ* conservation as the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings. Applied to forests, this involves maintaining forests as ecosystems, including their biodiversity, ecological processes, and functions. Conservation does not necessarily imply the absence of human use. Strict protection remains an important conservation strategy in specific contexts, but conservation objectives can also be pursued outside strictly protected areas, including in forests under sustainable use, productive management, and under the stewardship of Indigenous Peoples and Local Communities.[28] The appropriate approach depends on forest condition and ecological characteristics, existing pressures, socioeconomic conditions and governance arrangements. Forests of high ecological integrity or particular importance for biodiversity or other ecological functions require stronger protection, while other forests can support conservation objectives alongside sustainable use, productive activities, and local livelihoods.

Evidence from different forest contexts indicates that conservation policies can reduce forest loss and degradation when effectively designed and implemented. Studies assessing protected areas have consistently found lower rates of forest loss and degradation, although effects vary by approach, region, governance conditions and level of implementation.[29,30,31] Evidence from the Amazon also highlights the contribution of different conservation and governance arrangements to maintaining forest carbon stocks: Indigenous territories and protected areas together stored 58% of the region's aboveground carbon in 2016, and accounted for only 10% of its net carbon loss between 2003 and 2016.[32]

A.2 Sustainable forest management, agroforestry and bioeconomy



Sustainable forest management, agroforestry and bioeconomy provide complementary pathways for the sustainable use of forests and trees at different points of landscapes and value chains. Sustainable forest management concerns the management and use of forests; agroforestry integrates trees into agricultural systems and landscapes; and forest-related bioeconomy approaches create value from biological resources, products, services and knowledge associated with forests and trees, connecting them to markets and value chains. Depending on the activities involved, their design and the ecological and socioeconomic context, these approaches can generate economic and social benefits while maintaining or enhancing forest-related functions and contributing to conservation or forest recovery.

Sustainable forest management

Sustainable forest management is a dynamic and evolving concept aimed at maintaining and enhancing the economic, social and environmental values of all types of forests for present and future generations.[33] It can involve different forms and degrees of human intervention depending on forest type, condition and socioeconomic context, including measures to maintain forest ecosystems and their functions, as well as the sustainable production and use of timber and non-timber forest products and other forest goods and services.[6]

Sustainable forest management can contribute to the objective of halting and reversing deforestation and forest degradation by (i) increasing the socioeconomic value of standing forests relative to alternative land uses and (ii) by balancing forest production, conservation and environmental objectives. Environmental safeguards and appropriate management standards are therefore central to sustainable forest management. Where these conditions are met, sustainable forest management can support long-term forest stewardship and livelihoods while reducing pressures for conversion to alternative land uses.

Empirical evidence illustrates how different policy and implementation approaches can support sustainable forest management and improve forest outcomes. Community forest management combined with forest certification has been found to reduce deforestation,[34] while reduced-impact logging has been associated with substantially lower biodiversity impacts[35] and lower logging-related forest damage and carbon losses[36] than conventional logging in tropical production forests.

Agroforestry systems

Agroforestry[37] systems deliberately integrate woody perennials, such as trees, shrubs, palms or bamboos, with agricultural crops or livestock within the same land-management system, in some form of spatial and temporal arrangement. These systems can take different forms according to ecological and socioeconomic conditions, including the integration of trees into farms and agricultural landscapes, as well as the production of agricultural crops within forest systems. While these systems are not classified as forests under FAO's definition, their classification under national definitions may differ among countries. By combining trees with agricultural production, agroforestry can diversify and sustain production while generating economic, social and environmental benefits for land users.[38]

Agroforestry systems can contribute to forest outcomes by maintaining or increasing tree cover within productive landscapes and reducing pressures on natural forests, depending on their location and design. These contributions can occur when agroforestry is integrated into existing agricultural landscapes or established on previously converted or degraded land, rather than through the conversion of natural forests. By supplying wood and non-wood forest products from agricultural landscapes, agroforestry can provide alternative sources of products otherwise harvested from natural forests. Where established on degraded land, agroforestry can also contribute to recovering tree cover and supporting forest and landscape restoration.

Empirical evidence illustrates these different contributions. In Southeast Asia, agroforestry has been associated with net reductions in deforestation across subnational regions, including areas containing high-carbon-stock forests and deforestation hotspots.[39] In degraded areas of the Brazilian Atlantic Forest, a meta-analysis found that biodiverse agroforestry systems supported higher levels of biodiversity and ecosystem-service provision than conventional production systems, suggesting their potential contribution to forest landscape restoration.[40]

Bioeconomy

The G20 High-Level Principles on Bioeconomy[41] suggest a common framework for bioeconomy activities while recognizing that countries may adopt different approaches according to their national circumstances and priorities. The Principles frame bioeconomy as an innovative and complementary productive paradigm and emphasize, among other elements, sustainable development, biodiversity conservation and sustainable use, climate action, inclusion, science and innovation, sustainable consumption and production, and the creation of enabling market conditions. In the forest sector, bioeconomy approaches can draw on forests and trees across different land-use systems, including agroforestry and restored landscapes, and include timber and non-timber forest products, wood-based energy, and other bio-based products and services.[42]

Bioeconomy activities can contribute to halting and reversing deforestation and forest degradation by strengthening value chains based on the sustainable use of biological resources and on products and services compatible with standing forests. They can also support the productive recovery of degraded lands through forest- and tree-based production systems that contribute to restoring forest cover and functions while generating income and employment.[42] These contributions, however, depend on how biological resources are sourced and managed and on the safeguards applied across value chains. They also depend on who participates in and benefits from these value chains: women hold about one quarter of the estimated 42 million jobs in the forest sector,[43] and women farmers are 24% less productive than men on farms of equal size, largely because of unequal access to land, credit and training.[44]

A systematic review of non-timber forest product-based bioeconomy in the Brazilian Amazon found that the literature predominantly reports positive effects on forest conservation and contributions to local socio-cultural needs, while also identifying limitations in income generation.[45]

A.3 Combating forest degradation



Combating forest degradation directly addresses processes that deteriorate forest condition and reduce the capacity of forests to provide environmental, economic and socio-cultural benefits. Combating forest degradation therefore depends on identifying changes in forest condition, understanding the pressures and disturbances driving those changes, and determining where preventive, management or response measures are needed. Because degradation can take different forms across forest types and may be less readily detected than forest conversion, approaches need to be adapted to the specific processes affecting forest condition.

Redução de Emissões por Desmatamento e Degradação Florestal (REDD+) country submissions to the UNFCCC show that there is still no common understanding of forest degradation. Most countries define it in carbon-accounting terms, namely as the net loss of carbon stocks in forest land that remains forest land. Beyond that, approaches diverge: some countries break emissions down by drivers of degradation, others report a single aggregate figure, and they treat post-disturbance regrowth over different time frames. As a result, estimates are not fully comparable. Detection adds another layer of difficulty. Degradation is often gradual, and even abrupt events may be visible in satellite imagery for only a short time before the canopy closes.[46,47]

Climate change is making forests increasingly vulnerable to degradation through interacting effects that compound and reinforce one another. Higher temperatures, longer and more frequent droughts, and shifting rainfall patterns increase water stress on trees. This raises mortality rates and weakens the ability of ecosystems to regenerate.[48, 49] Drier forests also become more flammable, allowing fires to reach areas that were once naturally fire-resistant, such as humid tropical forests, more frequently and with greater intensity[50]. These impacts add to existing pressures such as predatory logging, fragmentation and edge effects. Degraded forests store less carbon, lose biodiversity and become even more exposed to new disturbances[51]. The result is a feedback loop in which degradation releases emissions that further worsen climate change. In the Amazon, this dynamic is pushing parts of the biome closer to a possible tipping point, beyond which the forest would no longer be able to sustain itself as such.[52, 53] Tackling forest degradation therefore requires more than addressing its direct drivers. It also calls for integrating adaptation and fire management into conservation and emission reduction policies.

Evidence from different forest contexts illustrates how proactive management can reduce vulnerability to subsequent disturbances. For example, a study of old-growth giant sequoia forests in California found that prescribed burns conducted within the preceding ten years reduced the odds of tree mortality from subsequent wildfires by 77%. Counterfactual simulations estimated that these treatments prevented approximately 1,900 giant sequoia deaths.[54] Other forms of preventive management can address different degradation processes. In tropical production forests, for example, reduced-impact logging has been associated with lower logging-related forest damage than conventional logging, as discussed above under sustainable forest management. [55]

A.4 Combating deforestation

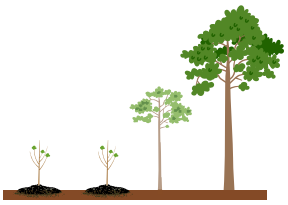


Combating deforestation cuts across all forest dimensions addressed in this Roadmap. Conservation and sustainable management help keep forests standing; efforts against degradation reduce the vulnerability that often precedes conversion; and restoration, reforestation and afforestation help reverse past forest loss. Halting deforestation is also central to the outcome of the first Global Stocktake and to this Roadmap as a whole. Many of the relevant elements – its drivers, the policy and implementation approaches available to address them, the enabling conditions, the cross-border dimensions of environmental crime and trade, and the finance needed – are discussed throughout this document.

Combating deforestation depends on identifying where forest conversion is occurring or is likely to occur and understanding the drivers involved. Effective policies and actions combine preventive and responsive interventions, so that pressures can be addressed before conversion occurs and ongoing deforestation can be detected and reduced. The impact on income of local population is a major issue in most regions and the conversion may be driven by legal and illegal activities.

Evidence from Brazil illustrates how an integrated policy strategy can substantially reduce deforestation. During the early phases of the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), a combination of monitoring and law enforcement, land-use planning and land tenure regularization, credit restrictions and other policy interventions was implemented across the Brazilian Amazon. An econometric evaluation estimated that conservation policies introduced from 2004 onward reduced deforestation by approximately 73,000 km^2 between 2005 and 2009, equivalent to 56% of the forest conversion that would otherwise have occurred during the period.[56]

A.5 Restoration, reforestation and afforestation



Restoration, reforestation and afforestation address different land conditions and provide distinct pathways, whether recovering degraded forests or establishing tree cover where it has been lost or never existed. These related processes may form part of broader landscape strategies combining ecological recovery, productive forests, agroforestry,[37] conservation and other land uses. The appropriate approach depends on ecological, economic and social conditions, land-use trajectory and the objectives pursued.

Effective and lasting outcomes depend on the design and implementation of interventions. The area pledged, planted or brought under forest cover does not by itself determine success; outcomes also depend on the survival, quality and permanence of recovered or established forests, on addressing the drivers that could lead to renewed degradation or conversion of forest to other land uses, and on whether intended forest conditions and ecological functions are sustained over time. This, in turn, requires predictable, long-term finance that covers not only initial establishment but also maintenance, monitoring and protection over the years or decades that forests need to mature, a time horizon that often exceeds typical project and funding cycles.

Restoration, reforestation and afforestation complement, but do not substitute, efforts to conserve existing forests and prevent deforestation and forest degradation. Existing forests, particularly mature and primary forests, provide ecological functions and values that may not be fully recovered, or may take long periods to recover, once lost.[57, 58] The three processes are discussed separately below.

Forest restoration, reforestation and afforestation support climate balance by removing CO_2 and storing it in biomass and soils, while also regulating water cycles, reducing fire and drought risk, and strengthening the resilience of biomes near tipping points, such as the Amazon. Because these benefits reinforce one another as restoration scales, it can act as a positive tipping point and illustrate the synergies among the Rio Conventions, United Nations Framework Convention on Climate Change (UNFCCC), Convention on Biological Diversity (CBD) and United Nations Convention to Combat Desertification (UNCCD) —, by simultaneously advancing climate mitigation, biodiversity conservation and land restoration, shifting forest landscapes from degradation toward self-sustaining regeneration. Combined with rapid cuts in CO_2 emissions, restoring degraded forests can deliver carbon removal at scale while building resilience, creating economic opportunities, enhancing biodiversity and reversing land degradation, helping limit both the magnitude and the duration of the 1.5°C overshoot.

Restoration of degraded land, including forests, make a strong economic case. Land degradation undermines the well-being of at least 3.2 billion people and causes losses in biodiversity and ecosystem services equivalent to more than 10 per cent of annual global gross product, while the benefits of restoration have been estimated to exceed its costs, with every dollar invested in ecosystem restoration generating up to $30 in economic benefits.[59] Some 1.66 billion hectares of land have been degraded by human activity, and 1.7 billion people live in areas where degradation reduces crop yields by at least 10 per cent.[60] Restoring degraded agricultural land can also reduce pressure on forests by increasing production on land already in use.

Realizing these benefits will require finance on a significantly larger scale. The figures and flow directions are explained in detail in Part III of this report.

FAO describes forest restoration as reversing forest degradation or loss of productivity of ecosystem goods and services such as food, wood, biodiversity and water.[61] Forest restoration is a key component of nature-based solutions and ecosystem-based adaptation, as it can simultaneously enhance carbon sinks, restore ecosystem functions, support biodiversity, and increase the resilience of both ecosystems and human communities to climate change.[62, 63, 64]

Restoration can range from removing or reducing drivers of degradation to allow natural regeneration, to assisted natural regeneration and active interventions such as enrichment planting or tree planting.[65] The type of vegetation established, the species used, and the design of the intervention influence the outcomes achieved. Different approaches may pursue ecological, productive, economic, or multiple objectives.[65, 66, 67]

Although restored systems may not fully recover the biodiversity and vegetation structure of old-growth forests, a global meta-analysis covering 269 studies and 221 forest landscapes across 53 countries found biodiversity measures 15–84% higher and vegetation-structure measures 36–77% higher in restored than in degraded systems.[68]

Reforestation

Under the Kyoto Protocol framework,[69] reforestation is defined as the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. By re-establishing forest cover on land where it has been lost, reforestation directly contributes to reversing deforestation.

Within the international climate regime, reforestation can contribute to climate mitigation by increasing forest carbon stocks and removals,[70] and is also listed by the IPCC as a land-based carbon dioxide removal option in the agriculture, forestry and other land use (AFOLU) sector.[7] Depending on its design and context, reforestation can also support biodiversity, soil and water functions, landscape connectivity and productive forest uses.

Afforestation

Under the Kyoto Protocol framework,[69] afforestation is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources. As with reforestation, afforestation can contribute to climate mitigation by increasing forest carbon stocks and removals. Depending on its design, location and species selection, it may also provide other ecosystem services.

On land that was forested in the past, the potential for natural forest establishment depends on land-use history and on the persistence or proximity of sources of natural regeneration, including nearby seed sources, soil seed banks and resprouting vegetation. Where these sources are absent or ecological conditions constrain natural regeneration, active establishment through planting or seeding may be required.[61] Afforestation may also occur in naturally non-forest ecosystems, where increasing tree cover would affect native biodiversity and ecosystem functions.

Afforestation can also take the form of planted forests established for productive purposes through silviculture. They can thus help meet demand for timber, fiber, bioenergy and other forest products, potentially reducing pressure on natural forests, while generating income and employment in rural areas. In some countries, this activity represents significant part of the country's GDP. Their benefits vary depending on location, species selection and management, and are greatest when they are established on degraded or previously cleared land rather than in naturally non-forest ecosystems.

B. POLICY AND IMPLEMENTATION APPROACHES

Based on the contribution process[71] and on available evidence, the Roadmap identifies and organizes policy and implementation approaches into broad categories (Table 1). These approaches reflect implementation experience identified through the Roadmap process and are intended to organize different ways in which countries are pursuing forest action, rather than provide an exhaustive or prescriptive classification. Individual approaches may contribute to more than one forest dimension depending on their design and context.

Countries usually combine different policy and implementation approaches to pursue the five forest dimensions identified above, including regulatory; rights- and tenure-based approaches; planning; information, monitoring and assurance; and economic instruments. The most effective mix varies across contexts, as individual drivers often require multiple policy responses. Financial mechanisms that can enable or scale forest action are addressed separately in Part III.

Table 1 summarizes the role of each policy and implementation approach in halting and/or reversing deforestation and forest degradation and indicates its relationship with the five forest dimensions. Dark green indicates a dimension that an approach is primarily designed to address, while light green indicates an additional dimension to which it can contribute depending on its design and implementation. Blank cells indicate that no relevant relationship was identified for the purposes of this classification, not that no relationship exists. The colors indicate the relationship between approaches and forest dimensions, not the strength of evidence regarding their effectiveness.

The subsections that follow complement this overview by explaining what each approach is and how it operates, presenting evidence on forest outcomes where such evidence has been identified, and illustrating different forms of implementation through selected country examples. Country examples illustrate policy design and implementation, but should not, by themselves, be interpreted as evidence of effectiveness. Cross-cutting conditions that affect implementation across approaches are addressed separately in section C.

The approaches and experiences presented below illustrate how the ambition of the first Global Stocktake on enhancing efforts towards halting and reversing deforestation and forest degradation by 2030 is already being translated into action across different national contexts. The range of policy and implementation approaches already in use provides a practical foundation for further strengthening and accelerating implementation.

Table 1. Policy and implementation approaches that enhance efforts to halt and reverse deforestation and forest degradation

Policy and implementation approach	Role in halting and/or reversing deforestation and forest degradation	Conservation	Sustainable forest management, Agroforestry and Bioeconomy	Combating degradation	Combating deforestation	Restoration, Reforestation, and Afforestation
Protected areas	Maintain forests under conservation regimes that restrict or regulate incompatible land uses and activities, helping prevent forest conversion and degradation and maintain ecological functions.	■	▒	▒	▒	
Recognition and protection of collective territorial rights	Strengthen rights holders' authority over lands, territories and resources, supporting long-term forest stewardship and reducing pressures from encroachment, competing claims and unauthorized forest conversion.	▒	▒	▒	▒	▒
Forest concessions, community forest management and other forest-use arrangements	Secure rights and responsibilities to use, manage and benefit from forest resources, strengthening incentives for long-term forest stewardship and sustainable forest use.	▒	■	▒	▒	
Forest zoning and regulations on forest conversion	Organize forest uses spatially according to management objectives and regulate where and under what conditions forests may be converted to other land uses, supporting conservation and sustainable use.	■	■		■	
Harvesting regulations	Regulate how and at what intensity forest harvesting may occur, helping maintain forest cover and productive capacity and reduce degradation from unsustainable harvesting practices.		■	■		
Bioeconomy strategies, programs, and action plans	Support value chains based on standing forests and sustainably managed forest resources, increasing the economic value of maintaining forests and generating income that can support forest recovery.		■		▒	■
Agroforestry policies and programs	Support productive systems that integrate trees into agricultural land, maintaining or increasing tree cover, creating alternatives to forest conversion and supporting the recovery of degraded land.		■		▒	■
Certification systems and supply-chain traceability	Verify sustainability standards and trace commodities to their origin, supporting sourcing, market and regulatory decisions that discourage forest conversion and promote sustainable forest management.		■	▒	■	
Monitoring and law enforcement	Detect forest change and target enforcement actions; when combined, they increase the probability of detecting violations and the expected costs of non-compliance, deterring illegal forest loss and degradation.	▒		■	■	
Credit aligned with forest objectives	Condition access to or terms of credit on forest-related requirements, changing financial incentives associated with land-use decisions and discouraging forest conversion and non-compliance.				■	
Moratoriums	Restrict permits, activities or market access associated with forest conversion, constraining regulatory or economic opportunities linked to deforestation.	▒			■	
Integrated fire management	Reduce the occurrence, extent and severity of damaging fires through prevention, preparedness, response and recovery, limiting forest degradation and fire-driven forest loss.			■	▒	
Forest pest, disease and invasive species management	Prevent, detect and respond to pests, diseases and invasive species that threaten forest health, reducing degradation and associated losses of forest functions.			■		
Legally binding forest recovery requirements	Assign enforceable responsibility for recovering degraded forests or re-establishing forest cover, strengthening accountability for implementation.	▒				■
Plans and programs for forest recovery and establishment at scale	Set objectives, targets and priorities and coordinate action across landscapes, sectors, actors and levels of government, enabling forest recovery and establishment to be implemented at scale.	▒	▒			■
Ecosystem-specific recovery approaches	Restore ecological processes critical to the functioning and resilience of particular forest ecosystems where recovery requires more than tree establishment, including hydrological and disturbance regimes.	▒		▒		■
Seed and seedling supply systems	Provide suitable and genetically diverse reproductive material for forest recovery and establishment, helping overcome supply constraints and support implementation at scale.					■
Payments for ecosystem services (PES)	Create conditional economic incentives for maintaining or enhancing forest-related ecosystem services or undertaking agreed management practices, supporting forest conservation, sustainable management and recovery.	▒	■			■

■ Area of action the approach is primarily designed to address

▒ Additional area to which the approach can contribute, depending on design and implementation

Blank cells indicate that no relevant relationship was identified for the purposes of this classification, not that none exists.

Source: Climate Policy Initiative (CPI) and COP30 Presidency.

B.1 Protected areas

Protected areas are geographically defined areas designated or regulated and managed to achieve specific conservation objectives. **They may be publicly or privately owned,** with management approaches ranging from strict protection to the sustainable use of natural resources. The International Union for Conservation of Nature (IUCN) classifies protected areas into six categories according to their primary management objective: (Ia) strict nature reserve; (Ib) wilderness area; (II) national park; (III) natural monument or feature; (IV) habitat/species management area; (V) protected landscape/seascape; and (VI) protected area with sustainable use of natural resources. Protected areas are a major component of forest conservation globally, covering 813 million hectares of forest, equivalent to around 20% of global forest area. A global assessment found deforestation rates approximately 41% lower in protected areas than in comparable unprotected areas. [72]

Countries establish and manage protected areas through various legal, ownership and governance arrangements. In Australia, the National Reserve System, which includes areas under public, Indigenous and private governance, protects 26% of the country's native forest area.[73] In Brazil, the National System of Conservation Units (SNUC) comprises 12 categories divided between Strict Protection and Sustainable Use and includes conservation units under different forms of ownership. Private Natural Heritage Reserves (RPPNs), for example, are voluntarily established by private landowners and permanently protected for biodiversity conservation.[74] In China, protected areas include national parks, nature reserves and nature parks. National parks can encompass both state-owned and collectively owned land, and conservation easements have been used in some cases to enable conservation management of collectively owned land while maintaining collective ownership.[75]

B.2 Recognition and protection of collective territorial rights

Recognition and protection of collective territorial rights formally secures the rights of Indigenous Peoples and Local Communities to lands, territories and resources that they have traditionally owned, occupied, used or otherwise acquired. These rights may include the ability to own, use, develop, manage and control such lands and resources and may derive from traditional occupation and customary tenure systems. Governments may do so through legislation, demarcation, titling and registration, as well as protection against encroachment and competing claims. Indigenous Peoples and holders of customary tenure rights occupy an estimated 5.5 billion hectares, equivalent to 42% of the world's land. Of this area, about half remains unrecognized by governments, around one-third is under designated use rights, and less than one-fifth is documented with ownership rights.[76] Contributions and consultations pointed that securing these rights is particularly relevant for forests: lands managed by Indigenous Peoples and Local Communities hold about a third of the world's irrecoverable carbon.[77]

Evidence from different contexts indicates that recognized Indigenous territories can contribute to forest conservation and restoration. Across the tropics, deforestation and degradation on formally recognized Indigenous lands are consistently lower than on comparable unprotected land.[78] In some contexts, Indigenous territories have also supported secondary forest regrowth on previously cleared land.[79]

In some countries, collective territorial rights are recognized and protected at the constitutional level. In Mexico, the Constitution recognizes collective rural landholding systems, including *ejidos* and agrarian communities, and protects the rights of Indigenous Peoples and Afro-Mexican communities in relation to their lands and territories.[80] In Brazil, the Constitution provides the legal basis for the recognition of Indigenous Lands, which follows a multi-stage administrative process; 540 of the 839 Brazilian Indigenous Lands have reached a concluding legal status, either through presidential decree or constitution as Indigenous Reserves.[81] The Brazilian Constitution also recognizes the collective territorial rights of communities descended from self-liberated enslaved persons ("Quilombos"), and by 2025, 160 of these territories—covering over 1 million hectares—had obtained full legal recognition[82]. In Panama, the Constitution guarantees collective land rights to Indigenous communities, whose territories hold approximately 24% of the country's forests, around 1.2 million hectares, including more than 1 million hectares of primary forest.[83, 84]

B.3 Forest concessions, community forest management and other forest-use arrangements

Forest concessions, community forest management and other forest-use arrangements define or allocate rights and responsibilities to use, manage and benefit from forest resources under specified conditions.[85] Governments may, for example, grant time-bound management and use rights over public forests through concessions or licenses, while community forest management can provide communities with defined rights and responsibilities to manage and benefit from forest resources. Arrangements that provide communities with longer-term rights to use and benefit from forests can strengthen incentives for forest stewardship, depending on their design and implementation. A global analysis of 643 community forest management cases across 51 countries found predominantly positive environmental and income-related outcomes, although outcomes related to forest access and resource rights were more mixed.[86]

Countries use different forest-use arrangements according to their forest ownership and governance systems. In Brazil, public forest concessions grant time-bound management and use rights while ownership remains with the State.[87] In the Democratic Republic of the Congo, Local Communities can obtain forest concessions of up to 50,000 hectares, free of charge and in perpetuity, over forests they customarily hold, subject to sustainable management requirements.[88] Indonesia's Social Forestry Programme provides communities with rights to manage forest areas.[89] In Japan, a different arrangement applies to private forests: municipalities can assume the management of forests whose owners are unable to manage them appropriately and entrust suitable forests to forestry managers.[90]

B.4 Forest zoning and regulations on forest conversion

Forest zoning and regulations on forest conversion define how forest areas can be allocated among different uses, balancing conservation, restoration and production activities. Forest zoning identifies the predominant ecological, social or productive values of different areas of forest land and establishes zones with management objectives and permitted or restricted uses according to those values. Restrictions on forest conversion

may result from these zoning rules or operate independently of zoning, for example by prohibiting conversion in specified circumstances or making it subject to prior authorization and other legal requirements. Evidence from Cameroon points to forest outcomes associated with zoning: an empirical analysis found lower deforestation within the Permanent Forest Estate than in areas not subject to the same zoning regime.[91]

Countries combine forest zoning and regulations on forest conversion in different ways. In Brazil, the Forest Code requires rural landholders to maintain native vegetation in Permanent Preservation Areas and Legal Forest Reserves and subjects conversion elsewhere to prior authorization.[92] In Rwanda, land-use planning identifies areas unsuitable for conversion, while forest clearing requires prior authorization.[93] In Japan, forest planning and zoning are combined with authorization requirements for forest land development.[94] In Switzerland, forest conversion is generally prohibited, with exceptions subject to authorization and compensation requirements.[95]

B.5 Harvesting regulations

Harvesting regulations establish the conditions under which forest harvesting may occur, either through requirements for sustainable forest management plans or through direct rules on harvesting practices, allowable harvest levels and species restrictions. For management plans, evidence from logging concessions in the Congo Basin shows that deforestation between 2000 and 2010 was 74% lower where plans had been approved than in similar concessions whose plans had not yet been approved.[96]

Countries regulate forest harvesting through different combinations of management-plan requirements and direct harvesting rules. In Canada, provinces and territories approve forest management plans and set allowable annual cuts that regulate the amount and characteristics of timber that may be harvested.[97] In Mexico, technical regulations establish requirements for the preparation and implementation of forest management plans.[98] In Switzerland, the Forest Act[95] prohibits clear-cutting and harvesting methods with similar effects.[99]

B.6 Bioeconomy strategies, programs and action plans

Bioeconomy strategies, programs and action plans provide frameworks for governments to define how bioeconomy applies within their ecological, economic, productive and institutional contexts and translate that vision into strategic priorities and implementation measures. They can identify priority sectors, biological resources and value chains, define environmental, social and economic objectives, and coordinate policies and institutions involved in their development. For forests, these strategies can support value chains based on standing forests and sustainably managed forest resources, increasing the economic value of maintaining forests and generating income that can support forest recovery.

A forest-based bioeconomy depends on a secure, sustainable raw-material base, and the experience of Brazil, Chile and Finland shows that both sustainably managed native forests and planted forests can provide it. In Brazil[100], planted forests cover only about 1% of the territory yet supply 91% of industrial wood, so almost all demand is met without drawing on

native forests, while the same sector is estimated to keep a further 7.15 million hectares of native vegetation conserved alongside its 10.73 million hectares of plantations. In the case of Chile,[101] whose forestry is based largely on plantations, saw the sector contribute 2.1% of GDP in 2017, and in Finland,[102] where forests are managed rather than planted, the forest sector generated 4.5% of GDP in 2018.

Countries have adopted different bioeconomy strategies reflecting their biological resources, productive structures and development priorities. Costa Rica's National Bioeconomy Strategy links the sustainable use of biological resources with social inclusion, balanced territorial development, innovation, value addition and fossil decarbonization.[103] The European's bioeconomy strategy emphasizes industrial and market development, bio-based innovation and investment, circular and resource-efficient use of biological resources, and the substitution of fossil-based materials, while addressing sustainable biomass supply.[104]

The Country and Organization-Led Initiative on Sustainable Forest-based Bioeconomy Approaches (COLI), initiated by Austria, was designed in accordance with the 19th session of the United Nations Forum on Forests (UNFF19) High-Level Declaration and the G20 High-Level Principles on Bioeconomy. Its outcomes were planned to be shared at 28th session of the Committee of Forestry (COFO28), and the Co-Chairs' Summary and Vienna Call for Action were brought to UNFF21 in May 2026. The Vienna Call for Action points that advancing sustainable forest-based bioeconomy approaches, grounded in sustainable forest management, is essential for transitioning to nature-positive, resilient and inclusive economies.[105]

B.7 Agroforestry policies and programs

Agriculture holds significant potential to contribute to climate action, both by reducing emissions through improved practices, such as better nutrient, livestock and rice management, and by removing carbon dioxide from the atmosphere through soil carbon sequestration and agroforestry. The IPCC estimates the economic mitigation potential of agricultural measures at around 4.1 (1.7–6.7) $GtCO_2$-eq per year between 2020 and 2050.[106]

Among these measures, agroforestry[37] stands out for linking mitigation with livelihoods and forest protection: by maintaining or increasing tree cover on agricultural land, agroforestry systems can generate income while creating alternatives to forest conversion and supporting the recovery of degraded land.

Agroforestry policies and programs provide a framework for implementing this approach at scale. Depending on national circumstances, they may define priority systems or areas, clarify applicable regulatory frameworks, coordinate relevant institutions, and organize technical and implementation measures.[38,107]

Countries use different programmatic approaches to promote agroforestry. Brazil's National Productive Forests Programme promotes the productive recovery of degraded areas, including through agroforestry systems, while supporting food and sociobiodiversity production.[108] In India, the National Agroforestry Policy provides a national framework for

implementing agroforestry programs across states, supported by government schemes and institutional and financial measures.[109] In Panama, the *Azuero Verde* initiative illustrates an implementation model combining timber and fruit trees with crops, alongside collaborative agreements with Indigenous comarcas and integrated landscape approaches for conservation and restoration.

B.8 Certification systems and supply-chain traceability

In recent decades, certification systems have been developed, either in conjunction with mandatory due diligence or voluntary standards, with the aim of ensuring that products or production practices meet defined sustainability criteria. These systems include traceability provisions designed to establish the origin and movement of commodities throughout supply chains.[110, 111] Certification systems can apply to forest products and other commodities and may assess compliance with environmental, social and economic criteria, through verification and assurance mechanisms.[110] For forest products, forest management certification assesses management against specified standards, while chain-of-custody certification tracks certified material throughout the production process.[112] Traceability systems may also operate independently or complement certification schemes through chain-of-custody and other traceability systems.[110] An evaluation of Forest Stewardship Council (FSC)-certified timber concessions in Kalimantan, Indonesia, found that certification reduced aggregate deforestation by 5 percentage points between 2000 and 2008 relative to matched non-certified logging concessions.[113]

Regardless of the intended or actual environmental effects of these schemes, a 2025 United Nations Conference on Trade and Development (UNCTAD) report highlights that compliance costs, administrative requirements and overlapping standards can represent significant challenges, particularly for smallholders and producers in developing countries. If not carefully designed, such mechanisms may create barriers to market access or contribute to trade diversion. It advocates for the active participation of producers from developing countries in the design of these mechanisms, as well as support and capacity-building to enable producers to comply with the standards to be established.[114]

To maximize benefits and minimize risks, implementation efforts can focus on harmonizing standards and reporting requirements, avoiding duplication across schemes, supporting interoperability of traceability systems, strengthening technical assistance and capacity-building, and ensuring the effective participation of producers from developing countries in the design and governance of these mechanisms. Access to finance, technology and implementation support may be particularly important to enable smallholders and Local Communities to comply with sustainability requirements while continuing to benefit from market participation.

B.9 Monitoring and law enforcement

Forest monitoring systems provide timely and spatially explicit information on deforestation, forest degradation and other forest disturbances that can support policy implementation, forest accounting, reporting and management. When linked to law enforcement, such

monitoring helps authorities prioritize inspections, target enforcement actions and increase the probability of detecting violations, supporting the application of appropriate sanctions.

Countries use forest monitoring systems in different ways to support enforcement and follow-up action. In Mauritius, the Forestry Service uses Geographic Information Systems (GIS) and remote sensing to monitor forest cover and land-use change and identify areas requiring further investigation, helping target field inspections.[115] In Mexico, the Early Deforestation Alert System uses satellite imagery to identify forest-cover loss and provide timely information to authorities responsible for forest surveillance.[116] In Australia, national monitoring integrates satellite-based land-use information with carbon accounting to track deforestation, forest regeneration and land-sector emissions.[117] In the United Kingdom, the National Forest Inventory and remote-sensing systems monitor changes in woodland extent and condition, including woodland loss and storm damage.[118]

Evidence from the Brazilian Amazon illustrates the effects of linking satellite-based monitoring with targeted enforcement. Under Brazil's Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), the Real-Time Deforestation Detection System (DETER), combined with targeted law enforcement, is estimated to have prevented the clearing of over 59,500 km^2 of forest between 2007 and 2011.[119]

B.10 Credit aligned with forest objectives

Credit aligned with forest objectives refers to credit policies and practices that incorporate forest-related criteria into financing decisions. These may restrict or condition access to credit based on compliance with environmental and land-use requirements, incorporate forest-related risks into credit assessment, or differentiate financing conditions according to the compatibility of activities with forest objectives. Rather than functioning primarily as a source of forest finance, these approaches use credit decisions and conditions to influence incentives associated with land use.

Evidence from the Brazilian Amazon illustrates the effects of a policy conditioning access to rural credit on environmental compliance. By tying access to rural credit to stricter environmental requirements, including compliance with the Forest Code and the absence of embargoes for illegal deforestation, Resolution 3,545 of the National Monetary Council (2008) was estimated to have reduced total deforested area between 2009 and 2011 by about 60% relative to what would have occurred without the credit restrictions.[120]

Countries also incorporate forest-related considerations into credit decisions through different financial-sector approaches. In Colombia, the *Superintendencia Financiera* has instructed supervised financial institutions to assess and manage environmental risks, including risks arising from practices associated with deforestation.[121] In Malaysia, the central bank's Climate Change Principle-based Taxonomy includes "no new deforestation" among the practices used to assess whether the activity causes no significant harm to the environment.[122]

B.11 Moratoriums

Moratoriums establish restrictions on activities associated with forest conversion or on the purchase and commercialization of commodities linked to deforestation. Public moratoriums can restrict permits or authorizations for activities involving illegal forest clearing, while private or sectoral moratoriums can restrict the sourcing or commercialization of commodities produced on land deforested after a specific cut-off date.

Moratoriums have been applied through different public and private arrangements. In Brazil, the Soy Moratorium was a voluntary supply-chain agreement under which major traders committed not to purchase soy grown on land in the Amazon deforested after the agreed cut-off date. An econometric evaluation estimated that the agreement reduced deforestation in soy-suitable locations in the Amazon preventing approximately 18,000 km^2 of deforestation over its first decade (2006–2016).[123] In Indonesia, a public moratorium restricts new permits in primary natural forests and peatlands through the Indicative Map for the Suspension of New Licenses (PIPPIB), which is periodically updated.[89]

B.12 Integrated fire management

Integrated fire management addresses the full fire management cycle, from understanding and reducing fire risks to readiness, response and post-fire recovery. It combines scientific, Indigenous and traditional knowledge and recognizes the appropriate use of fire as a management tool where relevant.[124] Because fire is a major driver of forest degradation, reducing uncontrolled fires can help maintain forest condition. In Brazil, an evaluation of the Federal Indigenous Fire Brigades Program across 42 Indigenous Lands found a 22.7% reduction in active fires in participating territories after implementation, compared with a 12.3% increase in those not covered.[125]

Countries operationalize integrated fire management through combinations of monitoring, prevention, preparedness, response and community participation. In Indonesia, fire monitoring and early-warning systems are combined with prevention, community-based action and field operations by *Manggala Agni brigades.*[89] In Portugal, the National Plan for Integrated Wildland Fire Management (PNGIFR 2020–2030) integrates risk reduction, surveillance, fire response and recovery and includes controlled burning as a tool for vegetation and fire-risk management.[126]

B.13 Forest pest, disease and invasive species management

Forest pest, disease and invasive species management encompasses measures to prevent, detect and respond to organisms that can damage trees, forests and forest products, including insects, fungi, bacteria, viruses and invasive species. Changing climatic conditions are expected to increase the risks posed by forest pests, diseases and invasive species, facilitating their establishment, spread and impacts across forest ecosystems.[127, 128]

Policy approaches can include forest-health monitoring, biosecurity and measures to prevent the introduction and spread of non-native species, risk assessment and targeted control. Outbreaks can cause widespread tree mortality and forest degradation; however, native insects and diseases also perform ecological functions, so management focuses on populations that threaten forest health rather than aiming to eliminate them entirely.[129]

Countries implement these approaches through different combinations of regulation, surveillance, biosecurity, risk assessment and response measures. Australia's National Action Plan for Pests of Trees and Timber 2024–2034 structures action around prevention, detection and response, including pest-risk assessments, surveillance technologies and strengthening emergency-response capacity.[130] In Canada, the National Forest Pest Strategy brings federal, provincial, territorial and municipal efforts together around forest pest prevention, early detection, science-based risk analysis and integrated forest pest management, addressing both native and alien pests.[131] In Finland, the Forest Damages Prevention Act provides a regulatory framework for maintaining forest health and preventing damage caused by harmful organisms.[132]

B.14 Legally binding forest recovery requirements

Legally binding forest recovery requirements establish enforceable obligations to recover degraded forests or re-establish forest cover under conditions defined by law or regulation. Depending on the legal framework, obligations may apply to landholders or other responsible actors or require governments to achieve restoration targets and implement restoration measures within defined timeframes.

Different legal frameworks illustrate this approach. Brazil's Forest Code establishes requirements for the recovery of native vegetation in rural properties, including Permanent Preservation Areas and Legal Forest Reserves.[133] The EU Nature Restoration Regulation establishes binding restoration obligations for Member States across multiple ecosystems, including forest ecosystems, with restoration measures and targets extending to 2030, 2040 and 2050.[134]

B.15 Plans and programs for forest recovery and establishment at scale

National and subnational plans and programs can organize forest recovery and establishment at scale by defining objectives and targets, coordinating action across landscapes, sectors, actors and levels of government, and organizing implementation arrangements and resources over time.[66, 135] Depending on ecological conditions, land-use history and the objectives pursued, these may include natural and assisted natural regeneration, active restoration, reforestation and afforestation. Spatial planning and prioritization can help determine where different interventions are appropriate, weigh their ecological, social and economic benefits and costs, and connect recovery and establishment objectives with broader climate, biodiversity, water and development priorities.[66, 136]

Countries have adopted different programmatic approaches to forest recovery and establishment at scale. China's Master Plan for National Key Ecosystem Protection and Restoration Major Projects (2021–2035) sets time-bound objectives and organizes implementation across seven key ecological areas and nine major protection and restoration projects, building on decades of large-scale reforestation and afforestation programs.[137] Brazil's National Plan for the Recovery of Native Vegetation (Planaveg), updated for 2025–2028, combines a national target to recover 12 million hectares of native vegetation by 2030 with coordinated measures including priority-area mapping, restoration inputs and services, research and innovation, monitoring and financing.[138] Canada's 2 Billion Trees Program, launched in 2021, supported tree-planting projects through cost-shared agreements with provinces, territories, Indigenous governments and organizations, municipalities and other partners.[139]

B.16 Ecosystem-specific recovery approaches

Ecosystem-specific recovery approaches address ecological processes that are critical to the functioning and resilience of particular forest ecosystems. Where degradation has altered processes such as hydrological regimes, sediment flows or disturbance dynamics, recovery may require restoring these processes rather than focusing primarily on tree establishment. This is particularly relevant for peatland forests and mangroves, which can contain carbon stocks that, if lost, may take centuries to recover. In drained peatlands, for example, recovery may require rewetting, in mangroves, restoring tidal flows and hydrological connectivity; and in fire-prone boreal forests, reflecting natural disturbance regimes and the ecological role of fire.

Different applications illustrate how recovery approaches can be adapted to ecosystem processes. In Indonesia, peatland restoration has combined rewetting through canal blocking and back-filling with revegetation.[140] In Finland, the Helmi Habitats Programme includes the restoration of peatlands drained for forestry through the filling drainage ditches.[141] In Ethiopia, the Green Legacy Initiative has mobilized annual nationwide tree planting since 2019, with over 48 billion seedlings reported planted.[142]

Also noteworthy in this context are techniques for combating land degradation and its impacts on forests. Waterdriven erosion is addressed at both local and landscape scales through biological measures—such as herd management, ground-cover protection, cover crops and mulching—as well as mechanical interventions including basin management, terracing, contour farming, and strip cropping. These practices slow runoff, enhance infiltration, and stabilize soil structure. Wind erosion is mitigated by the same soil-protection methods, complemented by measures that reduce near-surface air speed, such as windbreaks and shelterbelts. Sand encroachment in desert-adjacent areas is controlled through these techniques combined with methods that limit sand displacement, including straw checkerboard barriers and revegetation supported by technologies such as Zaï pits and semi-circular catchments. Notable examples of large-scale implementation of these technologies are China's Three-North Shelterbelt Program[143] and the African Great Green Wall Initiative.[144]

B.17 Seed and seedling supply systems

Seed and seedling supply systems organize the sourcing, collection, production, storage and distribution of forest reproductive material needed for forest recovery and establishment. They can involve seed centers, nurseries, public agencies, private suppliers and community-based networks, and include processes for identifying appropriate species and seed sources, maintaining material quality and producing and distributing seedlings.[145] Species selection, provenance and genetic diversity influence the establishment and resilience of recovered or established forests.[146] Restoration commitments are often disconnected from national seed systems and the availability of native seeds and seedlings,[147] which can constrain implementation at scale: a study of tree seed systems in the Philippines, Indonesia, Malaysia and India found mismatches between demand for native species and the quantity and quality of available seeds.[148]

Countries have developed different institutional models for seed and seedling supply. In Canada, the National Tree Seed Centre conserves forest genetic resources and provides seed science, training and technical support, while the Indigenous Seed Collection Program supports Indigenous-led seed collection, conservation and knowledge sharing.[149, 150] In Brazil, community-based seed networks engage Indigenous Peoples, Local Communities and rural producers in the collection and supply of native seeds, drawing on local knowledge of species, phenology and landscapes while also generating income.[151, 152, 153] In India, Indonesia and the Philippines, the Darwin Initiative's "Strengthening collaborative tree seed supply systems for restoration in Asia" has combined seed-zone mapping, digital information systems, capacity development and community engagement. Spatial data on seed sources have been embedded in government-managed platforms to support the matching of species and provenances to site conditions.[147]

B.18 Payments for ecosystem services (PES)

Payments for ecosystem services (PES) provide economic benefits to landholders, communities or other actors conditional on maintaining or enhancing ecosystem services or undertaking agreed land and resource management practices that generate those services. PES can be implemented through different institutional arrangements, but their defining feature is the link between the payment or benefit provided and agreed environmental actions or outcomes.[154] PES represents one form of economic incentive; other market-based and financial mechanisms that can support forest action are discussed in Part III.

PES outcomes depend strongly on program design and context, including targeting, payment levels, contract duration and the effective application of conditionality.[155] Costa Rica's national PES program illustrates the breadth of the approach: administered by FONAFIFO, it recognizes services including climate mitigation, biodiversity and water protection and includes modalities for forest protection as well as reforestation, natural regeneration and agroforestry.[156] In England, the Countryside Stewardship Higher Tier program supports the restoration and management of native and ancient semi-natural woodland through long-term management agreements.[119]

C. CROSS-CUTTING DOMESTIC ENABLING CONDITIONS

Implementation across the five forest dimensions relies on the broader domestic conditions that enable policy and implementation approaches to operate effectively and at scale. **This section encompasses four categories of domestic enabling conditions that can support implementation and continuity across different dimensions: (1) land governance and tenure security, (2) capacity-building, (3) environmental education and (4) information integrity.** Rather than constituting a separate area of action, these conditions underpin the implementation of action across conservation; sustainable forest management, agroforestry and bioeconomy; efforts to combat deforestation and forest degradation; and restoration, reforestation and afforestation.

The diversity of policy and implementation approaches identified in this Roadmap means that forest action can involve multiple sectors, levels of government and actors. Effective implementation depends on clear institutional responsibilities and coordination across national, subnational and local authorities, including across policy areas that affect forests and land use. Policy design, coordination and implementation also need to take into account the roles and rights of local populations, including Indigenous Peoples and Local Communities, as well as relevant stakeholders, such as the private and financial sectors, non-governmental and other civil society organizations, academia and research institutions, and other actors that contribute to implementation, financing, knowledge and monitoring. Such coordination can help align policies, clarify responsibilities, identify implementation constraints and connect actions across institutions and sectors.

Consultations and contributions pointed that Indigenous Peoples require particular attention within forest governance because they may be directly affected by territorial and forest policies and interventions and, in many contexts, hold legally recognized or customary rights over forest lands and resources. Governance arrangements need to provide effective mechanisms for their meaningful participation and consultation in decisions that affect their rights, territories, resources and livelihoods, consistent with relevant international and national legal frameworks, including requirements for free, prior and informed consent (FPIC), where applicable.[157, 158] The meaningful participation of women in forest-related decisions, including in leadership roles, also requires specific attention.[159]

C.1 Territorial governance and tenure security

Most of the world's forests are publicly owned: according to FAO's Global Forest Resources Assessment 2025, public ownership accounted for 71% of global forest area in 2020.[5] Publicly owned forests may be allocated or designated under different legally defined regimes that determine the rights attached to the land, permitted uses, management rules and responsible institutions. Where public forests remain undesignated, state ownership remains, but a more specific land or management regime has not yet been assigned. In the Brazilian Amazon, undesignated public forests have been identified as targets of land grabbing and speculative clearing,[160] reinforced by expectations that illegal occupation may later be regularized through land titling.[161] Designation alone, however, does not ensure effective protection: in the Brazilian Amazon, designated public forests have also faced pressures to alter their legal category, size or permitted uses.[162]

Land governance shapes how rights to use, manage, conserve and restore forests are defined, administered and protected, and how responsibilities for forest management and protection are allocated among public institutions and rights-holders. Forests may be subject to different ownership and tenure arrangements, including public, private, customary and collective arrangements. Land governance is broader than tenure security. It concerns the rules, institutions and processes that define land status, access and use, including the designation of public land, recognition of rights, land boundaries and information, and resolution of competing claims.[163] Formal recognition or documentation of rights may contribute to tenure security, but does not by itself ensure that rights can be exercised and protected in practice.

Different tenure arrangements raise distinct governance issues. For privately owned forests, these may include unclear boundaries, competing claims over the same area, and invasions or other forms of unlawful occupation where mechanisms to protect and enforce land rights are weak. For forests subject to customary tenure or other forms of collective rights, outcomes depend not only on formal recognition but also on whether rights can be effectively exercised and protected. Depending on the legal system, this may require boundary definition or demarcation, documentation or registration, protection against encroachment and competing claims, and mechanisms through which rights-holders can defend their rights. These issues are particularly relevant to forest policy: approximately 40% of the world's intact forest landscapes are located on customary lands, including 19% on customary lands that lack formal government recognition.[76]

Land governance and tenure security affect implementation across the five forest dimensions. Clearer rights and responsibilities can provide a basis for monitoring land use and enforcing rules against deforestation and forest degradation, while greater tenure security can reduce uncertainty for long-term decisions on conservation, sustainable forest management, agroforestry and forest-based bioeconomy activities, as well as restoration, reforestation and afforestation. Empirical evidence is consistent with this relationship: a meta-analysis of 118 cases found tenure security to be associated with lower deforestation across different forms of tenure.[164]

C.2 Capacity-building

Capacity-building strengthens the ability of countries, institutions and other actors to effectively implement action.[165] This understanding recognizes that capacities may already exist and can be further developed and sustained over time, an approach also referred to as capacity development.[166] Capacity-building operates at different levels: individual capacity, including knowledge, skills and training; organizational and institutional capacity, including organizational performance and cooperation among institutions; and systemic capacity, which concerns the enabling environment created by regulatory and economic frameworks.[167] The development and sustained application of these capacities depend in turn on the availability of resources, including finance, which is addressed separately in part III as a structural condition for forest action, besides technical and human resources.[168]

Limitations in these capacities can constrain implementation even where policies and legal frameworks are in place.[169] In the forest sector, insufficient capacities and resources can constrain the implementation of policies and legislation, including by limiting the provision of guidance to forest users, the availability and use of current information, monitoring and enforcement, and the ability to address competing interests.[170] Strengthening capacities can help reduce the gap between policy mandates and their implementation in practice.

C.3 Environmental Education

Environmental education, through both formal and non-formal channels,[171] is an important enabler of efforts to halt and reverse deforestation and forest degradation by 2030. By strengthening knowledge and skills and fostering meaningful public participation, it supports informed decision-making and collective action to address the drivers of deforestation and forest degradation, and advance forest conservation, sustainable management, and restoration.

Environmental education is recognized under the Article 6 of the United Nations Framework Convention on Climate Change and Article 12 of the Paris Agreement. Referred to as Action for Climate Empowerment (ACE), its six elements (education, training, public awareness, public participation, public access to information and international cooperation) are central to climate action and to achieving the objectives of the first Global Stocktake. These elements provide a foundation for environmental education that is science-based, institutionalized, adequately funded, measurable, and supported by robust monitoring and evaluation frameworks, contributing to the efforts to halt and reverse deforestation and forest degradation.

Brazil's experience in establishing national environmental education policies and programmes illustrates one way to provide an institutional basis for sustained action. Since 1999, the country has had a National Environmental Education Policy (Law 9.795/99)[172], updated in 2024 to ensure attention to climate change, biodiversity protection and socio-environmental risks and vulnerabilities (Law 14.926/24)[173], in addition to state and municipal policies. The National Environmental Education Program guides ongoing actions of training, communication, management, monitoring and evaluation, offering an institutional basis to expand and strengthen these processes throughout the national territory.

Other examples of countries with remarkable environmental education policies include Costa Rica (Law 7255/1991,[174] Decree 41581/2019),[175] Finland (Basic Education Act, General Upper Secondary Schools Act, Vocational Education and Training Decree),[176] Germany (National Action Plan for Education for Sustainable Development/2017),[177] India (National Policy of Education/1986 and its revision on1992),[178] Japan (Environmental Education Promotion Act/2003-2011),[179] Kenya (Basic Education Act/2013,[180] Education for Sustainable Development Policy/2015)[181] and the United States (National Environment Education Act/1990).[182]

C.4 Information Integrity

Information integrity refers to an information ecosystem in which reliable and accurate information is available to all, enabling people to engage meaningfully in public life, make informed decisions, and exercise their rights. According to the Global Risks Report (2026), mis- and disinformation are the top current global vulnerability and also the fourth in the long-term.[183,184] At COP30, Brazil presented the Global Initiative for Information Integrity on Climate Change,[185] launched in partnership with the United Nations and United Nations Educational, Scientific and Cultural Organization (UNESCO), to strengthen international cooperation and promote science-based information on climate change.

Promoting information integrity can support the consideration of forests in decision-making and resource allocation by raising awareness among public and private stakeholders, improving access to reliable and science-based information, and addressing disinformation. It can also help address systemic economic risks associated with forest loss by strengthening public trust in science, fostering social resilience, and promoting policy coherence. In doing so, it can reinforce the understanding that forest conservation and restoration can be compatible with food security, economic growth, and sustainable development, taking into account diverse national and local contexts and production systems.

Legal frameworks, such as the Aarhus Convention[186] and the Escazú Agreement,[187] can play a decisive role in promoting information integrity, including through the protection of environmental journalists, communicators and scientists. Sustainable, public-interest journalism and protection to professionals are essential to maintaining information integrity on climate change and forests. UNESCO recorded 749 attacks on journalists covering environmental issues between 2009 and 2023, with a sharp rise in recent years. Out of every ten physical attacks on journalists and media outlets, two relate to deforestation, two to land conflicts, and two to mining.[188]

D. COP30 PRESIDENCY PROPOSALS ON THE WAY FORWARD AT THE NATIONAL LEVEL

Although forests are becoming more prominent within national climate strategies, significant opportunities remain to strengthen domestic policy frameworks, national institutional arrangements and investment decisions that will determine whether the 2030 objective of halting and reversing deforestation and forest degradation by 2030 can be achieved.

Countries differ considerably in the maturity of their national forest policy frameworks. According to the 2026 Synthesis Report by the UNFCCC Secretariat on Nationally Determined Contributions under the Paris Agreement, 90% of Parties include the land use, land-use change and forestry sector in their NDC emission reduction targets, and many already have national forest strategies, REDD+ strategies and action plans.[189] Restoration plans, plans for combating deforestation and forest degradation, or other forest-related policy and implementation mechanisms. Others are still developing dedicated forest policy instruments or strengthening their institutional arrangements.

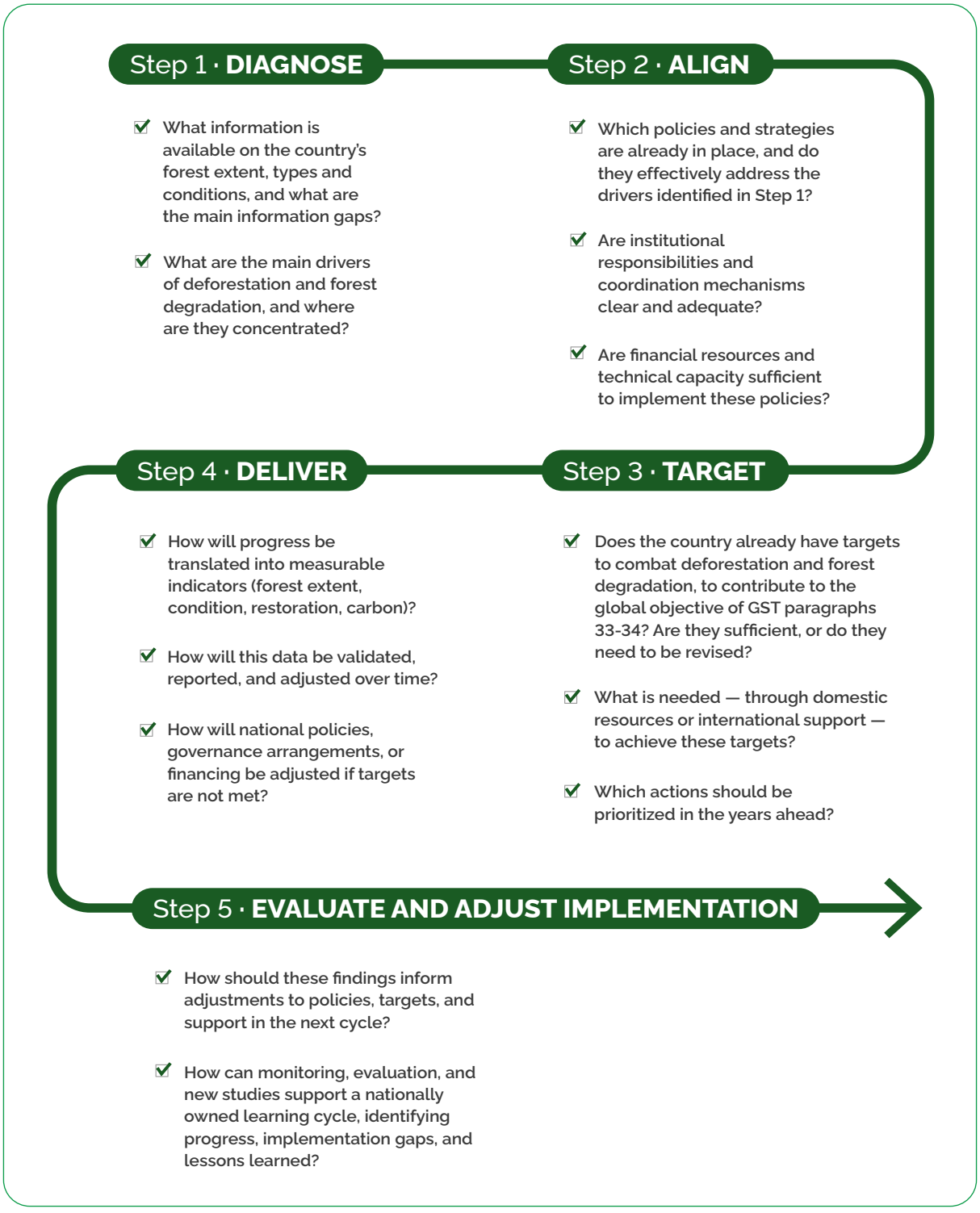
In this respect, the COP30 Presidency notes that countries have developed different policy and institutional pathways to organize forest action and that these existing arrangements provide the natural starting point for implementing the forest-related outcomes of the first GST. Depending on national circumstances, countries' action may consist of strengthening existing strategies, improving coordination among existing policy instruments, refining implementation arrangements, or, where appropriate, developing new mechanisms and institutional arrangements to accelerate implementation. The emphasis is not necessarily on producing new strategies, but most often on strengthening and accelerating countries' capacity to translate existing commitments into effective implementation and measurable progress by 2030.

Therefore, the COP30 Presidency invites countries to review their domestic policy frameworks to ensure that the 2030 objective is fully embedded in national planning and supported by clear implementation measures, financing strategies, governance arrangements, and monitoring frameworks required to accelerate delivery. Implementation plans should be country-led, and they can be conditional or unconditional on additional international support.

This Roadmap offers a set of guiding questions to support countries in examining their domestic policy frameworks with the aim of accelerating implementation towards the 2030 objective. Rather than prescribing institutional models or policy choices, the guiding questions suggest ways for countries to:

- Diagnose—Understand the national forest profile and key drivers.
- Align—Review policies, institutions, and finance.
- Target—Set forest targets and identify additional measures.
- Deliver—Put into practice the policies adopted and monitor their implementation.
- Evaluate and adjust implementation—Assess progress against and revise policies accordingly to keep forest commitments on track.

Figure 5. Guiding Questions for Translating the GST Forest-Related Outcome into National Action



Source: Climate Policy Initiative (CPI) and COP30 Presidency.

TRANSLATING THE GST FOREST-RELATED OUTCOMES INTO NATIONAL ACTION: GUIDING QUESTIONS

Step 1. Diagnose the national forest profile across the five forest dimensions, and the main drivers of deforestation and forest degradation

Sound data and analysis are key elements of a successful strategy. Establishing the current baseline requires accessing reliable data sources and conducting analysis on the key factors affecting the country's forest profile.

Countries can begin by assessing the current status of their forests, including forest extent, type and condition, across the forest dimensions addressed in this Roadmap: conservation; sustainable management, bioeconomy, and agroforestry systems; forest degradation; deforestation; and restoration, reforestation, and afforestation.

This assessment should also cover who occupies and uses forest land, and under what tenure arrangements—including formal ownership, public land, leases, concessions, customary rights, communal territories, and overlapping claims—as well as the legal and regulatory framework governing forest use and land-use change.

Countries could also identify the main drivers of deforestation and forest degradation, such as agricultural expansion, infrastructure and mining development, illegal logging, weak tenure security, and underfinancing of conservation and sustainable production, and assess where these pressures are concentrated and how they have changed over time.

This diagnosis could clarify which forest dimensions are most relevant in the national context, how they interact across regions, ecosystems, and land-use systems, and how forest tenure and drivers shape these dynamics.

Box 1: Designing a national forest information system for action and accountability

Countries seeking to combat deforestation and forest degradation can benefit from an information system that supports three linked tasks: understanding where and why forest change occurs, identifying appropriate responses, and assessing whether those responses produce lasting results. **Consistent definitions, baselines, and historical time series make changes easier to interpret and compare over time.**

This box focuses on the spatial monitoring core of such a system. Spatial information on forest extent, loss, gain, and condition forms the core of the system. Degradation often requires additional indicators: depending on the ecosystem, relevant processes may include selective logging, recurrent fire, fragmentation, edge effects, invasive species, biomass decline, and others. Forest inventories and carbon accounting can complement this spatial core, helping estimate carbon stocks and emissions associated with forest loss, with particular attention to carbon-dense ecosystems such as peatlands and mangroves.



Understanding forest change also requires looking beyond the forest itself. Land-use information can reveal whether loss is associated with pasture, agriculture, logging, mining, infrastructure, unsustainable fuelwood harvesting or urban expansion, but spatial coincidence does not fully explain causality. Stronger analysis combines land-use patterns with information on roads, commodity prices, credit, subsidies, processing facilities, concessions, licensing, land markets, and supply chains. This helps identify the economic and institutional forces behind forest loss, rather than focusing only on the activity observed after conversion.

Tenure and social information can clarify who holds rights, who uses the land, who may influence land-use decisions, and who could participate in restoration. Relevant records may include formal ownership, public land, leases, concessions, customary rights, communal territories, overlapping claims, and actual occupation. These records are most informative when combined with contracts, licensing, enforcement evidence, and the timing of land-use change.

Ecological and climate information can guide the choices for restoration. Ecosystem type, forest condition, soils, hydrology, slope, disturbance history, invasive species, proximity to seed sources, and landscape connectivity help distinguish areas where natural regeneration may be sufficient from those that may benefit from assisted or active restoration. Biodiversity information can also reduce the risk of increasing tree cover while producing limited ecological value.

Economic and operational considerations are equally important for translating priorities into action. Useful information may include land opportunity costs, implementation and maintenance costs, restoration timelines, seed and nursery capacity, labor, technical assistance, access, financing, and local institutional capacity. Expected measurable benefits may include carbon sequestration, reduced emissions, biodiversity recovery, erosion control, water regulation and forestry products.

A georeferenced registry of interventions can connect observed outcomes to specific policies and investments. It may record location, date, method, implementing entity, cost, financing, species or vegetation type, and expected results. Follow-up monitoring can then track survival, canopy recovery, biomass, biodiversity, disturbances, maintenance, and social outcomes. It can also assess whether recovery persists over time and whether pressure has shifted to other areas.

The usefulness of the system will depend not only on the volume of information collected, but also on its quality and compatibility. Clear metadata, uncertainty estimates, validation procedures, stable definitions, common identifiers, and documented methodological changes make datasets easier to interpret and combine.

Countries do not need complete, high-resolution information on every variable before acting. A practical starting point combines forest-change data from remote sensing with a stratified forest inventory, expanding to more detailed information as capacity allows.



Besides, or in addition to the generation and management of data, a national forest monitoring system should be a standing institutional function rather than a one-off product. Its usefulness depends on a designated institutional home, predictable recurrent resources, regular update cycles, quality procedures and arrangements through which actors can access, contribute to and use the information in land-use planning, permitting, enforcement, extension, benefit-sharing and local monitoring. Reporting under international processes is one of several uses of the same system.

Countries may consider the following guiding questions:

- What information is available on the country's forest extent, types and conditions, and what are the main information gaps? How often is the information updated?
- How is forest tenure structured, including who occupies and uses forest land, who holds formal or customary rights, and what legal and regulatory frameworks govern forest use and land-use change?
- What are the main drivers of deforestation and forest degradation, where are these pressures concentrated, and how have they changed over time? Drivers and pressures may include land-use change and agricultural expansion; fire, drought, pests and other disturbances; infrastructure, mining and energy development; weak tenure and unclear land rights; illegal logging, land grabbing and illicit economies; unsustainable fuelwood harvesting; underfinancing of conservation, restoration and sustainable production; ecosystem-specific pressures affecting dry forests, peatlands, mangroves, boreal forests and other forest ecosystems.
- Which underlying incentives continue to encourage deforestation and degradation or discourage conservation, sustainable forest management and restoration? Are there opportunities to redirect distorting subsidies causing deforestation and forest degradation, such as direct payments, tax breaks and price support, towards positive investments?
- What information is available to identify where conservation, sustainable management, bioeconomy, agroforestry, or restoration measures (such as natural regeneration, assisted restoration or active restoration) would generate the greatest benefits? This may include forest condition and regeneration potential; carbon, biodiversity and water benefits; soils, hydrology and landscape connectivity; climate and disturbance risks; land tenure and occupation; and local social and institutional conditions.
- Are the analytical capabilities and tools needed to carry out this diagnosis available? These may include remote sensing and geospatial analysis; forest inventories and carbon accounting; methods to assess degradation, biodiversity and restoration potential; economic, tenure and supply-chain analysis; integrated data platforms; and sufficient technical and institutional capacity to interpret results and update them over time.

- Are there international cooperation agencies or funding agencies that could support my national diagnostic?

Step 2. Assess existing policies, institutions, and finance mechanisms

Building on the national diagnosis, countries can identify existing policy frameworks, institutional arrangements, and financial mechanisms and assess whether they are adequate to address the drivers and forest profile identified in Step 1, and aligned with GST forest-related outcomes. This assessment should examine how existing instruments contribute to each of the five forest dimensions, where applicable, and to the 2030 objective, identify overlaps, gaps and implementation barriers, and assess whether they provide a coherent basis for achieving the 2030 objective.

This may include forest and land-use regulations, land rights and landscape-based approaches, including protected areas, Indigenous and community territories; monitoring and enforcement systems; restoration plans and policies; sustainable management of forests and sustainable production policies and programs; financing instruments, such as rural credit, subsidies, PES, REDD+; supply-chain instruments, including traceability systems and moratoriums; and any other relevant national climate, biodiversity, land, and development plans.

This assessment can help countries identify which policy, institutional and financial instruments are already in place, whether they are being fully and effectively implemented, where important implementation gaps remain, and how policies interact across sectors and levels of government.

Countries may consider the following guiding questions:

- Which existing policies, strategies, institutions, and financial mechanisms contribute to addressing the drivers and forest profile identified in Step 1?

- Are GST forest-related outcomes reflected in national policies and strategies (e.g. NDCs, NAPs, national REDD+ strategies, National Biodiversity Strategies and Action Plans (NBSAPs), Land Degradation Neutrality (LDN) targets, national forest strategies, restoration plans or other relevant instruments)?

- Are existing national policies being effectively implemented across the five forest dimensions? This may include assessing whether implementation arrangements are operational; whether monitoring and enforcement systems are in place and functioning effectively; and whether implementation has reached the intended scale.

- Are institutional responsibilities clearly defined across national, subnational, and local levels of government, and are coordination arrangements adequate to support implementation? This may include clear institutional mandates; coordination mechanisms across sectors and levels of government; stakeholder participation; and arrangements to address overlapping responsibilities and institutional gaps.

- Are Indigenous peoples, Local Communities, and stakeholders meaningfully engaged in the design and implementation of existing policies?

- Are institutional capacities and technical capabilities sufficient to effectively implement existing policies and achieve the 2030 objective? If not, what are the main capacity gaps, and how can they be addressed?

- Are financial resources sufficient to implement existing policies? If not, what are the main financing gaps, and how could they be addressed, through domestic resources, additional international support, or both?

- What are the main barriers limiting effective implementation of existing policies and instruments? These may include gaps in knowledge or technology, market or regulatory barriers, limited public acceptance, unequal distribution of responsibilities, costs and benefits, or limited coordination among public, private and community actors.

Step 3. Set forest targets and define the additional measures needed to meet them

Building on the previous steps, countries may define a clear vision for enhancing efforts towards halting and reversing deforestation and forest degradation by 2030. Setting this vision involves defining the desired pathway for the country's forests and establishing clear and specific targets across the five forest dimensions, where possible. These targets should be measurable—supported by indicators to be defined in Step 4, time-bound, and supported by quantified sub-targets that collectively contribute to achieving the 2030 outcome. Countries may also consider establishing interim milestones linked to specific dates to facilitate implementation and monitor progress over time.

Depending on national circumstances, countries may distinguish between unconditional targets, which can be achieved through existing domestic resources and institutional capacities, and conditional targets that would require additional international support, including finance, technology transfer, capacity-building and technical cooperation. Expert judgement, stakeholder engagement, and consensus-building processes can support the definition of realistic and ambitious targets while strengthening ownership of implementation strategies.

Countries may then identify the additional measures needed to bridge the gap between existing policies, institutions and capacities and the targets they intend to achieve by 2030. These measures may include new or revised policies, stronger institutional coordination or the creation of dedicated governance bodies, mechanisms to scale up financing, the development or improvement of data systems, tenure security and reforms, participation mechanisms, programs to support sustainable production and restoration, or enhanced international cooperation. The existing and additional measures can then be organized into a prioritized implementation pathway that identifies the most important actions required to achieve the 2030 objective, together with indicative timeframes, institutional responsibilities, financing needs, and opportunities for support. This can be embedded

into country platforms to coordinate actions, strengthen implementation capacity, develop an investment pipeline and mobilize and coordinate finance aligned with national plans. The implementation pathway should also reflect the interdependencies among different actions and clarify the respective roles and relationships of the actors involved in implementation.

Box 2: Tools to support countries in identifying national measures across the five forest dimensions

Part I of this Roadmap identifies five forest dimensions and presents examples of policy and implementation approaches, drawn from different geographies, encompassing diverse forest ecosystems and governance contexts. These examples provide a reference that countries can use to review their own policy mix, identify areas where additional measures may be needed, and consider how existing approaches could be adapted to national circumstances. In the context of this framework, they can help countries consider possible responses to the implementation gaps identified in Step 2.

Another resource that countries may consider when reviewing or developing national policies is the FAO Solutions-tree: halting deforestation through sustainable agrifood systems transformation[190]. Focused on halting deforestation and forest degradation linked to agrifood systems, it provides a practical and analytical framework for identifying and prioritizing solutions according to country-specific drivers and circumstances, reviewing existing strategies, policies and programmes, and identifying implementation gaps and complementarities. Rather than linking individual measures to single drivers, the framework brings together combinations of solutions and measures aimed at broader systemic change and can also support cross-sectoral dialogue and the development of activities for national and international financing. It organizes solutions around six areas of systemic shifts: (i) strengthening land governance; (ii) scaling sustainable agricultural production models; (iii) increasing the consumption and trade of responsibly produced agricultural commodities; (iv) creating incentives to maintain forest integrity; (v) enhancing the availability and use of data for better-informed decision-making; and (vi) improving rural livelihoods and promoting equity and inclusion.

A third example is the Model Framework Forest Act Initiative (MoFAI), a collaborative initiative that provides adaptable knowledge resources to support countries in developing or strengthening legal and institutional frameworks for forest governance. Drawing on comparative legal experience and interdisciplinary consultations, the initiative follows a "shopping cart" approach, offering modular options that jurisdictions can select and adapt according to their legal systems, identified needs, implementation capacities and local circumstances. The Model Framework Forest Act[191] and accompanying Legislative Guide cover key elements of forest law and governance, including general principles and obligations, governance instruments and institutions, implementation and enforcement, and financial instruments and mechanisms. The framework also addresses institutional and implementation arrangements such as

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extension and advisory services, training, monitoring technologies and transparency mechanisms. The modular approach can therefore support countries in reviewing existing frameworks, identifying legal and institutional gaps, and considering which elements may be relevant and adaptable to their national circumstances.[191]

These resources offer complementary ways of supporting the identification and review of national measures. The Roadmap provides a forest-wide framework covering the five forest dimensions and a range of policy and implementation approaches that countries can use to review existing policy mixes, identify possible responses and consider their adaptation to national circumstances. FAO's Solutions-tree provides a more specific systemic framework for addressing deforestation and forest degradation linked to agrifood systems, connecting drivers, systemic shifts, solutions and concrete measures. MoFAI complements these policy-oriented resources with modular options for reviewing and strengthening legal and institutional frameworks.

Countries may consider the following guiding questions:

- Does the country already have national targets to combat deforestation and forest degradation from now until 2030? Are these targets measurable, time-bound and, where appropriate, supported by quantified sub-targets and interim milestones, or do they need to be revised to meet these criteria? Where no targets exist, what targets should be established? These may include measurable and time-bound sub-targets across the different forest dimensions; quantified sub-targets, where appropriate; and interim milestones linked to specific dates.

- What additional measures—new or revised policies, institutional arrangements, financing mechanisms, or capacities—are needed to close the gap between existing policies and the targets set above? Which of these measures can be achieved through existing domestic resources and institutional capacities, and which would require additional international cooperation, including finance, technology transfer, or capacity-building?

- Which actions should be prioritized because they are expected to make the greatest contribution towards the 2030 global objective? These may include actions that address the main drivers identified in Step 1; close the implementation gaps identified in Step 2; deliver multiple benefits across forest dimensions and create enabling conditions for subsequent measures.

- How should these actions be sequenced over time, and which institutions and stakeholders should be responsible for their implementation? This may include indicative implementation timelines; institutional responsibilities across national, subnational and local levels of government; coordination arrangements; and financing milestones.

Step 4. Establish monitoring and delivery indicators

While implementing their targets, countries may identify indicators to monitor progress towards the 2030 objective and support implementation over time. Monitoring should enable them to assess whether implementation measures are delivering the expected results, or whether additional efforts may be needed so that each country can make its fair contribution to the global objective of halting and reversing deforestation and forest degradation by 2030. This monitoring process should take into account implementation progress and new knowledge as it becomes available.

Countries may consider the following guiding questions:

- How will progress towards the 2030 global objective be translated into measurable national indicators, and how will that progress be sustained over time? These may include clear baselines, targets, geographic coverage and reporting periods; indicators of forest extent, condition, carbon, biodiversity and restoration; and distinctions between avoided loss, natural regeneration, active restoration and sustainable forest management; monitoring of restoration outcomes; risks of reversal from fire, drought or renewed clearing; and possible displacement of deforestation or degradation to other areas.

- Will any new data and analysis tools be needed to create and track Roadmap metrics?

- Which delivery indicators will track whether planned actions are being implemented at the required scale and pace? These may include policies adopted; finance committed and disbursed; areas protected, restored or brought under improved management; land rights clarified; enforcement actions completed; institutional capacity strengthened; and milestones assigned to responsible institutions.

- How will indicators be validated, reported and adjusted over time? This may include transparent data sources and methods; quality control and independent verification; treatment of uncertainty, permanence, leakage and double counting; alignment across national and international reporting systems; and regular review as evidence and implementation conditions evolve.

- How will the country assign responsibility for tracking progress and responding when Roadmap targets and milestones are not being met? This may include clear institutional mandates, reporting and review arrangements, accountability for implementation, and procedures for adjusting policies, resources and delivery mechanisms.

Step 5. Evaluate and adjust implementation

As implementation advances, countries may periodically evaluate progress against their targets and delivery indicators, drawing on monitoring data, independent review and new evidence. Evaluation should help countries understand what is working, where gaps or barriers remain, and what additional efforts may be needed so that each country can make its fair contribution to the global objective of halting and reversing deforestation and forest degradation by 2030. Findings should feed back into national planning, allowing policies, targets, and support to be refined over time.

Countries may consider the following guiding questions:

- How will national policies, governance arrangements, or financing be adjusted if targets are not met?

- How should these findings inform adjustments to policies, targets, and support in the next cycle? This may include comparing results against baselines, targets, and milestones; identifying where measures are underperforming or where risks such as reversal, leakage, or displacement have emerged; clarifying the policy, institutional, or financial constraints behind delivery gaps; and updating conditional and unconditional targets, additional measures, and support needs accordingly.

- How can monitoring, evaluation, and new studies support a nationally owned learning cycle, identifying progress, implementation gaps, and lessons learned? This may include regular review of monitoring results; independent evaluations and targeted studies to fill knowledge gaps; participation of Indigenous Peoples, Local Communities, and other stakeholders in reviewing results; documentation and sharing of lessons learned across institutions and with international partners; and integration of findings into subsequent planning and reporting cycles.

PART II. INTERNATIONAL ARCHITECTURE FOR FOREST ACTION

International action can support and shape national efforts to halt and reverse deforestation and forest degradation through multiple and complementary channels. International agreements, frameworks, declarations, and mechanisms establish shared objectives, commitments, principles and ways of cooperation relevant to forests. International support can complement national information, knowledge, technology, and institutional capacity, while cross-border dynamics, including international trade and transnational environmental crime, can shape the incentives and conditions under which forest policies operate. Their contribution to forest outcomes ultimately depends on how these international instruments, support arrangements and cross-border dynamics interact with national policies, institutions, and implementation systems.

This Part examines different dimensions of the international architecture for forest action. Section A considers international instruments relevant to forests and how they relate to the policy and implementation approaches identified in Part I. Section B examines international support for national implementation and enabling conditions for international cooperation, focusing on forest information and monitoring and on technical cooperation and capacity-building. Section C addresses cross-border pressures and opportunities, namely transnational environmental crime and international trade. Section D sets out the Roadmap's proposals for international action in response to the gaps and opportunities identified in the preceding sections. Financial resources are addressed in Part III.

A. INTERNATIONAL INSTRUMENTS

Forests are not governed by a single comprehensive, legally binding multilateral instrument. The international architecture relevant to forests is instead distributed across multiple instruments whose mandates intersect with different dimensions of forest conservation, sustainable use, loss, degradation, and recovery. Political declarations, voluntary partnerships, and broader international processes complement this architecture, often addressing several dimensions of forest action simultaneously.

This section describes what makes up that architecture and how it relates to the domestic policy and implementation approaches identified in Part I. Table 2 maps selected international instruments with specific relevance to forest themes. It shows how these instruments relate to different policy approaches for national forest policy and implementation. Because many international instruments address several aspects of forest policy and implementation, they have been allocated to the policy approach or approaches most directly relevant to their provisions, while recognizing that their broader scope may extend beyond those approaches. The table is intended to organize these relationships rather than establish mutually exclusive categories.

Table 2. Selected international instruments relevant to national forest policy and implementation

	Instrument	How it relates to forests
Nature conservation, climate action, and sustainable management	United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992	Promotes and cooperates in the conservation of greenhouse gas sinks and reservoirs, including biomass, forests and oceans, as well as other terrestrial, coastal and marine ecosystems (Art. 4.1(d)).
	Paris Agreement (UNFCCC, COP21), adopted in 2015	Calls on Parties to take action to conserve and enhance, as appropriate, greenhouse gas sinks and reservoirs, including forests, and encourages action to support approaches that recognize the role of conservation and sustainable management of forests (Art. 5).
	Convention on Biological Diversity (CBD), adopted in 1992	Requires Parties, as far as possible and as appropriate, to establish protected area systems and manage biological resources important for conservation and sustainable use (Art. 8).
	Kunming-Montreal Global Biodiversity Framework (CBD, COP15), adopted in 2022	Calls for at least 30% of terrestrial and inland water areas to be effectively conserved and managed by 2030 through systems of protected areas and other effective area-based conservation measures, recognizing Indigenous and traditional territories where applicable (Target 3).
		Calls for areas under forestry to be managed sustainably, through the sustainable use of biodiversity and biodiversity-friendly practices that contribute to resilient and productive forest systems while conserving and restoring biodiversity (Target 10).
	Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention), adopted in 1971	Requires Parties to designate suitable wetlands for the Ramsar List and promotes their wise use, including forested wetlands such as mangroves, peatlands and swamp forests (Arts. 1-3).
Collective territorial rights	C169 Indigenous and Tribal Peoples Convention, 1989 (International Labour Organization), adopted in 1989	Requires States to recognize ownership and possession rights over traditionally occupied lands and safeguard rights over their natural, including participation in their use, management and conservation (Arts. 14, 15).
	United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), adopted in 2007	Recognizes Indigenous peoples' rights to traditionally owned, occupied or used lands, territories and resources, and to the conservation and protection of their environment and productive capacity (Art. 26, 29).
Land degradation	United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD), adopted in 1994	Requires Parties to combat desertification and address land degradation through long-term strategies for the rehabilitation, conservation and sustainable management of land and water resources (Art. 2).
	Land Degradation Neutrality (LDN) (UNCCD, COP12), adopted in 2015	Provides a framework for avoiding and reducing land degradation and restoring degraded land, with Parties invited to establish voluntary national LDN targets.

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	Instrument	How it relates to forests
Harvesting regulations	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), adopted in 1973	Subjects international trade in listed timber species to permit requirements. For Appendix II species, export requires a finding that trade will not be detrimental to the species' survival and confirmation that the specimen was legally obtained (Art III-V).
Restoration, reforestation and afforestation	United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992	Promotes the enhancement, as appropriate, of greenhouse gas sinks and reservoirs, including forests and other terrestrial, coastal and marine ecosystems (Art. 4.1(d)).
	Kunming-Montreal Global Biodiversity Framework (CBD, COP15), adopted in 2022	Calls for at least 30% of areas of degraded terrestrial, inland water, and coastal and marine ecosystems to be under effective restoration by 2030 (Target 2).

Source: Climate Policy Initiative (CPI) and COP30 Presidency.

The 1992 **United Nations Conference on Environment and Development in Rio de Janeiro** was a defining moment in this international architecture, giving birth to the three Rio Conventions. The United Nations Framework Convention on Climate Change (UNFCCC)[192] and the Convention on Biological Diversity (CBD)[193] were opened for signature at the Conference, and the United Nations Convention to Combat Desertification was launched, States also adopted the non-legally binding Forest Principles, establishing a common set of principles for the conservation, management and sustainable development of all types of forests. Together, these instruments reflected from the outset the close links between forests, climate change, biodiversity conservation, and sustainable development.

Forests have been recognized under the **United Nations Framework Convention on Climate Change (UNFCCC)** since its adoption, with Article 4.1(d) calling on Parties to conserve and enhance greenhouse-gas sinks and reservoirs, including forests, and subsequent COP decisions further developed this role through the REDD+ framework, the Warsaw Framework for REDD+, and Article 5 of the Paris Agreement, which encourages action and support for reducing emissions from deforestation and forest degradation and enhancing forest carbon stocks. Forest countries, individually and through negotiating groups such as the Coalition for Rainforest Nations (CfRN)[194], have played an active role in shaping these outcomes.

The **Convention on Biological Diversity (CDB)** provides an important basis for forest conservation through its objectives of conserving biological diversity and ensuring the sustainable use of its components. These objectives apply directly to forest ecosystems and have subsequently been translated into more specific targets through the Kunming-Montreal Global Biodiversity Framework.[4] Its targets on area-based conservation, sustainable management of areas under forestry and ecosystem restoration provide an international framework relevant to national approaches such as protected areas, sustainable forest management and forest restoration.

Although the CBD and UNFCCC have distinct mandates, forests illustrate the substantial overlap between climate and biodiversity objectives and the opportunities for greater coherence and synergies in their implementation.

The **United Nations Convention to Combat Desertification (UNCCD)**[195] adds a further dimension to this relationship. Adopted in 1994 and forming, together with the UNFCCC

and CBD, the three Rio Conventions, the UNCCD addresses the prevention and reversal of land degradation and the promotion of sustainable land management. This agenda was further developed through Land Degradation Neutrality, which provides a framework for avoiding and reducing land degradation and restoring degraded land, with Parties invited to establish voluntary national Land Degradation Neutrality[196] targets. These objectives are relevant to forests where forest degradation forms part of broader processes of land degradation and where sustainable forest management, restoration and rehabilitation can contribute to maintaining or recovering land productivity and ecosystem functions. Taken together, these agendas highlight the opportunity for greater synergy across the Rio Conventions, by connecting forest-related priorities and implementation across climate, biodiversity and land agendas.

Other international agreements address more specific dimensions of forest conservation. **The Ramsar Convention**[197] supports the conservation and wise use of wetlands, including forested wetlands such as mangroves, peatlands and floodplain forests, while the **World Heritage Convention**[198] provides a framework for identifying and protecting natural areas of outstanding universal value, including forest ecosystems. These agreements predate the Rio Conventions but remain relevant to national approaches for conserving particular forest ecosystems.

International human rights instruments also have important implications for forest governance and for the recognition and protection of collective territorial rights. **International Labour Organization Convention** No. 169[199] recognizes rights of Indigenous and tribal peoples over traditionally occupied lands and natural resources, while the **United Nations Declaration on the Rights of Indigenous Peoples**[200] recognizes Indigenous Peoples' rights to lands, territories and resources and to the conservation and protection of their environment. These instruments recognize rights that should not be understood primarily as means of forest conservation. Their recognition at the international level and effective protection in practice can nevertheless strengthen the conditions for long-term forest stewardship by Indigenous Peoples, with important implications for forest conservation and sustainable use.

The **Convention on International Trade in Endangered Species of Wild Fauna and Flora**[201] provides a more targeted mechanism affecting the use of particular forest resources, establishing controls on international trade that vary according to the conservation status of listed species, with more stringent requirements applying to species at greater risk of extinction. These controls may include export and import permits, legal acquisition requirements, and assessments of whether trade could threaten the survival of the species. This illustrates how an agreement focused primarily on species conservation can also interact with national forest management and harvesting policies.

These conventions operate alongside broader international forest frameworks. Building on the Forest Principles, subsequent developments include the **United Nations Forest Instrument and the United Nations Strategic Plan for Forests 2017–2030**[202], which sets out six Global Forest Goals and associated targets. These non-binding instruments, as well as the Article 5.2 of the Paris Agreement and the Warsaw Framework for REDD+, address forests comprehensively, spanning sustainable forest management, conservation, forest loss and degradation, restoration, afforestation and reforestation, as well as governance, finance and international cooperation. Their broad scope means that they do not correspond neatly to individual policy and implementation approaches but instead provide overarching guidance for international forest action.

International institutions and processes support the implementation and continued development of this broader forest architecture. **The United Nations Forum on Forests** provides the intergovernmental platform for advancing the United Nations Strategic Plan for Forests and its Global Forest Goals, while the FAO Forestry Roadmap 2024–2031[203] guides FAO's forest-related work across conservation and restoration, sustainable production and livelihoods, and other dimensions of forest action. Other United Nations processes address specific dimensions or implementation challenges, including international cooperation on wildfire management through the United Nations Environment Assembly.

More recent political commitments and international processes have further reinforced this agenda. Political declarations have helped articulate collective ambition on forests, including the **Glasgow Leaders' Declaration on Forests and Land Use**[204], which committed signatories to work collectively to halt and reverse forest loss and land degradation by 2030. The Pact for the Future[205] reiterated the importance of halting and reversing deforestation and forest degradation in the broader context of protecting and restoring ecosystems and advancing sustainable development. In 2025, the United Nations General Assembly proclaimed the United Nations Decade for Afforestation and Reforestation in line with Sustainable Forest Management (2027–2036)[206] to mobilize action and strengthen international cooperation and capacity-building to halt and reverse forest cover loss and support afforestation and reforestation.

The **International Tropical Timber Organization (ITTO)**[207] is another example of intergovernmental organization that promotes the sustainable management and conservation of tropical forests, as well as trade in tropical timber from sustainably managed and legally harvested sources. ITTO develops internationally agreed policy guidelines, shares data on tropical timber production and trade, and helps fund forestry projects in producing countries. Its member countries manage about 80% of the world's tropical forests and account for about 90% of the global tropical timber trade.

Voluntary international partnerships, coalitions and initiatives provide an additional layer of cooperation alongside international instruments and institutional processes. They vary in their objectives, institutional arrangements and participants and may focus on particular dimensions of forest action, including political coordination, restoration, finance, sustainable supply chains or territorial rights. The Bonn Challenge[208], for example, provides a platform for voluntary commitments to forest landscape restoration, the **Forest and Climate Leaders' Partnership (FCLP)**[209] focuses on political coordination to accelerate implementation of forest and climate commitments, while the **Central African Forest Initiative (CAFI)**[210] is a partnership between Central African countries with high rainforest cover and a coalition of donors. Other arrangements bring together different combinations of governments, Indigenous Peoples, Local Communities, civil society, international organizations, finance actors and the private sector around specific implementation priorities. These arrangements provide additional platforms for mobilizing action, resources and cooperation and for connecting commitments across different international processes.

The **UNFCCC Global Climate Action Agenda (GCAA)**[211] also serves as a convening space for the implementation of concrete climate solutions worldwide. Following COP30, when Parties adopted decisions to move climate discussions into a new era focused on implementation, the GCAA underwent a significant transition. The renewed Agenda now unites over 465 coalitions of actors willing to move faster.

It gives these existing efforts a place within the UNFCCC architecture, allowing them to be recognized, showcased and scaled up, and to contribute to already agreed collective goals,

reinforcing a two-tier multilateralism model. The first tier consists of political commitments and outcomes agreed by Parties through negotiated decisions, while the second tier consists of implementation, driven by Parties and non-Party stakeholders, including Indigenous Peoples, Local Communities, civil society, subnational governments, finance actors and the private sector. The two tiers are complementary and mutually reinforcing. Negotiated outcomes set direction and ambition, while the Action Agenda mobilizes actors to deliver them on the ground. Moreover, the **Global Implementation Accelerator**, launched at COP30 through the decision Global Mutirão[212], operationalizes this second tier by channeling the efforts of all actors into a small set of concrete, collaborative Plans to Accelerate Solutions, designed to trigger positive tipping points and keep 1.5 °C within reach.

These coalitions are working across 6 Axes to accelerate the implementation of the outcomes of the first Global Stocktake (GST)**.** Each coalition brings together countries, businesses, investors, subnational governments, and civil society. The Action Agenda tracks the progress of these coalitions, demonstrating that solutions exist and are working, and takes their efforts one step further. These actors are now also joining forces through time-bound Plans to Accelerate Solutions (PAS)[213].

Over 100 of these PAS were voluntarily developed to pull key levers for global climate solutions. 21 of the PAS directly address policies and/or implementation approaches related to the Roadmap, such as finance for forest conservation, land tenure for Indigenous Peoples and Local Communities, bioeconomy, and restoration of degraded land, among others. These initiatives are referenced throughout this document wherever applicable and are listed in Appendix II.

Taken together, these international instruments, institutional processes, and voluntary initiatives illustrate both the distributed and complementary nature of the international forest architecture. Climate change, biodiversity, land degradation, Indigenous Peoples and Local Communities' rights, ecosystem conservation and species protection are addressed through distinct international regimes, but their objectives and implementation intersect in important ways in relation to forests. These intersections create opportunities for greater coordination and synergies across international instruments and processes, which can in turn support more coherent national implementation while respecting their distinct mandates and legal status.

B. INTERNATIONAL SUPPORT FOR NATIONAL IMPLEMENTATION AND ENABLING CONDITIONS FOR INTERNATIONAL COOPERATION

International action can play different supporting roles in relation to national implementation and international cooperation. It can complement domestic resources and capacities by providing information, knowledge, technology and technical cooperation, while some forms of information, methodologies and shared infrastructure also provide enabling conditions for international mechanisms and cooperation. The relevance and effectiveness of this support vary according to national circumstances, institutional capacities, and the specific function being addressed.

Access to international support is uneven. Engaging with international processes and institutions can itself require capacities that some countries are still building, underscoring the importance of designing international cooperation so that its benefits reach the countries and institutions that need them most.

Domestic and international efforts are closely interconnected. International cooperation effectiveness depends on the institutions, policies, and incentives through which it is translated into implementation. It can help countries strengthen domestic conditions that would otherwise constrain action. Its contribution is strongest where it reinforces national institutions and priorities rather than operating in their place.

B.1 Forest information and Monitoring

Shared technical infrastructure to support national implementation

Forest information and monitoring represent an essential infrastructure for effective forest policy. It allows governments to identify where and how forests are changing, distinguish among different types and causes of change, assess risks, design and target policy responses, direct finance, evaluate results, and hold public and private actors accountable. It also supports land-use planning, law enforcement, carbon and biodiversity accounting, supply-chain due diligence, and progress tracking under national and international commitments. Monitoring is part of this broader information infrastructure.

National forest information and monitoring systems provide the foundation for country ownership and official forest information. National institutions hold official definitions, field observations, legal classifications, forest inventories, and institutional knowledge of tenure and land use. Additionally, official reporting under international processes ultimately rests on national systems.

Forest information can be drawn on multiple and complementary sources, including national forest inventories, field observations, administrative records, remote sensing, and other monitoring systems. Remote sensing is particularly valuable for its broad spatial coverage and repeated observations, enabling consistent monitoring of forest conditions and changes over time. The appropriate combination depends on the characteristics or processes being measured, national circumstances, and the intended use of the information.

Existing international initiatives demonstrate the range of technical capabilities already available. Official country-reported systems and complementary platforms provide long-term land-use and forest-cover series, near-real-time disturbance alerts, information on fires and specific forest ecosystems, and links between commodity production and exposure to deforestation risk. Global data products can further complement national information systems: the European Commission's Joint Research Centre[214] provides a globally consistent map of forest extent through its Global Forest Cover product, and annual information on deforestation, degradation and forest regrowth in tropical moist forests through its Tropical Moist Forest dataset. The Forest Landscape Integrity Index[215] offers a complementary, derived measure of forest ecological integrity, combining information on human pressures and changes in forest connectivity. Such products can support analysis and comparison across countries, while national systems remain important for applying country definitions, validating results and producing information suited to national policy needs. In several cases, data, methodologies and codes are openly accessible, while some initiatives have expanded through partnerships that combine international technical capabilities with locally led implementation. Coverage, accessibility and integration nevertheless remain uneven.

Table 3. Selected global initiatives and platforms for forest information and monitoring

Information area	Initiative	What it tracks/provides	Coverage	Main data sources/access
Forest extent, condition and land-use change	FAO Global Forest Resources Assessment	Forest area, deforestation, expansion, management, biomass, carbon, fires and other forms of degradation, ownership, protection status and other forest characteristics	Global	Official country reports, complemented by satellite-based remote-sensing assessments; openly accessible
	FAOSTAT	Forest area and change, forest-related emissions and removals, fire emissions, and production and trade of forest products	Global	Official country statistics and questionnaires, supplemented by the Food and Agriculture Organization estimates and imputations where needed; openly accessible
	Global Nature Watch – World Resources Institute (WRI)	Tree cover extent and loss, humid tropical primary forests, disturbance alerts, fires, carbon, protected areas, concessions, selected land-use and commodity risks and indicators of degradation. Recent additions address dominant drivers of tree cover loss and the likely cause of disturbance alerts in major tropical forest regions	Global for core time series, with driver products covering specific regions and periods	Satellite-based remote-sensing data and derived geospatial products, complemented by partner datasets; openly accessible
	Copernicus Global Dynamic Land Cover – Copernicus Land Monitoring Service	Global land-cover classes and their change over time, including tree cover, grasslands, croplands, wetlands and other land-cover types	Global	Satellite-based remote-sensing data and derived land-cover products; openly accessible
	MapBiomas – MapBiomas Network	Annual land use and land cover maps, transitions between classes, and thematic products covering deforestation, regeneration, fire, water, agriculture, pasture, mining, soil and infrastructure. For specific countries, also native vegetation degradation, including fragmentation, edge exposure, fire frequency, time since disturbance and ate of secondary vegetation	Brazil, with expansion through locally led initiatives in other countries and regions. More detailed degradation variables remain limited to Brazil and/or selected geographies	Satellite-based remote-sensing data processed through automated classification and machine-learning methods; data, methods and code openly accessible
	NASA Global Ecosystem Dynamics Investigation (GEDI)	Forest canopy height, vertical structure, canopy cover and aboveground biomass	Between approximately 51.6°N and 51.6°S, with sampled rather than wall-to-wall coverage	Laser-based remote sensing observations and derived structural and biomass products; openly accessible
Fire	NASA Fire Information for Resource Management System (FIRMS)	Near-real-time active-fire locations and thermal anomalies for detecting and investigating fire events	Global	Satellite-based remote-sensing data and derived active-fire products; openly accessible
	Global Wildfire Information System (GWIS)	Burned area and fire events, active fires and thermal anomalies, fire danger, fire emissions, and fire-season statistics	Global	Satellite-based remote-sensing data, complemented by meteorological and other datasets; openly accessible
	FireSat, coordinated through the Earth Fire Alliance	Rapid wildfire detection and detailed fire monitoring, with the aim of enhancing coordination between countries	Global coverage under development; initial operational capability in 2026, with progressive constellation deployment	Dedicated satellite-based remote-sensing data and derived fire products; operational access is being progressively expanded and is not yet fully open
Ecosystem-specific information	Global Mangrove Watch	Mangrove cover and change, with soil carbon, living biomass, canopy height, species, alerts and restoration-related attributes	Global	Satellite-based remote-sensing data and derived geospatial products, complemented by other ecological datasets; openly accessible
Supply-chain information	Trase – Stockholm Environment Institute and Global Canopy	Links between commodity production, sourcing regions, companies, consumer markets and exposure to deforestation risk	Selected commodity and market combinations	Trade, shipment, company, and government data, complemented by satellite-based remote sensing and modelling; openly accessible

Source: Climate Policy Initiative (CPI) and COP30 Presidency.

National capacity to produce, interpret and use forest information remains uneven. Free satellite imagery and global information products have expanded access to forest data, while the production of validated and policy-ready information continues to require technical staff, field data, computing infrastructure, institutional continuity and sustained quality control. International cooperation can broaden these capabilities and strengthen countries' ability to produce and adapt information consistent with their forest definitions, land-use systems, and policy priorities.

Enabling conditions for international mechanisms and finance

Forest information is particularly important for international climate and forest finance because different forest outcomes require different forms of measurement and accounting. Maintaining standing forests, reducing emissions from deforestation and degradation, and increasing removals through forest recovery pose distinct information challenges. Information on gross forest loss is generally more developed than information on degradation, standing forest carbon stocks and the quality and permanence of forest recovery.

These differences can affect which forest outcomes are easier to demonstrate and finance. Results-based payments, including from jurisdictional programmes, carbon markets and other mechanisms, depend on information and methodologies that are sufficiently robust for financial decisions and recognized as legitimate by participating countries. Greater transparency and interoperability across approaches used to account for different forest outcomes can strengthen the information available to countries and other actors relying on it. Countries' participation in developing, applying and interpreting these methodologies can also strengthen their ability to access international forest finance under arrangements compatible with national circumstances.

International cooperation can facilitate comparison, integration and interpretation across borders, including assessing aggregate progress, operating international financial mechanisms, and addressing transboundary supply chains.

Gaps affecting the production, use and comparability of forest information

Several recurring gaps affect the production, use and comparability of forest information, including methodological interoperability and reporting practices, integration across information systems, and uneven coverage across forest processes, ecosystems and ecosystem services.

Greater methodological interoperability can improve the comparability and use of forest information across systems. Platforms and national systems may apply different definitions of forests, degradation, deforestation, restoration and land use, as well as different thresholds, mapping units, spatial resolutions, temporal windows, and validation procedures. Different sources can therefore be technically sound while producing results that are not directly comparable. Transparent crosswalks, shared validation approaches, systematic uncertainty reporting, and cooperatively developed methodological references can help users interpret and reconcile these sources while preserving flexibility for national circumstances and different forest ecosystems.

Reporting practices also affect how forest change is interpreted. Where data allow, reporting could distinguish gross forest losses from gains, primary forests from other forest categories, and changes across biomes and native vegetation types. Loss of non-forest native vegetation should be identified separately where relevant, rather than treated as deforestation. These distinctions can prevent aggregate or net figures from obscuring losses in particular ecosystems, even when regrowth occurs elsewhere. Connecting monitoring outputs to national accounting and reporting systems, and making them available in time to inform policy and enforcement, would help countries assess progress and adjust their responses.

Better integration across information systems can reduce the resources required to turn data into policy-relevant analysis. Relevant information is often distributed across separate platforms and databases covering biophysical conditions, tenure, Indigenous Peoples' and communities' territories, protected areas, concessions, permits, environmental authorizations, public expenditure, rural credit and commodity sourcing. Greater interoperability can improve reproducibility and make integrated analysis more accessible to institutions with limited technical and computational capacity.

Monitoring capabilities also vary across forest processes and ecosystems. Deforestation is comparatively well covered by existing monitoring systems. Forest degradation, restoration quality and permanence, sustainable forest management outcomes and conservation outcomes beyond protected-area boundaries remain more difficult to measure consistently. Coverage also varies across ecosystems, including mangroves, peatlands, dry forests, and woodlands.

The ecosystem services provided by forests are also unevenly captured in existing information systems. While carbon stocks and changes in forest cover are comparatively well measured, contributions to water regulation, soil protection, biodiversity and other ecosystem functions often require indicators and field observations suited to particular ecosystems. Greater cooperation on methods for assessing these services could help countries recognize the contribution of conservation, including beyond protected areas, and better understand the relationships among conservation, restoration and sustainable land use across landscapes.

Box 3. Why forest degradation is difficult to measure

Degradation poses a different monitoring challenge than deforestation: the forest remains standing, so what must be detected is a change in its condition—losses in biomass, structural complexity, biodiversity, soils or capacity to regenerate—rather than a change in forest area. These dynamics take different forms across ecosystems: selective logging, fire, fragmentation and edge effects in moist tropical forests; repeated burning, overgrazing and fuelwood extraction in dry forests; logging, pests, storms and shifting fire regimes in temperate and boreal forests; drainage and fire affecting both vegetation and soil carbon in forested peatlands; and altered hydrology or structure in mangroves, even where canopy cover remains intact.[216]

Many of these changes are difficult to observe consistently from space. Selective logging can leave only narrow gaps and roads that become less visible as vegetation regrows, so canopy cover may appear unchanged even after substantial change beneath it. Biomass loss can be estimated through forest inventories and increasingly through radar or Light Detection and Ranging (LiDAR), but consistent measurement over large areas requires repeated observation, calibration and field data. Changes in biodiversity, soils, hydrology or regeneration are harder still to infer remotely and often require ecosystem-specific, field-based indicators.[217, 218,219]

Fire illustrates both the promise and the limitations of remote sensing: burned area and active fires are comparatively well observed by satellite, although smaller fires and those occurring beneath the forest canopy can escape detection. However, a mapped fire is not by itself evidence of degradation. Its significance depends on the forest's natural fire regime and on changes in frequency, intensity, severity and spatial pattern relative to it—fire is rare in undisturbed moist tropical forests and can cause lasting damage, particularly where previous logging, fragmentation or drought has increased flammability, while in boreal forests and some temperate forests it is part of natural ecological dynamics.[220, 221]

Detecting a disturbance is generally easier than determining whether it has pushed forest condition beyond its natural range of variation, how severe the change is, or whether recovery is underway. Robust monitoring therefore usually combines several sources over time—satellite observations of disturbance and canopy change, measurements of forest structure and biomass, forest inventories and complementary field observations, and ecosystem-specific indicators of biodiversity, soils, hydrology and disturbance regimes—in combinations that vary by forest type. This makes degradation less amenable than deforestation to a single global metric but does not prevent countries from developing indicators suited to the degradation processes that matter most in their own forests.[5,222]

B.2 Technical cooperation and capacity-building

The role of technical cooperation and capacity-building in supporting implementation

International technical cooperation and capacity-building can strengthen national implementation by helping countries develop, access and sustain the technical, institutional and informational capabilities. Many forest challenges require technical capacity-building support beyond general training. They involve specialized methodologies, institutional arrangements, operational protocols, and lessons drawn from different contexts.

Countries frequently confront implementation challenges that others have already addressed, and a broad range of relevant policy tools, technologies, methodologies and implementation experience already exists. In order to enhance efforts towards halting and reversing deforestation and forest degradation by 2030, opportunities to exchange and apply that expertise need to be strengthened. Effective implementation depends on countries' ability to access and adapt available resources to national circumstances and integrate them into institutions and operational frameworks.

Translating information on ecosystem services into policy remains a key challenge for effective implementation. Research and civil society initiatives have developed a range of assessment and valuation approaches, but their diversity can make it difficult for governments and private actors to determine which are suitable for a particular ecosystem or policy purpose. International cooperation could help countries compare and adapt these approaches, including economic valuation where appropriate, and develop nationally appropriate incentives that recognize the benefits of conservation beyond carbon. This could strengthen support for conservation across different forms of land tenure while connecting it with restoration, sustainable land use and inclusive local development.

Existing forms and initiatives of international technical cooperation

International cooperation can facilitate access to specialized knowledge and implementation experience across countries, while strengthening long-term national capacity. This can take different forms: conventional technical assistance, through which cooperation helps countries adapt methodologies, institutional arrangements and implementation approaches to their national circumstances; and peer learning, South-South and triangular cooperation, through which countries facing similar ecological conditions, drivers or implementation constraints exchange operational experience directly with one another. Building these capabilities within national institutions—rather than relying solely on external providers—can support continuity as technologies, methodologies and implementation needs evolve. Contributions to the Roadmap indicate that peer learning, South-South and triangular cooperation remain comparatively under-resourced compared to conventional technical assistance, and that access to specialized technical exchange is uneven.

Thematic and ecosystem-specific initiatives can provide additional channels for this exchange. The Mangrove Breakthrough[223] brings governments and non-state actors together around mangrove conservation and restoration and includes knowledge exchange, tools and data among its implementation pathways. For peatlands, the Peatland Breakthrough[224]

coordinates action around science-based targets for conservation, rewetting, restoration and sustainable use, developed in close alignment with the UNEP-led Global Peatlands Initiative[225], which provides a broader platform for technical and policy exchange, including South-South and triangular cooperation on peatland science, monitoring, conservation, restoration and sustainable management. For fire, the FAO-hosted Global Fire Management Hub[226] brings together national agencies, regional organizations and communities to strengthen countries' capacities for integrated fire management, with an emphasis on prevention and preparedness rather than reactive response. Its work combines knowledge and data sharing, training and mentoring, community-based approaches that draw on Indigenous and traditional knowledge, risk assessment and early warning, and support for integrating fire management into national and subnational policy. For REDD+, the UN-REDD Programme[227], launched in 2008 and entering a renewed strategic cycle for 2026–2030, provides a long-standing global platform for knowledge exchange and catalytic technical assistance, drawing on the complementary expertise of FAO, UNDP and UNEP. Working across country, regional and global levels, it enables countries to share experience, technical solutions and lessons from REDD+ implementation, including through South-South knowledge exchange and peer learning. This provides an important channel for translating experience into stronger REDD+ implementation, enhanced climate ambition and increased access to results-based finance.

Existing international frameworks and institutions provide a foundation for cooperation. Under the UNFCCC, the Enhanced Transparency Framework (ETF) established under Article 13 of the Paris Agreement supports the reporting and review of greenhouse gas emissions and removals, progress towards Nationally Determined Contributions, and climate action and support. The Warsaw Framework for REDD+ provides specific arrangements for forest reference levels, forest monitoring and the reporting and technical analysis of REDD+ results, while Article 6 establishes additional requirements for the reporting and accounting of cooperative approaches. FAO Global Forest Resources Assessment5 provides a global country led framework for reporting and disseminating data and metadata on forest resources, their management and use. These frameworks offer complementary tools and processes that countries can strengthen and operationalize within their national systems. International cooperation can help address the methodological and technical capacity needs involved in their implementation.

Strengthening the effectiveness of international technical cooperation and capacity-building

Technical and institutional capabilities remain unevenly distributed across countries, and access to international support is fragmented. International capacity support is delivered predominantly through time-bound projects and funding cycles, which can limit the extent to which capabilities are embedded and sustained within national institutions. In addition, support tends to be supply-driven, organized around what providers are equipped to offer rather than around gaps that countries have themselves identified. A country facing a particular technical problem has no systematic way of discovering which institutions have addressed it or which peers have already solved it due to the lack of a shared register of available support. South-South and triangular cooperation is widely endorsed and comparatively thinly resourced, and regional cooperation and peer-to-peer exchange are

often underdeveloped. Exchange is also often more available on framework-level and awareness-raising topics than on the harder technical problems where countries most need it, including degradation measurement, restoration monitoring, jurisdictional accounting, fire management, traceability systems, and enforcement analytics. Thematic platforms such as the Global Fire Management Hub[226] illustrate one way of organizing exchange around a defined technical problem.

Underlying these issues is a distributional problem that connects directly to the capacity asymmetries described above. Participation in any international initiative carries a fixed institutional cost: staff time to attend, report, maintain relationships, and translate what is learned into national practice. A country with a large technical agency can absorb that cost across many initiatives, while one with a small forest institution must either engage with a fraction of what is available or spread limited staff too thinly to benefit from any of it. Dispersed, uncoordinated cooperation can therefore shift coordination costs onto precisely the institutions least able to bear them, limiting their ability to use the support available and reproducing the asymmetries that technical cooperation is meant to reduce. Longer-term support, greater coordination and more accessible peer-to-peer, regional, South-South and triangular cooperation can help reduce these barriers.

Strengthening the effectiveness of international technical cooperation and capacity-building depends on how support is designed and delivered. Contributions to the Roadmap indicate that support is more likely to strengthen implementation when it responds to priorities identified by countries, reflects national institutional and ecological circumstances and builds capabilities within permanent institutions. Greater coordination among providers and initiatives can reduce duplication and the administrative burden placed on national institutions.

International capacity support can produce more durable results when countries are able to retain and develop the capabilities it helps create. Long-term institutional capacity, strong national information systems and sustained channels for knowledge exchange allow countries to respond as technologies, methodologies and implementation needs change over time.

C. CROSS-BORDER PRESSURES AND OPPORTUNITIES

Some forces that shape forest outcomes operate across borders and cannot be addressed by any country acting alone. Transnational environmental crime and international trade can create pressures and risks for forests, for example where illegally harvested or converted products reach markets. They can also create opportunities, where law enforcement cooperation, trade rules, and market signals reinforce national efforts. This section therefore considers both the cross-border dynamics and the international cooperation available to address them, focusing on transnational environmental crime (C.1) and international trade and forests (C.2).

C.1 Combating transnational environmental crimes

Forest-related crime is a cross-border pressure that national implementation cannot fully address alone. Illegal logging, illegal mining, drug trafficking (cultivation, manufacture, distribution and sale of substances), land grabbing and related offences often involve supply chains, financial flows and criminal networks that span several jurisdictions, so differences in how countries detect, define and sanction these activities can limit what any single enforcement system can achieve. International cooperation, through shared legal frameworks, information exchange and joint investigation, including of the financial flows behind these crimes, can strengthen national authorities' ability to detect, investigate and sanction them. This section, based on contributions to this Roadmap and available reports, describes the scale and structure of forest-related crime, how countries' legal treatment of it differs, and the international instruments and cooperation channels that support national enforcement.

Environmental crimes are part of a highly profitable illicit economy and can create significant economic incentives for activities that drive deforestation and forest degradation. The Financial Action Task Force estimates environmental crime generates around US$ 110 to 281 billion in criminal gains each year,[228] including illegal logging, illegal wildlife trade, and waste trafficking. Beyond direct forest loss and degradation, environmental crimes harm Indigenous Peoples and Local Communities, deprive governments of revenue, and sustain organized criminal networks engaged in other illicit activities. Consistent with this systemic dimension, the World Bank estimates illegal logging, fishing, and wildlife trade has an estimated full global economic value of about $1 trillion to $2 trillion per year,[229] illustrating the scale of incentives that can drive illegal extraction and forest destruction.

The scale and persistence of these activities reflect the fact that environmental crimes are rarely isolated offences. Activities such as illegal logging, wildlife trafficking, illegal mining, land grabbing and other activities associated with deforestation are often embedded in broader criminal ecosystems involving corruption, fraud, document forgery, tax evasion, money laundering, illicit financial flows and organized criminal groups. In an analysis of pollution crimes, for example, INTERPOL identified associated transnational offences in 70% of the cases examined, particularly financial crimes, money laundering, fraud, document forgery and corruption.[230]

Despite their economic scale and associated impacts, the legal treatment of crimes that affect forests varies significantly across countries. A global analysis by the United Nations Office on Drugs and Crime (UNODC)[231] found substantial variation in both the criminalization of environmental offences and the severity of sanctions. The legislation of 145 Member States was identified as criminalizing forest-related offences that affect the environment, while 62 had penalties meeting the definition of *serious crime* under the United Nations Convention against Transnational Organized Crime (UNTOC)—see Box 4. For forest offences specifically, the conduct is not criminalized in 41 countries, while data were unavailable for seven others. Penalties also vary substantially with respect to imprisonment, fines and the confiscation of equipment, forest products, money and other assets.

This heterogeneity can constrain international cooperation where the use of particular mechanisms depends on minimum thresholds of seriousness or dual criminality.[231] Conduct that constitutes a serious crime in one jurisdiction may constitute a less serious offence, an administrative violation or no criminal offence at all in another. This does not mean that criminal liability cannot arise from associated offences, but it means that the underlying forest offence itself may not always receive criminal treatment commensurate with the economic and transnational dimensions of the activity. Differences also arise in whether environmental offences qualify as predicate offences to money laundering under national law. Where they do, anti-money-laundering frameworks provide an established avenue for international cooperation, including financial intelligence exchange, tracing illicit proceeds and cooperation on freezing and confiscation, subject to applicable legal requirements.[232]

Box 4. Serious crimes and developments under the United Nations Convention against Transnational Organized Crime (UNTOC)

The **United Nations Convention against Transnational Organized Crime (UNTOC)** is the most comprehensive international legal instrument for cross-border criminal cooperation. The Convention applies to serious crimes—defined as offences punishable by a maximum deprivation of liberty of at least four years or a more serious penalty—where the applicable requirements under the Convention, including those concerning transnationality and the involvement of an organized criminal group, are met.[233]

Accordingly, where environmental conduct is treated exclusively as an administrative offence, or where the corresponding criminal offence carries a maximum penalty below the threshold required by United Nations Convention against Transnational Organized Crime, the environmental crime, considered in isolation, may not allow the use of all the mechanisms provided for under the Convention for serious crimes. This circumstance points to an important gap in the international response to offences that drive deforestation and forest degradation.

More broadly, environmental crimes are still rarely prosecuted with the help of UNTOC mechanisms. Differences in national criminalization and penalty thresholds can limit access to mechanisms such as mutual legal assistance, joint investigations, extradition and asset recovery.[234] , [235] Establishing common international standards for the criminalization of specific environmental offences could help address these limitations by reducing differences between national legal frameworks and facilitating the use of existing international cooperation mechanisms, subject to applicable legal requirements.

Recent multilateral initiatives have sought to strengthen the international response to crimes that affect the environment. At COP30, a Coalition for Multilateral Action Against Crimes that Affect the Environment was established to advance international cooperation and to explore options for strengthening the global response to environmental crime. Among the initiatives being discussed is the urgency of establishing a binding legal framework under UNTOC, aimed at preventing and combating such crimes.[236]



Against this background, on 23 October 2026, the Conference of the Parties to the United Nations Convention against Transnational Organized Crime, at its thirteenth session, adopted a resolution establishing an *ad hoc* committee to elaborate an additional protocol to the Convention. The proposed protocol will address the criminalization of illicit trafficking in wild fauna and flora, including timber and timber products; illegal mining and illicit trafficking in minerals and precious metals; and illicit trafficking in waste. It will also address other measures within the scope of the Convention relevant to preventing, investigating, prosecuting and adjudicating these offences. The decision formally initiates the process of developing an additional protocol to combat these forms of transnational organized crime.

The transnational character of environmental crime is not determined solely by the location where the underlying environmental offence occurs. Illegal extraction may take place entirely within one State while its financing, transportation, commercialization, processing, concealment of origin and laundering of proceeds are distributed across multiple jurisdictions. Supply chains, logistical routes and financial networks may allow products and assets derived from illegal environmental exploitation to cross several borders before reaching consumer markets or the formal financial system. The transnational nature of these flows means that the impacts on forests are often shaped by actors and incentives operating across multiple jurisdictions.[237]

Yet the criminal justice response to environmental crime remains overwhelmingly national in scope. There is an asymmetry between the nature of the criminal activity and the architecture of the State response: criminal structures, financial flows, supply chains and environmental impacts may extend across borders, while investigations and enforcement remain largely organized within national jurisdictions, constrained by limited cross-border cooperation mechanisms.[238] This mismatch can constrain efforts to address deforestation and forest degradation associated with transnational criminal activity.[239]

While domestic efforts remain essential, they are often insufficient when the underlying challenge involves transnational organized criminal networks operating across borders, supply chains, and financial systems. Effective responses require cooperation among countries, institutions, and enforcement authorities, alongside domestic measures to address the underlying drivers and enabling conditions associated with environmental crime.

Stronger international cooperation is particularly important where offenders, products, documents, financial flows, companies and assets connected to environmental crime are distributed across different jurisdictions. For implementation purposes, it is important to distinguish the different mechanisms of international cooperation, which have their own nature, purpose and degree of formality and can operate in a complementary manner:

a. **International police cooperation:** It consists of direct cooperation between law enforcement authorities, aimed especially at the rapid exchange of information and criminal intelligence, the identification and location of persons and assets, the analysis of criminal networks, the identification of routes and the coordination of operational activities. It may take place through INTERPOL, Europol, AMERIPOL,

liaison officers, bilateral or regional channels and other police networks. Article 27 of UNTOC expressly provides for the strengthening of communication channels between law enforcement authorities, the exchange of information and other forms of cooperation for the investigation of transnational organized crime.

b. **Mutual Legal Assistance:** UNODC expressly defines Mutual Legal Assistance in the *Guidelines on International Cooperation* as the process used by States to provide and obtain formal government-to-government assistance in criminal investigations and prosecutions. Thus, it is the process through which States provide and obtain formal government-to-government assistance in criminal investigations, prosecutions and judicial proceedings.[240] It may include, among other measures, obtaining evidence and testimony, serving judicial documents, conducting searches and seizures, freezing assets, providing banking, financial, corporate and business records, and identifying or tracing proceeds and instrumentalities of crime. It differs from direct police cooperation because it constitutes a formal mechanism of assistance between States, particularly relevant when obtaining evidence or executing a measure depends on the exercise of the legal powers of the authorities of the requested State.[233]

c. **Joint Investigation Teams (JITs):** Eurojust—European Union Agency for Criminal Justice Cooperation defines a Joint Investigation Team as a legal agreement between the competent authorities of two or more States for the purpose of conducting criminal investigations[241]. Article 19 of UNTOC provides, with regard to joint investigations, that competent authorities may establish joint investigative bodies and that, in the absence of prior agreements, joint investigations may be carried out by agreement on a case-by-case basis. The States Parties involved shall ensure that the sovereignty of the State Party in whose territory such an investigation takes place is fully respected.[233]

d. **Operational Task Forces (OTFs):** Operational Task Forces are temporary groups of representatives of the competent authorities of Member States and Europol, based on a multinational and multidisciplinary approach and established to carry out a specific project, coordinating intelligence and investigative efforts focused on the criminal activities of one or more High Value Targets and members of their criminal network. Third Countries and other Europol Operational Partners may be invited where this is considered legally possible and operationally necessary by the Member States.[242]

e. **Financial intelligence cooperation and anti-money-laundering frameworks:** Financial Intelligence Units (FIUs) serve as national centers for receiving and analyzing suspicious transaction reports and other relevant information, and disseminating the results of their analyses to competent authorities. The Financial Action Task Force (FATF) Recommendations[243] establish international standards for the functions of FIUs and cooperation between competent authorities, including the exchange of financial intelligence with foreign counterparts. The Egmont Group provides an established channel for secure financial intelligence exchange among member Financial Intelligence Units, supporting cooperation on money

laundering and associated predicate offences, including environmental crimes where covered by applicable national frameworks.[244] Financial intelligence and cooperation between anti-money-laundering authorities, environmental crime investigators and foreign counterparts can help identify criminal networks and trace illicit proceeds.[245]

Regional cooperation platforms can help translate international legal frameworks into operational cooperation adapted to specific regional circumstances. In the Amazon Basin, the **Amazon Cooperation Treaty Organization (ACTO)** provides an existing framework for cooperation among eight countries, while its Amazon Regional Observatory supports shared environmental monitoring.[246, 247] The International Police Cooperation Center for the Amazon (CCPI), based in Manaus, functions as a hub for cross-border police and law-enforcement, including forensic cooperation on illegal mining.[248, 249] Prosecutorial cooperation can also build on the Ibero-American Association of Public Prosecutors (AIAMP) and its Environmental Protection Network, drawing on existing interinstitutional agreements to facilitate direct information exchange, access to technical expertise and cooperation on environmental evidence, in accordance with national law. Regional platforms could facilitate information exchange and coordination among national law enforcement and prosecutorial authorities, while connecting them with international cooperation mechanisms. Similar approaches could be developed or strengthened in other forest regions facing transnational criminal activities, particularly the Congo Basin and Southeast Asia, according to their institutional contexts and needs.[250, 251]

C.2 International trade and forests

The relationship between trade and forests illustrates both the opportunities and challenges at the intersection of trade and sustainable development. Demand for agricultural, timber, and other land-based products can create short-term incentives for land conversion and deforestation. Yet experience increasingly demonstrates that forest protection and economic development are not mutually exclusive, provided that appropriate incentives, financing mechanisms, and market opportunities are available.

Well-designed trade policies must create incentives for sustainable production, reward conservation efforts, facilitate investment in sustainable value chains, and generate new businesses and income opportunities for rural communities. The policy challenge is therefore not to oppose trade and forest protection, but to reshape trade-related incentives so that sustainable production, conservation and restoration become commercially viable and economically justifiable, enabling producers, communities and businesses to obtain greater value from standing forests, sustainable agriculture, agroforestry, ecosystem services and biodiversity-based products. By making sustainable and deforestation-free production more economically attractive than forest conversion, countries can help allocate resources, investment and innovation toward long-term development pathways.

At present, the international community has no comprehensive multilateral agreement specifically designed to govern the relationship between international trade, deforestation, and sustainable land-use practices. While relevant principles can be found

across the World Trade Organization (WTO) agreements, multilateral environmental agreements, the Sustainable Development Goals, and on the G20 Principles on Trade and Sustainable Development, countries continue to pursue a wide range of national and regional approaches, adopting different trade-related measures that may have varying implications for environmental, social and economic objectives. This diversity reflects differing development circumstances, environmental conditions, policy priorities, and national capacities.

One response has been the use of unilateral trade measures to integrate forest objectives into international trade. The stated aim of the European Union Deforestation Regulation (EUDR)[252] is to ensure certain commodities and derived products placed on the EU market or exported from the European Union are not associated with deforestation. The Regulation requires that cattle, cocoa, coffee, oil palm, rubber, soya and wood be deforestation-free, produced in accordance with the laws of the country of production, and covered by a due diligence statement. Although it is an EU trade measure, the EUDR is presented as an incentive for producer countries to strengthen forest monitoring, supply chain traceability, legality verification, and environmental governance by linking access to the European market to compliance with these requirements.

While such measures may aim to align market access with environmental objectives, contributions and consultations pointed that they have also generated important policy debates regarding their design and implementation. The imposition of unilateral trade measures that do not take into account cases where national legislation permits land conversion shifts additional costs and responsibilities onto exporting countries.[253] Consequently, meeting deforestation-free supply chain requirements can be particularly challenging for developing countries and, in some circumstances, may function as barriers to trade. As mentioned in Section B.8 of Part I above, due diligence regulations, such as the EUDR can have a particularly significant impact on smallholders, who may be unable to bear the additional economic and administrative burdens, leading to the consolidation of production in larger farms.[254]

Preferential trade agreements provide another avenue for integrating forest objectives into international trade while observing development priorities of the different Parties. The European Union-Mercosur Agreement, for example, incorporates legally binding commitments on trade and sustainable development, including commitments to combat deforestation and illegal logging, implement multilateral environmental agreements, and promote sustainable forest management. The Agreement also establishes a platform for cooperation on sustainable supply chains for timber and other commodities, illustrating how trade agreements can combine market integration with jointly agreed sustainability commitments and institutional cooperation.

While preferential trade agreements can contribute to forest objectives when they combine explicit forest-related commitments with institutional arrangements supporting implementation, monitoring, cooperation and compliance, their scope remains limited to the Parties involved, resulting in an uneven international landscape in which environmental obligations, implementation mechanisms and market incentives vary across different trade relationships.

Voluntary partnership agreements, such as the European Union–Ghana Voluntary Partnership Agreement under the Forest Law Enforcement, Governance and Trade (FLEGT) initiative, provide a further model for aligning trade and forest governance through cooperation between producer and consumer countries. The Agreement combines trade objectives with institutional cooperation to strengthen forest governance. It establishes a Legality Assurance System covering timber legality verification, supply chain controls, licensing, independent monitoring and stakeholder participation, while also providing a framework for dialogue, legal reforms and capacity-building. The Agreement further establishes market incentives for Forest Law Enforcement, Governance and Trade licensed products, illustrating how trade partnerships can support improvements in governance while facilitating trade in legally produced timber. Although establishing such systems requires time, investment and sustained political commitment, the experience demonstrates how trade partnerships can use market incentives with technical and financial support to strengthen national governance while facilitating access to international markets.

These approaches suggest that trade measures can support forest outcomes most effectively when they have a positive character, rewarding compliance, rather than merely imposing additional economic and administrative burdens on exporters. It is also important that such measures be paired with cooperation provisions that help producing countries meet new requirements, through shared definitions, recognition of national systems, technical assistance and dialogue between producer and consumer countries, so that trade reinforces rather than complicates national implementation.

D. COP30 PRESIDENCY PROPOSALS ON THE WAY FORWARD AT THE INTERNATIONAL LEVEL

The analysis in Sections A to C identifies a set of gaps and opportunities where further international action could strengthen implementation of the GST forest-related outcomes. These relate to the support available to countries for national implementation and to enabling conditions for international cooperation, as well as to challenges and opportunities that operate across borders. Figure 6 brings these findings together in four proposals for international action. For each proposal, the figure sets out an implementation pathway through indicative milestones.

For **national and international reporting,** existing national and international systems already generate substantial information, but further efforts are needed to ensure international reporting using aligned terms and definitions, improving reporting coverage and enhancing the interoperability of existing systems to facilitate translation of these data into policy-relevant analysis. Building on existing systems and processes and internationally agreed terms and definitions will provide basis for greater benefits for and interoperability across national systems and international initiatives while accommodating national definitions, methodologies and circumstances. It would also further strengthen and complement national systems and well-established international reporting processes rather than creating parallel arrangements and requirements.

For **technical cooperation and capacity-building**, the challenge is less the absence of technical knowledge than the difficulty countries can face in identifying, accessing and adapting relevant expertise to their own implementation needs. Support is often dispersed across initiatives, delivered through time-bound projects and organized around what providers offer rather than around country-identified gaps. The proposed multi-stakeholder implementation process through 2030 would seek to connect existing efforts and expertise, facilitate exchange around country-identified needs, and create a sustained space for coordination, learning and support to implementation. This can include stronger peer-to-peer, regional, South-South and triangular cooperation, while reducing duplication and the coordination burden placed on national institutions.

For **transnational environmental crime**, the international challenge arises from the mismatch between criminal activities that can operate across jurisdictions and enforcement systems that remain predominantly national. Differences in criminalization and penalty thresholds can further constrain the use of mechanisms for international cooperation.

Addressing this challenge requires action at the national, regional and international levels. Countries need stronger investigative capacities to identify and prosecute environmental crimes, trace illicit financial flows and recover criminal assets, alongside more effective use of existing international cooperation mechanisms and stronger regional coordination. These efforts can be pursued in parallel with strengthening the international legal framework to facilitate cooperation across jurisdictions. The decision adopted at the **thirteenth session of the Conference of the Parties to the United Nations Convention against Transnational Organized Crime,** in October 2026, to establish an *ad hoc* committee to elaborate an additional protocol provides a concrete avenue for advancing this legal dimension. The proposal therefore combines measures to strengthen national enforcement and existing cooperation mechanisms with support for the negotiation of the additional protocol, bringing together actions that can advance in parallel to address the operational and legal dimensions of transnational environmental crime.

For **international trade**, the challenge is to shape trade-related incentives so that access to markets and economic opportunities support, rather than undermine, sustainable forest outcomes. Existing approaches range from unilateral measures to preferential trade agreements and voluntary partnerships, each with different implications for producer countries, market access and implementation capacity. The proposal therefore emphasizes positive trade-related policies and incentives that could increase the economic value of sustainable and deforestation-free production, rather than relying solely on unilateral measures that impose sustainability requirements as legal conditions for market access. Consultations and contributions indicate that while unilateral measures may be pursued in the absence of, or where progress on, multilaterally agreed measures are limited, they could explore new conditions to generate economic gains for exporters of deforestation-free products. This approach seeks to use trade partnerships and market opportunities to strengthen sustainable value chains while taking account of differing national circumstances and capacities.

Figure 6. Proposals for international action

National and international reporting

PROPOSAL

Support existing national capacities and systems (NFMS) and international forest data frameworks – facilitate sharing international reporting requirements, terms and definitions, experiences, and interoperability standards, while accommodating national definitions, circumstances and systems – to align international initiatives

MILESTONES

1. Build on what exists
National capacities and systems (NFMS) and international frameworks, standards and reporting requirements; identify convergence, gaps and duplication.

2. Align initiatives and investments
Facilitate collaboration among the national and international initiatives and support resource mobilization to fill information gaps and needs.

3. Support interoperability and emerging forest data needs
Map emerging forest data needs, develop metadata standards, strengthen transparency, analyze uncertainties, support QA/QC development, support enhancement of spatial and temporal coverage.

4. Support selected pilot countries in diverse contexts
Support filling identified information gaps among selected pilot countries representing different forest types, monitoring capacities and institutional settings.

5. Analyze impact
Assess progress based on pilot results and consultation with countries and relevant international initiatives.

6. Guide future investment
Guidance for international initiatives and funders on necessary investment and its alignment with existing reporting frameworks and national systems.

7. Scale uptake beyond 2030
National systems, international initiatives and financing institutions, with periodic review and updates.

Technical cooperation and capacity-building

Co-design an inclusive, multi-stakeholder implementation process through 2030 that connects existing efforts, responds to country-identified needs and strengthens coordination, transparency, mutual learning and implementation of national policies and measures under the Roadmap.

1. Develop the implementation process
Co-design its structure, participation and functions, building on existing initiatives and national institutions without adding reporting requirements, and respecting the distinct roles of rights holders and stakeholders.

2. Establish progress tracking and learning
Create a shared approach linked to national learning and review cycles to identify implementation gaps, track progress, exchange lessons and inform adjustments to cooperation and support.

3. Support country-led implementation
Connect country-identified needs with relevant technical and policy expertise, capacity-building and peer-to-peer, regional, South-South and triangular cooperation.

4. Sustain coordination through 2030
Maintain collaboration among governments, rights holders, stakeholders and support providers as implementation needs evolve.

Transnational environmental crime

Strengthen national investigative capacities, and existing regional and international cooperation mechanisms to combat transnational forest-related crime.

1. Strengthen specialized investigative capacities
Establish or strengthen specialized units and develop technical capacities in remote sensing, geospatial analysis, criminal intelligence, financial investigations and asset tracing. Strengthen coordination among police, environmental, customs, tax, financial intelligence and prosecutorial authorities.

2. Strengthen integrated financial investigations and asset recovery
Parallel investigations into environmental crimes and associated offences promoted, subject to applicable legal requirements. Improve identification of financiers and beneficial owners, the tracing of illicit financial flows, and the freezing and confiscation of criminal assets.

3. Expand the use of existing international cooperation mechanisms
Increase operational use of police information-exchange channels, mutual legal assistance, joint investigations, extradition and asset recovery mechanisms. Strengthen bilateral and multilateral arrangements where necessary, including for environmental crime investigations. Promote greater alignment of national legal frameworks: Identify and address gaps in the criminalization of forest-related offences and their treatment as predicate offences to money laundering, to facilitate international cooperation.

4. Strengthen regional cooperation platforms
Reinforce regional coordination mechanisms to facilitate cross-border investigations and information exchange, building on existing arrangements such as ACTO and the CCPI in the Amazon and exploring comparable arrangements in the Congo Basin and Southeast Asia.

5. Support the implementation of the decisions of COP13 of UNTOC
Advance the work of the ad hoc committee established at COP13, in accordance with its adopted mandate, including information exchange, joint investigations and asset recovery, with the ambition to finalize a protocol to COP14 in 2028.

International trade

Prioritize positive trade-related policies and incentives capable of changing economic behavior and creating new opportunities for sustainable forest-derived products alongside regulatory measures, designed to work

1. Identify priority trade opportunities
Map measures and partnerships that can reward sustainable and deforestation-free production.

2. Co-design approaches
Engage producer and consumer countries, businesses, smallholders, Indigenous Peoples and local communities in developing context-appropriate measures.

3. Pair incentives with support
Combine market opportunities with technical assistance, capacity-building and finance where needed.

4. Implement and assess
Apply approaches through relevant trade instruments and evaluate impacts on forests, producers, communities and market access using agreed indicators.

5. Scale effective approaches
Expand successful measures across markets, products and trade relationships.

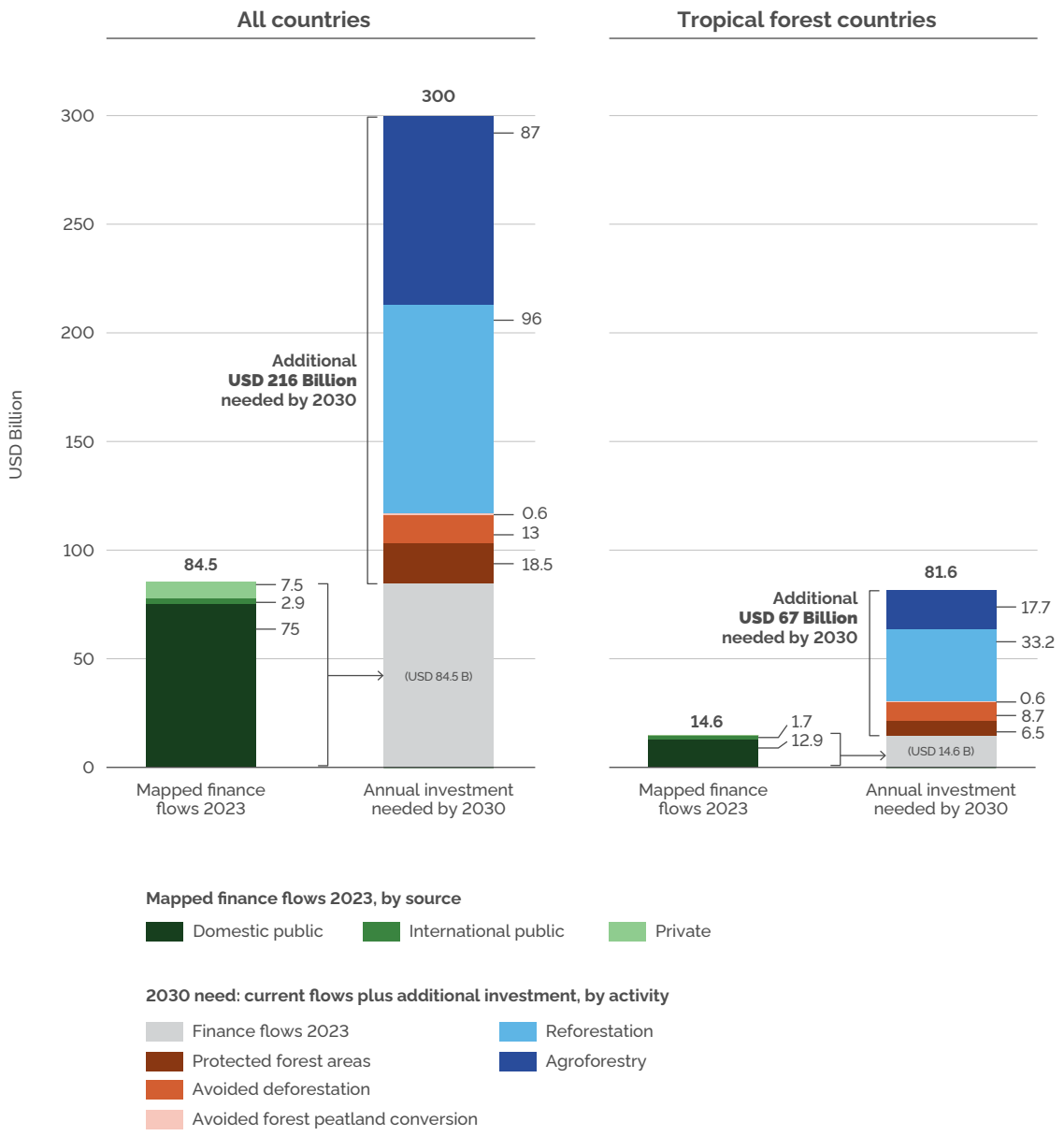
Source: Climate Policy Initiative (CPI) and COP30 Presidency.

PART III. FINANCING FOREST ACTION

While most forest finance today comes from domestic sources, adequate and predictable international finance will remain key to delivering on the forest-related GST outcome. Together, adequate and accessible finance enables countries to implement and sustain forest action by providing the resources needed to develop and deploy policies, maintain institutions, and implement approaches across all forest dimensions. Financing needs vary according to national circumstances and the type of action pursued. Combating deforestation and forest degradation requires resources for monitoring, enforcement and fire management, as well as for economic and financial instruments that address the drivers of forest loss and stimulate improved quality of life for its population. Conservation and sustainable use require sustained funding for protected areas, forest management, combat illegal activities and other approaches that maintain forests and support compatible uses. Restoration, reforestation and afforestation require upfront investment as well as continued financing for planning, implementation, maintenance and long-term monitoring.

UNEP estimates that annual finance for forests—domestic and international—must rise from US$ 84.5 billion in 2023 to over US$ 300 billion by 2030, leaving an annual gap of US$ 216 billion, and reach US$ 498 billion by 2050.[255] Its estimate of the additional annual investment needed by 2030 includes approximately US$ 32 billion for protection (including US$ 18.5 billion for protection, US$ 13 billion for reduced deforestation and US$ 0.6 billion for reduced peatland conversion), US$ 96 billion for reforestation, and US$ 87 billion for agroforestry.[255] For tropical forest countries, UNEP estimates an additional need of US$ 66.8 billion annually by 2030: US$ 16 billion to safeguard standing forests, US$ 33 billion for restoration, and US$ 18 billion for agroforestry.[256, 257] Restoration accounts for roughly half of this estimated requirement for tropical forests. The resources required are significant in absolute terms but modest relative to the framework now being built to deliver climate finance at scale.

Figure 7. 2030 Forest Finance Gap



Source: United Nations Environment Programme (UNEP). State of Finance for Forests 2025: Unlock. Unleash. 2025.

Note 1: Components under all countries do not add up to the total because about US$ 0.5 billion of overlap between domestic and international public finance is deducted to avoid double counting, and because of rounding. For all countries, domestic public finance is based on data from 99 countries, representing 79% of global forest area, while international public finance is based on OECD data. The US$ 7.5 billion in mapped private finance comprises US$ 2.9 billion through certified commodity supply chains, US$ 1.7 billion in impact investing, US$ 1.3 billion through carbon markets, US$ 1.2 billion in biodiversity offsets and credits, US$ 0.3 billion in private finance mobilized by public interventions, and US$ 0.1 billion in private philanthropy. For tropical forest countries, domestic public finance refers to available data from 31 countries, while international public finance refers to available data from 65 countries and 7 tropical regions. Private flows were not estimated separately for tropical forest countries.

Note 2: In line with agreed UNFCCC terminology (paragraph 321), "avoided deforestation" and "avoided forest peatland conversion" in the original figure are referred to in this Roadmap as reduced deforestation and reduced forest peatland conversion.

Closing these gaps will require a substantial increase in resources by 2030, particularly for activities whose returns are long-term, uncertain, or not yet internalized by markets. Under the New Collective Quantified Goal (NCQG) on climate finance, developed countries take the lead in mobilizing at least US$ 300 billion per year by 2035 for developing countries. The Baku to Belém Roadmap to 1.3T provides a broader framework for scaling climate finance from all sources to developing countries, while forest finance requires instruments suited to the different costs, benefits and co-benefits of protecting, sustainably using and recovering forests.256 Existing instruments, standards and monitoring systems provide a foundation on which countries and their partners can build.

Domestic and international finance: sources, channels and instruments[258]

Data shows that forest finance is, first and foremost, domestic. Of the approximately US$ 84.5 billion in forest finance recorded globally in 2023, domestic public budgets provided US$ 74.7 billion (88.3%), international public finance US$ 2.9 billion (3.4%), and private finance, domestic and international, US$ 7.5 billion (8.9%), after deducting about US$ 0.5 billion of overlap between domestic and international public flows (Table 4).[259] The distinction between domestic and international finance runs through this Part. Domestic finance, addressed in Section A, is for most countries the foundation on which forest policies are sustained and the context that determines what international finance can achieve. International finance, addressed in Section B, is relatively small in volume but can be fundamental in some countries and additionally can relieve constraints that domestic resources alone cannot address, particularly where pressures on forests coincide with constrained fiscal space.

Table 4. Forest finance flows by origin (2023)[260]

Origin of finance	Amount, 2023	Share of Total Global Forest Finance	Main components and remarks
Public Domestic	US$ 74.7 billion	88.3%	Government spending on forests; 31 tropical forest countries together allocated US$ 12.9 billion, or 17% of global domestic forest spending
Public International	US$ 2.9 billion	3.4%	About US$ 1.7 billion reached tropical countries and regions; about 80% provided on concessional terms
Private finance (Domestic & International, not separable)	US$ 7.5 billion	8.9%	Certified commodity supply chains, impact investing, carbon markets, biodiversity offsets and credits, private finance mobilized by public interventions and private philanthropy
Deduction: overlap between domestic and international public finance	– US$ 0.5 billion (US$ 544 million)	-0.6%	Part of international public finance is already counted in the domestic spending that recipient countries report. It is deducted to avoid double counting.
Total Global Forest Finance	**Approximately US$ 84.5 billion**	100%	Public finance (domestic and international) accounted for approximately 91% of the total

Source: United Nations Environment Programme (UNEP). State of Finance for Forests 2025: Unlock. Unleash. 2025.

Forest finance has been examined in a growing body of reports and initiatives, which use different categories, definitions and data sources. To organize international finance, this Part distinguishes between different assessment areas. Building on the Implementing the Baku to Belém Roadmap to 1.3T report, six assessment areas of international finance are considered: (1) grants, concessional finance and low-cost capital; (2) private sector investment and affordable cost of capital; (3) South-South cooperation; (4) Special Drawing Rights channeling and debt-relief instruments; (5) innovative mechanisms; and (6) carbon markets.[261]

In another approach, the Forest and Climate Leaders' Partnership has grouped channels into three families: innovative financial mechanisms (jurisdictional REDD+ and the Tropical Forest Forever Facility), mobilizing private investment (sustainable forest bioeconomy and sustainable value chain finance) and aligning fiscal policies (targeted public finance and sovereign debt management).[262]

The distinction matters because the forest sector does not lack ways of mobilizing resources. Over the past two decades it has developed a broad set of forms—from results-based payments and jurisdictional crediting to payments for ecosystem services, debt conversions, sustainability-linked instruments, blended funds and, more recently, the Tropical Forest Forever Facility. Climate Policy Initiative alone identifies thirty international mechanisms for tropical forests (Figure 8). This Roadmap draws attention to this diversity of formats. The binding constraint is the volume and scale of resources reaching these forms from the sources that feed them: international public finance for forests amounted to US$ 2.9 billion in 2023[263], and, as Section B shows, most forms operate well below their estimated potential or design capacity.

This Part is organized accordingly. Section A addresses domestic finance, which provides most of the resources currently invested in forests and shapes the context in which all other sources, channels and instruments operate. Section B examines the six assessment areas of international finance; within each, it discusses the forms of mobilizing resources that principally draw on that source—what they do and the actions in place, and what determines whether they can operate at scale. Section C brings the two dimensions together, showing which sources each form draws on and how sources and channels relate to the five forest dimensions identified in Part I. Section D sets out the COP30 Presidency proposals for finance and markets.

A. DOMESTIC PUBLIC FINANCE

Domestic public resources currently provide the largest share of global forest finance[264], but overall investment remains well below estimated needs. Domestic forest spending is concentrated in advanced economies, with only 17 per cent of the US$75 billion tracked globally spent within tropical forest countries—even though many of these countries spend several times more domestically than they receive in international support.

A separate analysis of 22 tropical forest countries found that they spent, on average, 36 times what they received in international public forest finance. These countries therefore make substantial domestic contributions to their forests, even as fiscal constraints limit their ability to increase spending.

The domestic policy and financial context extend well beyond forest budgets. Agricultural subsidies, rural credit, fiscal transfers, tax arrangements, land regularization, and public investment in infrastructure all influence the returns to competing land uses. Some of these flows operate at a scale far larger than dedicated forest finance. **These elements illustrate the substantial effort forest countries already dedicate through domestic policies. They also underscore that no forest policy can be sustained by international resources alone.**

Under Target 18 of the Kunming-Montreal Global Biodiversity Framework, Parties committed to reducing incentives that are harmful to biodiversity by at least US$ 500 billion annually by 2030;[4] UNEP estimates nature-negative finance—finance flows for activities that could potentially have a negative effect on nature—at US$ 7.3 trillion in 2023, more than thirty times the finance flowing to nature-based solutions. This includes US$ 2.4 trillion in public subsidies to fossil fuels, agriculture, water, transport and construction.[255] Potentially harmful agricultural subsidies alone amounted to approximately US$ 406 billion, while agricultural price supports have been associated with the loss of an estimated 2.2 million hectares of forest per year.[265]

The alignment of domestic flows affects the effectiveness of international finance. International finance entering a system whose dominant incentives favor conversion may have limited impact, while flows entering a more aligned system can reinforce domestic efforts. Alignment is a shared agenda rather than a condition placed on forest countries. Decisions on budgets, procurement, subsidies, and credit are sovereign, and a number of forest countries have already taken steps to align them through approaches discussed in Part I; under present fiscal conditions, however, realignment can carry transition costs and require analytical and institutional capacity that international cooperation can support.

Domestic private finance—including commercial and rural credit and private investment in forest-based value chains—also shapes forest outcomes. Because available data do not distinguish domestic from international private forest finance, it is discussed together with international private investment in Section B.2.

Targeted public finance

What it does and actions in place. Among the channels identified[262], targeted public finance is the one that relies principally on domestic sources. Targeted public finance channels public resources toward positive forest outcomes and shifts incentives away from activities that contribute to forest loss. Instruments include payments for ecosystem services, forest-positive subsidies, concessional credit linked to forest outcomes, fiscal transfers tied to forest performance, and the repurposing of agricultural support. These are principally domestic policy choices, discussed in Part I; international cooperation can support their design, analysis and implementation and provide complementary finance. Brazil's forest-related instruments under its rural credit plan and Indonesia's ecological fiscal transfers illustrate different approaches. Ethiopia has established a Green Legacy and Landscape Restoration Fund, to which the federal government allocates 0.5% to 1% of its budget; its wider restoration agenda has also attracted concessional co-financing.[266] Since 2021, 23 countries have completed agricultural public expenditure reviews with World Bank and Food and Agriculture Organization of the United Nations (FAO) support, while another 22 have begun the process.[267]

What determines scale. There are no comprehensive global data on finance mobilized through this group of instruments, although the Forest and Climate Leaders' Partnership estimates its annual potential at US$ 8 billion and records 159 active policy instruments supporting forest-positive outcomes or preventing forest-negative ones.[268] Only 5% of Parties to the Convention on Biological Diversity have set national targets that fully address Target 18 of the Kunming-Montreal Global Biodiversity Framework.[269] The number of countries recorded in the cited OECD data as having relevant policy instruments has remained unchanged since 2017.[270] Contributions received identify renewed political attention to Target 18, better data on the value of forests to national economies and on the effect of policy interventions on deforestation, and cross-sectoral alignment between finance ministers and those responsible for food systems and forests, and between the climate and biodiversity conventions.[271]

Table 5. Domestic forest finance: recent activity, estimated potential and indicators[272]

Source and instrument	Finance mobilized, latest period	Estimated annual potential	Additional indicators reported
Domestic finance			
Domestic public forest expenditure (UNEP)	Approximately US$ 75 billion in 2023, more than 96% of public forest finance	—	31 tropical forest countries allocated US$ 12.9 billion (17% of global domestic forest spending) in 2023; 22 tropical forest countries spent on average 36 times what they received in international public forest finance
Targeted public finance (FCLP)	No global data available	US$ 8 billion	5% of Parties to the Convention on Biological Diversity with national targets fully addressing Target 18; 45 countries having undertaken an agricultural public expenditure review; 159 active policy instruments supporting forest-positive outcomes or preventing forest-negative ones

Source: United Nations Environment Programme (UNEP). State of Finance for Forests 2025; Forest & Climate Leaders' Partnership (FCLP). Forest Finance Roadmap 2026 Progress Report, contribution received (row marked FCLP).

B. INTERNATIONAL FINANCE

International finance can play a critical role as an enabling condition for forest action. It supplements the resources available to countries with forests and may change the incentives that govern land-use decisions. The benefits that forests generate accrue globally, while the costs of conserving, restoring, and sustainably managing them fall locally and immediately on public budgets, producers, and forest communities. **International finance exists to address this asymmetry. It does so by making stewardship economically viable for those who bear its costs.** Paragraph 34 of the first Global Stocktake. reflects this understanding, identifying international financial support as a key factor for achieving the objective of halting and reversing deforestation and forest degradation by 2030.

The role of international finance in forest action varies across countries and forest domains. This Roadmap addresses forests globally, while this section places particular emphasis on tropical and subtropical forests, where pressures on forests often coincide with constrained fiscal space and where international support can be especially consequential for implementation. The financing approaches discussed may also be relevant in other forest domains, depending on national circumstances. The section first reviews the international resources currently mobilized and the instruments in operation, and then examines each of the six sources of international finance in turn. Forms of capturing resources that draw on more than one source, such as REDD+ or the Tropical Forest Forever Facility, are discussed under the source on which they principally rely, with cross-references where relevant; Section C summarizes these relationships.

Resources and instruments in operation

International finance is a small share of the total forest finance. Its effect depends in part on the domestic context it enters, but it can relieve constraints that domestic resources alone cannot address. International public finance for forests was US$ 2.9 billion in 2023, of which about US$ 1.7 billion reached tropical countries and regions. Of international public forest finance, US$ 362 million was directed to projects related to Indigenous Peoples and Local Communities in 2023, and direct access was more limited still.

Private finance accounted for only 9% of recorded forest finance in 2023, despite the much larger volume of commercial and agricultural investment that shapes forest outcomes. UNEP estimated private forest finance—domestic and international—at US$ 7.5 billion in 2023: US$ 2.9 billion through certified commodity supply chains, nearly 80% of it for forest products in Europe and North America, while commodities associated with tropical deforestation received far less, despite tropical regions accounting for 97% of global deforestation; US$ 1.7 billion in impact investing; and US$ 1.3 billion through carbon markets. The remaining US$ 1.6 billion came from biodiversity-oriented resources and credits, accounting for US$ 1.2 billion, private finance mobilized by public interventions, at US$ 0.3 billion, and private philanthropy, at US$ 0.1 billion.

Two complementary studies, produced independently by different organizations, help illustrate the current landscape of mechanisms used to finance tropical forests. The first, prepared by Climate Policy Initiative/PUC-Rio (Figure 8), examines the mechanisms in operation, what they finance and who provides the capital. According to this mapping, thirty international mechanisms account for at least US$ 25.9 billion in planned, issued and disbursed funds for tropical forests, and ten have each reached US$ 1 billion or more. The mapping relates six types of actors (first column) through financial mechanisms (second column) to three forest-related objectives (third column): conservation, deforestation reduction and restoration.

These objectives correspond broadly to the forest dimensions identified in Part I. These three objectives also broadly mirror the areas in which international cooperation—often building on proposals from Brazil and other developing countries—has introduced key innovations for mobilizing forest finance: carbon stock enhancement under the Kyoto Protocol's Clean Development Mechanism, deforestation reduction through REDD+, and forest conservation through the Tropical Forest Forever Facility.

Figure 8. Menu of financial mechanisms for tropical forests[273]



Source: CPI/PUC-Rio based on cumulative data publicly available on the official websites of the financial mechanisms and entities, 2025.

The second study, **drawn from the COP30 Presidency Report: Implementing the Baku to Belém Roadmap to 1.3T** (Table 6), brings together, for each source of international finance, measures of recent activity, estimated annual potential and additional indicators reported for selected instruments. This study differs from CPI/PUC-Rio's in coverage and methodology: some entries measure finance paid or disbursed, others rely on estimates or indicators, and some instruments involve domestic policy and finance supported by international cooperation. Their figures are therefore not comparable and should not be added up or reconciled across mappings or across rows.

Read together, the studies show both the concentration of accumulated finance in mechanisms addressing deforestation reduction and the range of sources that could be strengthened to finance forest action across all categories. Country and initiative examples in the sections that follow are illustrative and do not imply endorsement of this Roadmap by the actors concerned, they reflect the contributions received and demonstrate that different perspectives coexist in a complex and divert interpretation of forest finance.

The six sources chosen for the COP30 report are development of the COP29/COP30 Baku to Belem Roadmap (2025), with additional data and analysis. The six sources will be analyzed below.

Table 6. International forest finance by source: recent activity, estimated potential and indicators[274]

Source and instrument	Finance mobilized, latest period	Estimated annual potential	Additional indicators reported
Grants, concessional finance and low-cost capital			
International public forest finance[275]	US$ 2.9 billion in 2023, of which about US$ 1.7 billion reached tropical countries and regions	—	US$ 362 million directed to projects related to Indigenous Peoples and Local Communities; about 80% provided on concessional terms
Global Forest Finance Pledge[276]	US$ 12.23 billion delivered, 2021–2024	—	94% of the revised US$ 13 billion commitment; 84.7% of 2024 funding provided as grants
REDD+ results-based payments (Green Climate Fund)[277]	About US$ 725 million approved for 12 REDD+ projects to date, of which US$ 496.7 million for eight countries under the 2017–2022 pilot programme.	—	Permanent funding window since 2024, paying US$ 8 per ton of CO2 equivalent for results achieved in 2018–2022; eligibility requires the Warsaw Framework elements
Enabling conditions[278]	—	US$ 3.4 to 6.7 billion needed annually	Forest monitoring, law enforcement, capacity-building and improved governance in the Global South
Private sector investment and affordable cost of capital			
Private forest finance[279]	US$ 7.5 billion in 2023 (domestic and international)	—	US$ 2.9 billion through certified commodity supply chains; US$ 1.7 billion in impact investing; US$ 1.3 billion through carbon markets; US$ 1.2 billion from biodiversity-oriented resources and credits; US$ 0.3 billion mobilized by public interventions; US$ 0.1 billion private philanthropy
Blended finance for nature-based solutions[280]	48 blended transactions worth US$ 4.7 billion in total, recorded to date	—	88% of the funding attributed to private actors in the forest finance mechanisms mapped by Climate Policy Initiative yet to be mobilized

→

Source and instrument	Finance mobilized, latest period	Estimated annual potential	Additional indicators reported
South-South cooperation			
Developing-country sponsors of the Tropical Forest Forever Facility	US$ 2 billion committed by Brazil and Indonesia (US$ 1 billion each)	—	Part of approximately US$ 7.3 billion committed by seven countries and two non-state investors to the sponsor tranche
Amazon Fund support to regional forest monitoring (ACTO)[281]	BRL 23.7 million, 2013–2018; a further BRL 55 million regional project announced in 2025	—	255 technicians from ACTO member countries trained by INPE in 20 courses; five regional deforestation maps covering 2000–2016; up to 20% of Amazon Fund resources may support deforestation monitoring systems in other tropical countries
Special Drawing Rights channeling and fiscal space instruments			
IMF Resilience and Sustainability Trust[282]	SDR 35.8 billion (about US$ 48.9 billion) pledged, July 2025	—	At least 29 Resilience and Sustainability Facility arrangements approved; forest-related reform measures in the Democratic Republic of the Congo, Madagascar, Paraguay and Cameroon
Innovative mechanisms			
Global solidarity levies[283]	No allocation to forests to date	US$ 20 to 60 billion a year by 2035, across all uses	Premium flyers solidarity coalition with nine members at COP30; United Nations Framework Convention on International Tax Cooperation under negotiation, with final texts due in 2027
Carbon markets			
Forest carbon markets[284]	US$ 1.3 billion in 2023	—	Forestry and land use account for close to 40% of all voluntary credits ever issued; first-phase CORSIA offsetting requirements for 2024–2026 estimated at 213 million tons against 38 million tons of eligible units

Source: Climate Policy Initiative (CPI) and COP30 Presidency.

B.1 Grants, concessional finance and low-cost capital

Grants and concessional finance are particularly suited to activities whose returns are long-term, uncertain or not captured in markets, such as the management of protected areas, monitoring and law enforcement, tenure security, capacity-building, results-based payments and to absorbing early-stage risks that would otherwise deter other sources. They also finance much of the readiness on which access to all other sources depends. Low-cost capital—mainly the lending of multilateral development banks at costs below those countries could obtain on their own—complements them.[285] The channels and instruments that draw principally on this source are REDD+ results-based payments, including jurisdictional approaches; credit enhancement for sovereign debt management (Section B.4) and Tropical Forest Forever Facility (Section B.2). The importance of grant is even higher for LDCs and other countries that cannot direct significant budgetary resources for their forests, even more in a context that these countries are using significant resources for adaptation and loss and damage due to climate change.

Grants and concessional programmes

What it does and actions in place. In 2023, US$ 2.9 billion in international public forest finance was recorded. About 80% (US$ 2.3 billion) was concessional, mainly grants (US$ 1.8 billion) and concessional loans (US$ 0.5 billion). Bilateral channels provided 58% and multilateral channels 42%. Pledges and multilateral initiatives complement these flows, as summarized in Table 7.

Table 7. Selected grants and concessional programmes for forests[286]

Initiative	Amount (US$)	What the figure measures	Period	Notes
Global Forest Finance Pledge (COP26)[287]	12.23 billion	Reported by 12 donors	2021–2024	94% of the revised US$ 13 billion commitment; grants were 84.7% of 2024 funding
GEF Amazon, Congo and Critical Forest Biomes Integrated Program[288]	307 million	Grants committed	—	28 countries
Central African Forest Initiative (CAFI)[289]	913 million	Deposits received	Up to end-2025	—
CAFI payments for ecosystem services programme[290]	100 million + 100 million	Projects approved + new pledges	Approved 2025, launching 2026; pledged at COP30	Target of up to US$ 2 billion by 2035 from all sources; at least half to farmers, Local Communities and Indigenous Peoples
Belém Call for the Forests of the Congo Basin (COP30)[291]	> 2.5 billion	Announced by bilateral and multilateral partners	Five years	—

Source: Climate Policy Initiative (CPI) and COP30 Presidency.

Dedicated finance for Indigenous Peoples and Local Communities has also grown. Donors to the 2021–2025 Forest Tenure Pledge reported US$ 2.35 billion against a US$ 1.7 billion commitment, and a renewed pledge of US$ 1.8 billion for 2026–2030 was launched at COP30 by 39 government and philanthropic donors.[292] Direct access remains limited: US$ 362 million of international public forest finance was directed to projects related to Indigenous Peoples and Local Communities in 2023,[255] and in 2025 around 7.2% of Forest Tenure Pledge funding, about US$ 35 million, went directly to their organizations. Private philanthropy, recorded by UNEP at US$ 0.1 billion in 2023, remains a small share of forest finance.

What determines scale. Concessional envelopes are under pressure: pledges to the ninth replenishment of the Global Environment Facility totaled US$ 3.9 billion in 2026, below the previous cycle.[293] The World Bank estimates that **a further US$ 3.4 to 6.7 billion in concessional finance is needed annually for enabling conditions** in the Global South, including forest monitoring, law enforcement, capacity-building, and improved governance.[294] These investments can strengthen countries' ability to access and deploy forest finance effectively.

The Baku to Belém Roadmap to 1.3T calls for manyfold increases in the delivery of grants and concessional climate finance and for multilateral climate funds to at least triple their annual outflows from 2022 levels by 2030.[295] Readiness finance—for monitoring, accounting, safeguards, benefit-sharing and institutional capacity—has historically depended on official development assistance, and its costs are not always reflected in estimates of forest finance needs. Scale depends on predictable multi-year commitments, simplified and direct access modalities, including for Indigenous Peoples and Local Communities, and the use of grants to absorb risks that enable other sources to enter.

REDD+ Results-based payments, including jurisdictional approaches

What it does and actions in place. REDD+ results-based payments[296] reward verified reductions in emissions from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks, measured against a reference level, without creating transferable units: the mitigation outcome remains in the host country's accounts and continues to count towards its NDC. Paragraph 34 of the first Global Stocktake highlights the importance of results-based payments for policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation.The Amazon Fund, the Forest Carbon Partnership Facility and the Green Climate Fund are examples. The Green Climate Fund's REDD+ results-based payments pilot programme approved US$ 496.7 million for eight countries, and subsequent approvals brought its REDD+ results-based payments portfolio to about US$ 725 million across twelve projects; in 2024 its Board established results-based payments as a continuing window, as the Policy for results-based payments for REDD+, at US$ 8 per ton of CO2 equivalent, for results achieved in 2018–2022.[297] Results-based payments are one of the two instruments through which REDD+, including jurisdictional approaches, is financed; the other, the purchase of transferable credits, draws on carbon markets and is discussed in Section B.6.

What determines scale. Results-based payments have rewarded mainly reductions in deforestation, at fixed - and relatively low—prices and their dependence on public budgets have limited their scale. Beyond the finance mobilized, REDD+ has built lasting national capacities—national forest monitoring systems, forest reference levels, safeguards information systems and the reporting of results through technical annexes to biennial update reports—whose measurement, reporting and verification experience now informs reporting under the Enhanced Transparency Framework and cooperative approaches under Article 6.[298]

B.2 Private sector investment and affordable cost of capital

Private investment can finance activities that generate revenues—sustainable forest products, agroforestry, restoration with productive uses, and deforestation-free commodity production—while private capital allocation shapes forest outcomes far beyond dedicated forest finance. Because available data do not separate domestic from international private forest finance, this section covers both.[299] The channels examined below are organized around the sustainable forest bioeconomy, sustainable value chain (supply chain) finance and blended structures that lower the cost of capital, notably for restoration, and The Tropical Forest Forever Facility, which uses public sponsor capital to leverage private investment.

The scale of finance exposed to deforestation risk is different from annual forest-positive flows. As of late 2024, private financial institutions held US$ 8.9 trillion in active financing to the companies with the highest deforestation risk.[300] Moreover, UNEP estimates nature-negative private finance flows across all sectors at US$ 4.9 trillion in 2023,[301] while it estimates that annual investment in forests needs to reach US$ 300 billion by 2030 to meet the Rio Convention targets.[302] The cost of capital is a central constraint: in emerging and developing economies it remains at least two to three times higher than in advanced economies,[303] a gap that weighs particularly on forest investments with long payback periods, such as restoration and native species timber, where early-stage capital is scarce and perceived risks are high.[304]

Frameworks that could inform the redirection of private capital are developing. Hundreds of organizations worldwide had committed to begin reporting in line with the Taskforce on Nature-related Financial Disclosures[305], including asset managers overseeing US$ 22.4 trillion. In 2025, 1,583 organizations disclosed on their management of commodity-driven deforestation, an 80% increase from 2023.[306] The International Sustainability Standards Board[307] is developing nature-related disclosure guidance. These developments are expanding the information available for financial decisions, but disclosure has not yet consistently translated into changed policies: only 41% of the 150 financial institutions most exposed to deforestation risk had a deforestation policy in the 2025 assessment.[255]

Sustainable forest bioeconomy

What it does and actions in place. Finance for the forest bioeconomy supports enterprises and value chains based on the sustainable use of forests and trees, including sustainable forest management, non-timber products, agroforestry, planted forests, and wood processing. These activities can generate income while maintaining forests or supporting their recovery, depending on how resources are sourced and managed and on the safeguards applied. Development banks, development finance institutions, and climate funds have built portfolios in this area, mobilizing at least US$ 1.73 billion in 2025/26, of which approximately US$ 1.16 billion in private capital, including through the IDB's Amazonia Forever Programme, IFC financing for sustainable pulp and wood-based solutions in Brazil and Uruguay, and Green Climate Fund investments in sustainable land funds.[308] Certified forest products drew US$ 2.3 billion in private finance in 2023. Forty countries have national strategies supporting forest bioeconomy activities.

The Bioeconomy Challenge launched at COP30 and led by FAO, the Inter-American Development Bank Group (IDB), the United Nations Conference on Trade and Development (UNCTAD), and the World Resources Institute (WRI), aims to produce shared standards, metrics, and financing tools by 2028.[309] Brazil's Restoration and Bioeconomy Finance Coalition, launched in November 2024, brings together thirty institutions around goals to mobilize US$ 10 billion by 2030 and to protect and restore five million hectares. Its members reported US$ 5.37 billion in forward commitments as of November 2025, up from US$ 2.6 billion in July 2025; these are commitments rather than contracted or disbursed finance.[310]

What determines scale. The Forest and Climate Leaders' Partnership estimates the annual potential of finance for the sustainable forest bioeconomy at US$ 15 billion.[311] Demand for wood products is projected to rise substantially, with the FAO estimating that roundwood demand could grow by up to 49% between 2020 and 2050, while supply remains fragmented and exposed to climate risk.[312, 313] Meeting that demand sustainably depends on reliable supply, appropriate forest management, and safeguards against the conversion or degradation of natural forests. Consistent definitions and comparable reporting on finance for the forest bioeconomy remain limited. Predictable markets for sustainable forest products depend on public procurement, building codes, product standards, and climate policy. Converting commitments into investment also requires infrastructure, skills, processing capacity, and credible traceability along value chains. A Coalition study found that Brazil's family farming credit programme accounted for 58% of the restoration and bioeconomy finance it identified, while bioeconomy-specific credit lines represented only 2.4% of the programme's total disbursements.[314] This points to the potential to align mainstream rural credit more closely with restoration and bioeconomy objectives.

Sustainable value chain finance

What it does and actions in place. Sustainable value chain finance redirects existing commercial and agricultural credit toward production that does not depend on deforestation or conversion of natural ecosystems. It operates through the terms on which producers, traders, and processors obtain finance, supported by information on sourcing and forest risk. The flows it could redirect are considerably larger than dedicated forest finance, and the disclosure architecture described above supplies the information on which redirection depends. Guarantees, first-loss and concessional tranches, insurance, and aggregation platforms are the vehicles through which it can reach producers and support the recovery of degraded land. At the corporate level, sustainability-linked facilities tie borrowing costs to forest outcomes. In 2025, a large commodity trading company raised to US$ 680 million the capital of its commodity-trader facility, which includes deforestation-free sourcing among its indicators. In 2024, another company from the same sector launched a credit facility with US$ 600 million dedicated to financing agricultural investments linked to validated forest, land, and agriculture targets.[315] At the producer level, the Responsible Commodities Facility provides below-market loans to Cerrado soy producers committing to zero deforestation beyond legal requirements, growing from a US$ 11 million pilot to US$ 60 million deployed with a Green Climate Fund commitment supporting growth toward US$ 500 million by 2028,[316] and the Catalytic Capital for the Agricultural Transition fund, launched in 2025, aims to attract US$ 4 of commercial finance per US$ 1 of catalytic capital and 1.25 million hectares of degraded farmland restored by 2030.[317] Contributions received point to further vehicles,

including the &Green Fund, the Moringa Fund, and the Livelihoods Carbon Funds, most of them small relative to need.[318] Corporates disbursed at least US$ 442 million through such approaches in 2025, and US$ 0.37 billion in private capital has been committed alongside public catalytic capital under Brazil's Eco Invest auctions.[319]

What determines scale. The Forest and Climate Leaders' Partnership estimates the annual potential of sustainable value chain finance at US$ 10 billion, and reports a 45% increase since 2023 in organizations assessing the deforestation- and conversion-free status of at least one commodity.[320] Investor engagement has deepened, including through the Deforestation Investor Group and a stewardship initiative bringing together more than 200 investors.[321] Yet, as noted above, deforestation policies remain uncommon among financial institutions most exposed to risk. Scale depends on translating disclosure and sourcing information into lending, investment, and procurement decisions; replicating catalytic structures without high transaction costs; and connecting corporate demand for deforestation-free supply chains with accessible finance for producers in sourcing regions, including through local financial institutions.

Lowering the cost of capital: guarantees, currency hedging and blended structures, including for restoration

What it does and actions in place. Blended finance structures, guarantees and currency-hedging instruments use public and concessional resources to reduce the risks, and therefore the cost, of private investment, extending the horizon over which forest investments can be financed. Brazil's Eco Invest programme, established in 2024, combines blended finance with long-term foreign-exchange liquidity and hedging, supported by the Inter-American Development Bank and the World Bank.[322, 323] Its second auction, dedicated to the restoration of degraded land, allocated BRL 16.5 billion in public catalytic capital alongside BRL 13.7 billion in private capital, more than half of it raised abroad, for restoration actions in an area of about 1.4 million hectares.[324]

What determines scale. Blended finance for nature-based solutions remains limited: 48 blended transactions for nature-based solutions, worth US$ 4.7 billion in total, have been recorded to date,[325] and 88% of the funding attributed to private actors in the forest finance mechanisms mapped by Climate Policy Initiative had yet to be mobilized.[326] Currency risk is a recurrent barrier where revenues are earned in local currency and finance is raised in hard currency, and hedging remains costly and of limited duration.[327],[328] Scale depends on the availability of guarantee and first-loss capacity in development finance institutions, on pipelines of investment-ready projects, on standardized metrics and lower transaction costs, and on the predictability of the revenue streams, including from carbon markets and public procurement, on which forest investments rely.

Tropical Forest Forever Facility

What it does and actions in place. The Facility creates positive incentives for standing tropical and subtropical forests by linking payments to their maintenance at a national jurisdictional scale, addressing a gap left by instruments that reward measured reductions in loss rather than the maintenance of forests already standing. It rewards maintenance

rather than non-use, which makes it compatible with sustainable management provided forest cover and condition are maintained; monitoring builds on countries' own systems where available and consistent with the Facility's requirements, and at least 20% of Forest Payments are dedicated to Indigenous Peoples and Local Communities.[329]

Its financial model combines public and private capital: sponsor capital from governments and other investors, targeted at US$ 25 billion, is designed to leverage up to US$ 100 billion in senior debt from private and institutional investors, and the returns on the combined capital, net of the cost of the senior debt, finance payments of around US$ 4 per hectare of standing forest, with deductions for each hectare deforested or degraded.[330] It is structured around two distinct components: the Facility, established as a Financial Intermediary Fund (FIF), and the Tropical Forest Investment Fund (TFIF), designed to generate investment returns to finance Forest Payments over the long term. The Facility Charter was adopted in July 2026, and its Board is operational. The TFIF is being established in Luxembourg under separate governance arrangements, with Brazil and Norway serving as co-chairs of both the Facility and the TFIF.[331]

The TFFF Launch Declaration has received endorsements from 66 countries and the European Union, including tropical forest countries that together account for approximately 90% of the world's tropical forests.[332] As of October 2026, seven countries together with two non-state investors have committed approximately US$ 7.3 billion toward the TFIF sponsor tranche, including US$ 1 billion each from Brazil and Indonesia (Section B.3), against a target of US$ 10 billion by the end of 2026; US$ 30 million has been committed to support governance bodies, and no Forest Payments have yet been disbursed.[333]

What determines scale. Scaling up the Facility will depend on mobilizing sponsor capital to attract senior investment and generate sustained resources for Forest Payments. The Forest and Climate Leaders' Partnership estimates its annual potential at up to US$ 4 billion.[334] Because payments depend on the difference between portfolio returns and the cost of senior debt, the Facility's capacity to pay is directly linked to the cost of capital it can secure. Building on the Facility latest Concept Note[335], the financial model is undergoing stress-testing to inform its further refinement and support the mechanism's long-term financial sustainability. The Baku to Belém Roadmap identifies closer collaboration between public international finance and the Facility, including pledging toward initial capitalization and demand signals toward the senior debt tranche, and an access support platform through which development banks, bilateral agencies, UN agencies and programmes, and philanthropies provide technical assistance for countries to meet eligibility criteria, particularly those relating to Indigenous Peoples and Local Communities.256 Effectiveness will also depend on monitoring systems, country readiness, implementation capacity, and equitable benefit sharing.

B.3 South-South cooperation

South-South cooperation refers to the exchange of resources, technology and knowledge among developing countries; triangular cooperation involves developed countries or multilateral organizations supporting such exchanges. Under the Paris Agreement, Parties other than developed country Parties are encouraged to provide or continue to provide

support voluntarily,[336] and the Sevilla Commitment recognizes South-South cooperation as a complement to, not a substitute for, North-South cooperation.[337] Its contribution to forest action is not limited to financial volumes: it also encompasses the sharing of experience in forest monitoring, policy design and institutional development among countries facing similar challenges.[338]

What it does and actions in place. Developing countries are increasingly contributing to the forest finance architecture as co-investors. Brazil and Indonesia have each committed US$ 1 billion to the sponsor tranche of the Tropical Forest Forever Facility (Section B.2), alongside developed-country sponsors.[339] In 2022, Brazil, Indonesia and the Democratic Republic of the Congo agreed to cooperate on sustainable forest management, conservation, restoration and the bioeconomy, and to coordinate their positions on forest finance.[340] In the Amazon, the 2023 Declaration of Belém made the Amazon Regional Observatory a permanent part of the Amazon Cooperation Treaty Organization (ACTO), established an ACTO working group on South-South cooperation and launched an Amazon Alliance to Fight Deforestation.[341]

Technical cooperation on forest monitoring is the most established strand. Between 2013 and 2018, a regional project financed by Brazil's Amazon Fund with US$ 11.8 million enabled Brazil's National Institute for Space Research (INPE) to train 255 technicians from ACTO member countries and to produce regional deforestation maps; approximately further US$ 11 million regional project on forests and climate change was announced in 2025.[342] Triangular arrangements extend this experience, as in the training on Brazil's forest monitoring systems offered in 2025 by the Brazilian Cooperation Agency and INPE with the Japan International Cooperation Agency to technicians from Bolivia, Colombia, Ecuador, Peru and Suriname.[343] Beyond the Amazon, the Kunming Biodiversity Fund, established in 2024 with a commitment of RMB 1.5 billion from China, had endorsed 22 full-size projects in 34 countries, worth about US$ 28 million, by 2025, including support for forest conservation in the Colombian Amazon.[344, 345]

What determines scale. South-South flows for forests are not systematically tracked: reporting standards differ across providers, figures often reflect commitments rather than disbursements, and forest-specific support is rarely identified separately in available datasets.[346] Scale therefore depends on the willingness and capacity of developing countries to expand voluntary contributions, on regional institutions able to pool resources and expertise, such as ACTO, and on triangular arrangements through which developed countries and multilateral organizations support the transfer of experience between forest countries. As pointed by many contributions, South-South cooperation can strengthen the readiness, monitoring and benefit-sharing capacities on which access to other sources depends, but cannot be interpreted as a substitute for North-South support for climate finance.

B.4 Special Drawing Rights channeling and debt-relief instruments

Fiscal space conditions determine how much countries can invest in forests. Many forest countries face high debt-service obligations: developing countries allocated a median of 9.9% of government revenues to external debt service in 2024, the highest share since 2004,

and paid US$ 741 billion more in debt service than they received in new financing between 2022 and 2024.[347] SDR channeling addresses these constraints by channeling Special Drawing Rights (SDRs)—international reserve assets allocated by the International Monetary Fund (IMF)—towards long-term, affordable financing for policy reforms.[348] Sovereign debt management, one of the forms of capturing resources identified by the FCLP Roadmap, addresses the same constraints by exchanging debt relief for forest commitments and by linking sovereign financing terms to forest-related performance; it is discussed in this section because both address fiscal space, although it draws mainly on concessional credit enhancement and private capital markets.

Special Drawing Rights channeling and fiscal space instruments and resilience financing

What it does and actions in place. Following the general allocation of SDRs equivalent to about US$ 650 billion in 2021,[349] members have channeled part of their SDRs through the IMF's Resilience and Sustainability Trust, which provides long-term, affordable financing to support policy reforms that build resilience to climate change. Pledges to the Trust reached SDR 35.8 billion, about US$ 48.9 billion, by July 2025, and at least 29 Resilience and Sustainability Facility arrangements had been approved by mid-2026.[350] Several include forest-related reform measures: in the Democratic Republic of the Congo, amendments to the rules on the allocation of forest concessions and regular publication of forest-monitoring data; in Paraguay, a strengthened national forestry institute able to respond to deforestation alerts; in Madagascar, a forest carbon framework promoting private participation in reforestation; and in Cameroon, the use of fiscal management in forestry as a climate mitigation policy.[351]

The Sevilla Commitment, adopted at the Fourth International Conference on Financing for Development in 2025, encourages countries to voluntarily channel at least half of their SDRs, to scale up debt swaps, including for climate and nature, and to promote climate-resilient debt clauses and debt pause clauses; a Debt Pause Clause Alliance was launched at the Conference.[352]

What determines scale. These channels remain largely untested for forests. Forest-related measures represent a very small share of IMF programme conditions and the use of SDRs for hybrid capital had yet to be operationalized at scale. Scale depends on the willingness of SDR-holding members to channel, on country demand for reform programmes that integrate forest objectives, on the capacity of finance ministries to identify forest-related reforms with fiscal and climate benefits, and on the integration of climate and nature risks into debt sustainability analysis, as encouraged in the Sevilla Commitment. Debt pause clauses can protect fiscal space after shocks, but do not by themselves generate forest finance.

Sovereign debt management

What it does and actions in place. Sovereign debt management can address fiscal constraints through debt conversions that direct part of the financial benefits to conservation, and through sustainability-linked sovereign bonds and loans whose financing terms vary with forest-related performance. Credit enhancement can support such transactions, while

the integration of climate and nature risk into debt sustainability assessments can inform debt management decisions. Ecuador's 2024 conversion refinanced approximately US$ 1.53 billion of debt through a US$ 1 billion transaction supported by United States political risk insurance and an Inter-American Development Bank guarantee. It directs US$ 19 million a year to the Amazon Biocorridor Program.[353] Chile issued the first sovereign sustainability-linked bond tied to biodiversity and protected area targets in 2026,[354] Uruguay continues to report on its 2022 bond, which includes a native forest indicator,[355] and Côte d'Ivoire secured a EUR 433 million sustainability-linked loan with deforestation and reforestation targets under a combined World Bank guarantee.[356] Uganda is piloting the integration of forest resilience into sovereign debt analysis.[357] The World Bank and Spain launched a Global Hub on Debt for Development Swaps in 2025. A COP28 task force estimates that around US$ 70 billion of outstanding sovereign bonds in 19 countries could be repurchased through debt conversions and around US$ 56 billion maturing within five years in eight countries could be refinanced through sustainability-linked debt, up to US$ 126 billion that could potentially benefit from credit enhancement under current market conditions; this is an estimate of eligible debt, not finance committed to forests.[358]

What determines scale. Transactions remain small relative to the debt stock of forest-rich countries, which contributions received read as pointing to the need for broader instruments alongside them.[359] The Forest and Climate Leaders' Partnership estimates the annual potential of sovereign debt management for forests at US$ 4.9 billion.[360] Structuring costs are high and comparability is limited, since transactions use different indicators and verification arrangements. A common set of forest-related indicators building on existing reporting under the climate and biodiversity conventions could reduce costs and ease replication for smaller issuers. The Baku to Belém Roadmap to 1.3T proposes scaling debt-for-nature swaps, using standard covenant templates, risk insurance, and monitoring, and expanding sustainability-linked issuance with nature-related metrics.256 Debt conversions can generate dedicated conservation funding, while sustainability-linked instruments can create financial incentives to meet specific targets. Their contribution to debt sustainability depends on the terms of each transaction; where debt burdens are unsustainable, broader restructuring may be required.[361]

B.5 Innovative mechanisms

For the purposes of this document, innovative mechanisms refer to international cooperation on taxation, solidarity levies, and proposed market-based mechanisms for financing biodiversity conservation.[362] The first two mechanisms are potential sources of new, predictable public revenues raised through internationally coordinated measures: solidarity levies on activities with high emissions or a high capacity to pay, and cooperation to strengthen the taxation of income and wealth that currently escapes effective taxation. Such revenues do not depend on the financial returns of forest activities, which makes them relevant to the long-term, recurrent costs of conservation and to rewarding the maintenance of standing forests. However, current proposals for solidarity levies do not refer to forests,[363] and no form of capturing resources for forests currently draws on this source at the international level. At the domestic level, by contrast, some countries already earmark tax revenues for forests, as the example of Costa Rica discussed below illustrates.

Market-based mechanisms for financing biodiversity conservation are proposed instruments that create tradeable titles linked to conservation actions at a given location, that may be used to compensate for impacts, including land-use change, in another location.

What it does and actions in place. The Global Solidarity Levies Task Force, launched at COP28 and co-chaired by Barbados, France and Kenya, estimates that solidarity levies could realistically raise US$ 20 to 60 billion a year by 2035 and US$ 150 to 400 billion a year in the longer term, drawing on options that include levies on premium flyers, estimated at about US$ 34 billion a year, private jets, fossil fuel extraction and profits, shipping and financial transactions.[364] At the Fourth International Conference on Financing for Development in 2025, eight countries launched a coalition for solidarity levies on premium flyers, which had nine members at COP30, with Brazil among its observers.[365] Under Brazil's G20 Presidency, ministers agreed in 2024 to seek to engage cooperatively to ensure that ultra-high-net-worth individuals are effectively taxed, informed by an analysis estimating that a 2% minimum tax on billionaires' wealth could raise US$ 200 to 250 billion a year.[366] In shipping, the International Maritime Organization approved in 2025 a Net-Zero Framework combining a fuel standard with greenhouse gas pricing, whose adoption has been postponed; its revenues would be dedicated to the maritime sector and to supporting developing countries in its transition.[367]

International precedents show that levies can provide predictable, multi-year funding to dedicated international mechanisms: France's air-ticket solidarity levy, introduced in 2006, enabled contributions of about US$ 2.2 billion to Unitaid between 2006 and 2022, and solidarity levies account for more than two-thirds of Unitaid's budget.[368] Domestic experience shows how tax revenues can be dedicated to forests. Costa Rica has allocated 3.5% of its fuel tax revenues to payments for environmental services since 2001, a program that has enrolled nearly one million hectares since 1997.[369]

B.6 Carbon markets

Forest-related mitigation outcomes fall into two distinct categories, which differ in how they are measured and the risks attached to them: emission reductions and carbon removals Emission reductions (abatement) result from reducing the release of carbon already stored in forests and they are calculated as the difference between actual emissions and a baseline or reference level.

Carbon dioxide removal (CDR), as defined by the IPCC, refers to anthropogenic activities that remove carbon dioxide from the atmosphere and durably store it in geological, terrestrial or ocean reservoirs, or in products. It is a broad category, ranging from the enhancement of biological sinks to technological approaches, such as direct air carbon capture and storage. Forest carbon removals are a specific subset of CDR: they correspond to the carbon that trees and forest soils withdraw from the atmosphere and accumulate as forest carbon stocks increase through restoration, reforestation, afforestation and the enhancement of forest carbon stocks under sustainable management. The only CDRs that are scientific proved and economically viable today are through growing biomass and soils, through restoration, reforestation, afforestation and the enhancement of forest carbon stocks under sustainable management.[370] Sequestration designates the process of storing that carbon in a carbon pool, such as forest biomass or soils; it describes where removed carbon is stored rather than a distinct category of outcome.[371]

Carbon capture, unlike carbon removal, refers to the separation of carbon dioxide from industrial and energy-related sources for storage or use: on its own it does not remove carbon dioxide already in the atmosphere (it captures CO2 from an activity that is emitting), and it contributes to removals only when combined with bioenergy or with direct capture from the air.[372]

Forest carbon removals are measured as the increase in carbon stocks relative to a baseline, so that only removals beyond business as usual are credited, and they accrue gradually, require upfront investment and may take many years to materialize.

Both categories are exposed to the risk of reversal through fire, harvest or later conversion, which is why permanence, leakage and accounting arrangements are central to their integrity. The distinction matters for finance: reductions primarily reward the protection of existing forests and the policies that keep them standing, while removals finance the recovery and expansion of forest cover, providing a unique service of removing CO2 already in the atmosphere, and the two are increasingly treated differently by buyers, standards and compliance systems.[373]

According to the IPCC Sixth Assessment Report, well over two-thirds of global greenhouse gas emissions come from fossil fuels. Despite this, the land-use sector is also responsible for a significant share of global emissions, and forests represent an important option for mitigating global climate change, while also providing numerous other co-benefits. Halting deforestation and forest degradation, as well as increasing carbon removal through restoration, reforestation, and afforestation, is essential to limiting warming to 1.5 °C target within reach. The IPCC finds that afforestation, reforestation, improved forest management, agroforestry and soil carbon sequestration are currently the only widely practiced carbon dioxide removal methods, although carbon stored in vegetation and soils can be reversed by human or natural disturbances,[374] and that pathways returning warming to 1.5 °C after a temporary overshoot rely on net-negative carbon dioxide emissions in the second half of the century.[375] Forest-based removals are therefore part of the response to any overshoot of 1.5 °C. In this context, 57% of nationally determined contributions (NDCs) specifically mention forests as a significant mitigation opportunity.[376]

Carbon markets are one of the sources through which that potential is most directly converted into revenue, connecting forest outcomes to demand from compliance systems and corporate commitments outside the forest sector. They operate both as domestic instruments, within national emissions trading schemes, and as international ones. Despite this significant potential, in 2023 forest carbon markets accounted only for an estimated US$ 1.3 billion in private forest finance.[377]

The term "forest carbon credit" is often used as if it described a single, uniform product. In reality, it is used to designate a variety of distinct assets, referring to actual or alleged mitigation outcomes that may be calculated using different methodologies and standards, covering different types of geographic boundaries, associated with different instruments or institutional frameworks, and that may be used by different actors to fulfill different types of commitments. Much of the controversy over the integrity of forest credits comes from mixing these dimensions. This Roadmap intends to offer a better understanding of each of the features related to forest carbon finance, so that governments, jurisdictions and private actors can identify the approaches best suited to their circumstances, forest conditions and policy objectives.

Efforts to harmonize carbon accounting are also under way: within the Action Agenda, the Greenhouse Gas Protocol and the International Organization for Standardization (ISO) have launched a Plan to Accelerate Solutions for harmonized global carbon accounting

standards, which aims to establish by 2028 the standards infrastructure needed for consistent emissions reporting across corporate, product and project levels, functioning carbon markets and interoperable regulation.

How mitigation results are calculated. In general terms, the five REDD+ activities[378] are eligible to generate units: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks. However, reducing emissions from deforestation is currently the main activity rewarded. A key distinction in forest climate finance concerns how emission reductions are measured. Reductions measured against a historical reference level reflect an observed decline in forest loss and can be verified through monitoring data. Reductions estimated against a projected counterfactual scenario of what would have occurred in the absence of an intervention, an approach used mainly in project-based activities in the voluntary carbon market, rest on baselines that cannot be directly observed and are more vulnerable to uncertainty and baseline inflation.[379] The choice between the two approaches determines whether finance rewards demonstrated performance or estimated future risk. Consistent with agreed UNFCCC terminology, this Roadmap refers to reducing emissions from deforestation and forest degradation rather than to avoided emissions.[380] Enhanced removals play a distinct but increasingly important role in climate mitigation: they result from activities such as restoration, afforestation and reforestation that increase carbon sequestration above business-as-usual levels.

What type of instrument generates the unit, who may use it, and for what claim. Forest mitigation outcomes can be rewarded through **two broad approaches**: **results-based payments**, discussed in Section B.1, and **carbon markets**. Under results-based payments, no transferable unit is created and the mitigation outcome remains in the host country accounting, continuing to count towards its NDC. Carbon markets, by contrast, convert verified mitigation outcomes into transferable units that may be traded and used for specific purposes. These units can be generated through different mechanisms. In cap-and-trade systems, a regulator establishes an absolute emissions cap and issues a fixed number of allowances. In baseline-and-credit systems, credits are issued for the difference between a baseline and measured performance.

Forest credits are generated through the latter approach. The use of carbon units depends on the market in which they circulate. In internationally agreed compliance markets, such as Article 6 of the Paris Agreement and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), units are used to meet legally binding obligations. For such transactions to be completed, the country of origin of the credits must reflect the transfer in the accounting of its NDC, taking into consideration relevant provisions under Articles 4, 6 and 13 of the Paris Agreement—a procedure known as "corresponding adjustment." The country of origin of the credits must also meet an increasingly stringent set of integrity criteria.

REDD+ transactions, including jurisdictional approaches[381]

What it does and actions in place. REDD+ transactions links finance to verified results for emissions reductions or removals across a country or, as an interim step, a subnational jurisdiction. Article 5.2 of the Paris Agreement encourages national implementation of REDD+ activities with, as an interim step[382], subnational measuring, reporting and verification

of results, because operating at national level can support broader policy packages and reduce the risk that forest loss is displaced from one project area to another. In general, results are consistent with national inventories and nationally determined contributions (NDCs). This approach rewards the policies that actually drive deforestation down, such as enforcement, land tenure regularization and commodity supply-chain measures at scale, rather than actions carried out at specific sites. The REDD+ Environmental Excellence Standard of the Architecture for REDD+ Transactions (ART TREES)[383], the standard behind the Lowering Emissions by Accelerating Forest finance (LEAF) Coalition transactions, is an example. REDD+ draws on two sources: grants and concessional finance, through results-based payments, as in the Amazon Fund, the Forest Carbon Partnership Facility, and the Green Climate Fund (Section B.1), and carbon markets, through the transfer of outcomes under Article 6, CORSIA, and related pathways.

Between July 2025 and June 2026, at least US$ 473 million was paid for jurisdictional results through results-based payments and credit purchases, and cumulatively over 584 million tons of CO2 have been paid for; these figures combine both sources.[384] Guyana issued jurisdictional credits in 2023, and nine further jurisdictions' results are currently in the process of validation and verification.[385, 386] On the demand side, the LEAF Coalition has committed over US$ 1 billion in public and private funding and signed agreements worth more than US$ 300 million for TREES credits from programs covering over 100 million hectares, although deliveries under these agreements have been limited so far.[387] In October 2025, Japanese airlines became the first operators to retire aviation-eligible jurisdictional credits, under compliance arrangements Japan has given legal force.[388]

Guyana has been the principal issuer of jurisdictional REDD+ credits, and its 25 million tons of jurisdictional credits represent around 65% of the supply currently eligible under CORSIA.[389] In June 2026, ART issued the first jurisdictional removals credits, 1.1 million tons, to Costa Rica. The LEAF Coalition established a floor price of US$ 10 per ton, while Guyana's agreement with Hess priced different vintages at US$ 15–20 per ton.

Project-level forest carbon activities, which falls outside REDD+ as defined under the UNFCCC, alongside the jurisdictional approach, and there are continuous efforts to nest projects and reconcile carbon accounting between the two levels. Contributions received note that project-level activities remain particularly relevant for improved forest management and for afforestation and reforestation. Jurisdictional crediting for removals is also beginning to emerge, although it has not yet reached scale.[390]

What determines finance at scale. The Forest and Climate Leaders' Partnership estimates the annual potential of jurisdictional REDD+ at US$ 3 to 6 billion.[391] Participation depends on countries' monitoring and institutional capacity and their ability to meet accounting, safeguard, verification, and benefit-sharing requirements. The investments needed to establish these capabilities can be difficult to finance, particularly where public budgets are constrained. **Supply, standards, eligibility, and price discovery are established while committed demand at scale is not**, which is why verified results can remain unpaid. As opportunities to increase demand and market flow, the further development of rules and methodologies under Articles 6.2 and 6.4 of the Paris Agreement; implementation of CORSIA; development of domestic trading systems; longer-term purchase commitments and forward finance; links between corporate deforestation-free supply chain commitments and investment in sourcing jurisdictions; and recognition under corporate net-zero standards, among others, should be considered.[392]

Compliance systems

In a national perspective, compliance systems admit forests in two ways. New Zealand treats forestry as a full participating sector of its emissions trading scheme: registered landholders receive the same units that emitters surrender, must surrender units if the forest is harvested or permanently cleared, and under a new averaging method receive units only up to the long-term average carbon stock of the forest. Forestry is expected to supply the large majority of removal units in that system in 2026.[393]

Elsewhere, forests enter as credits whose use is capped at a small share of an entity's obligation, typically 4% to 10%, so that a weak credit cannot significantly loosen the cap, with rising integrity requirements attached (Table 8). The European Union Emissions Trading System (EU ETS) excludes them, although the Union's 2040 target, adopted in March 2026, admits high-quality international credits up to 5% of 1990 net emissions from 2036.[394] Japan's mandatory scheme accepts credits from its Joint Crediting Mechanism (JCM), which now spans 32 partner countries, and Japan gave legal force to CORSIA through its civil aviation legislation, under which two Japanese carriers made the first retirements of aviation-eligible jurisdictional credits in October 2025.[395] Units are now being issued under Article 6.2 and under the Article 6.4 mechanism, although not yet from forest-related activities under Article 6.4, the aviation scheme draws on eligible units including jurisdictional REDD+ credits, and the International Air Transport Association estimates first-phase offsetting requirements for 2024 to 2026 at 213 million tons against 38 million tons of eligible units available.[396]

Table 8. Eligibility of nature-based credits in domestic and regional compliance carbon markets

Jurisdiction	Instrument	Nature-based credits	Limit	Standard
New Zealand	Emissions trading scheme	Forestry is a full participating sector	Not capped	NZ ETS
South Korea	Emissions trading scheme (K-ETS)	Domestic and eligible international	5% of obligation	Korea offset credits
Singapore	Carbon tax	International credits only	5% of taxable emissions	Article 6; ART, Verra, others
Japan	Emissions trading scheme (GX-ETS)	Domestic, including forestry, and bilateral	10% of obligation	J-Credit, Joint Crediting Mechanism
California	Cap-and-trade	Domestic forest projects	4%, rising to 6%	CARB protocols
European Union	Emissions trading scheme	Excluded	—	—

Source: Burgess and Pande (2026), contribution received. Singapore excludes REDD+ credits from high-forest, low-deforestation countries; Japan's scheme is mandatory from 2026.

International aviation and shipping are very significant sectors. They illustrate the strength and potential of agreements under UN organizations (ICAO and IMO), but they are affected by the fragility of sectoral demand. Under the International Civil Aviation Organization (ICAO), CORSIA requires airplane operators to offset emissions above 85% of 2019 levels with eligible units, including jurisdictional REDD+ credits, and its first phase (2024–2026) is generating the first international compliance demand for forest credits. Its ambition has nonetheless been adjusted over time: in 2020 the baseline for the pilot phase was changed to 2019 emissions only, reducing offsetting requirements, and effective demand depends on host countries issuing the authorizations and corresponding adjustments that eligible units require. The ICAO Assembly reaffirmed its support for the scheme in 2025. In shipping, the International Maritime Organization's Net-Zero Framework would not create demand for forest credits, since compliance relies on in-sector units and contributions to an IMO fund, but its trajectory shows how sectoral climate measures can be weakened or delayed. Both cases show that demand for forest outcomes from international sectors depends on sustained political support within the relevant multilateral bodies.

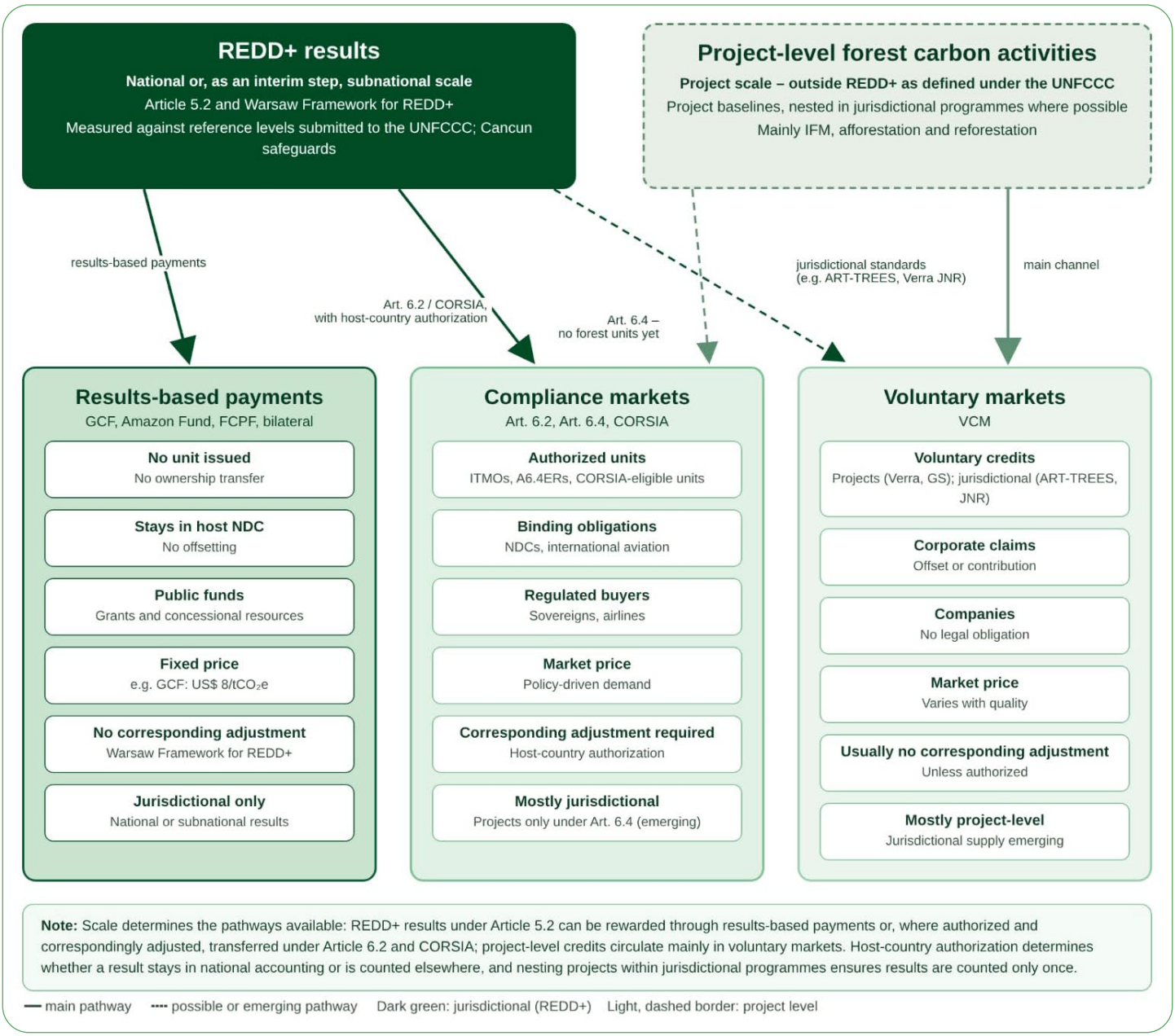
Voluntary carbon markets

The voluntary carbon market (VCM) is where companies and other organizations buy carbon credits without a legal obligation, typically to support net-zero commitments, offsetting claims or contributions to climate action. Credits are issued under independent standards, such as Verra, ART-TREES and Gold Standard, and most are neither authorized by the host country nor correspondingly adjusted. Forest credits have historically accounted for a large share of the market, exposing it to concerns over inflated baselines and leakage. In response, the Integrity Council for the Voluntary Carbon Market (ICVCM) set its Core Carbon Principles as a threshold for high-integrity credits.[397] In 2024, it approved ART-TREES, Verra's VM0048 and Verra's Jurisdictional and Nested REDD+ (JNR) Framework, signaling a shift towards jurisdictional baselines.[398, 399]

For the forest sector, the VCM is the main channel through which private capital can pay directly for mitigation outcomes, reaching actors that public finance rarely does, such as private landholders, Indigenous Peoples and local communities. Nesting allows this finance to reinforce public policy: projects operate within a jurisdictional programme, and their baselines are allocated from the jurisdictional reference level, so that results are counted only once.[400, 401, 402, 403]

Figure 9 summarizes the distinctions discussed in this section. All three approaches start from forest mitigation results verified against a reference level. They diverge in what happens once those results are paid for. Under REDD+ results-based payments, no unit is issued and no ownership is transferred: the results remain in the host country's NDC, so no corresponding adjustment is needed. Results verified under Article 5.2 of the Paris Agreement may receive results-based payments or, with host-country authorization and corresponding adjustments, be transferred under Article 6.2. In compliance markets, results become authorized units used to meet binding obligations under Article 6 or CORSIA, which requires a corresponding adjustment. In voluntary markets, companies buy credits without a legal obligation, usually without a corresponding adjustment unless the host country authorizes them. Because the same credit can serve either market, host-country authorization is the decision that determines whether a mitigation outcome stays within national accounting or is counted elsewhere.

Figure 9. Pathways for financing forest mitigation results



Source: COP30 Presidency.

Where this leaves forest finance. Supply, standards, integrity labels and eligibility rules are now in place at national and subnational scale, price signals are emerging, and removals crediting has begun. Demand, however, remains thin and fragmented. Voluntary buyers have not provided the long-term commitments that jurisdictional programs and restoration investments require. Compliance systems either exclude forest credits, cap their use at a small share of obligations, or, as in the case of CORSIA, generate demand that is still modest relative to potential supply.

Closing this demand gap is therefore the central challenge for scaling carbon market finance for forests. Among the contributions received during the preparation of this Roadmap was a proposal to develop "compliance-ready forest restoration credits", designed from the outset to meet the environmental and social integrity standards required for future integration into compliance markets. Such credits would operate on a national or subnational scale wherever possible, rather than at project level. Existing forest finance mechanisms recognize the importance of protecting standing forests, and restoration finance designed in this way would complement that priority rather than compete with it.

C. INTEGRATING SOURCES, CHANNELS AND INSTRUMENTS TO FOREST DIMENSIONS

Sections A and B show that each assessment areas draws on several sources, and that each source supports several forms. No single source of finance can meet the needs of all forest dimensions. Table 9 relates sources and channels to the five forest dimensions identified in Part I and to the cross-cutting enabling conditions on which implementation depends. A dark green indicates a forest dimension that a source, channel or instrument is primarily designed to finance, while light green indicates an additional dimension to which it can contribute depending on its design and implementation. Blank cells indicate that no relevant relationship was identified for the purposes of this classification, not that no relationship exists. The colors indicate the relationship between sources and forest dimensions, not the volume of finance mobilized or the strength of evidence regarding effectiveness.

Table 9. Sources, channels and instruments and their relationship with the forest dimensions

	Source of finance and main forms of mobilizing resources	Role in halting and/or reversing deforestation and forest degradation	Conservation	Sustainable forest management, Agroforestry and Bioeconomy	Combating degradation	Combating deforestation	Restoration, Reforestation, and Afforestation	Cross-cutting enabling conditions
	Domestic finance	Public budgets and domestic policy instruments; the largest source of forest finance.	■	▪	▪	■	▪	■
	Domestic public forest expenditure	Protected areas, forest administration, monitoring, enforcement and fire management.	■	▪	▪	■	▪	■
	Targeted public finance	Payments for ecosystem services, forest-positive credit and fiscal transfers; repurposing of harmful incentives.	■	▪	▪	■	▪	▪
INTERNATIONAL FINANCE	**Grants, concessional finance and low-cost capital**	Public and philanthropic resources for activities with long-term, uncertain or non-market returns.	■	▪	▪	■	▪	■
	Bilateral and multilateral grants and climate funds	Protected areas, monitoring, enforcement and policy implementation; absorb early-stage risk.	■	▪	▪	■	▪	▪
	Results-based payments	Reward verified emission reductions without transfer of units, creating incentives for policy performance.	▪		▪	■		▪
	Readiness and enabling-conditions finance	Monitoring, accounting, safeguards, tenure and institutional capacity to access other sources.	▪		▪	▪		■
	Direct funding for Indigenous Peoples and Local Communities	Secure tenure and support community stewardship and forest management.	■	▪		▪		■
	Private sector investment and affordable cost of capital	Capital for revenue-generating activities and redirection of commercial flows; depends on the cost of capital.	▪	■	▪	■	■	
	Sustainable forest bioeconomy investment	Enterprises and value chains based on sustainable forest use, agroforestry and planted forests.	▪	■			■	
	Sustainable value chain finance	Redirects commercial and agricultural credit to deforestation-free production and degraded land recovery.		▪		■	▪	
	Guarantees, currency hedging and blended structures	Lower the cost of capital for long-horizon investments such as restoration.		■		▪	■	
	Disclosure and risk-based capital allocation	Integrates forest risk into lending and investment decisions.	▪		▪	■		
	Tropical Forest Forever Facility	Pays for maintained standing forests, using public capital to leverage private debt; deductions for loss.	■	▪	■	■		▪
	South-South cooperation	**Financial contributions and exchange of experience among developing countries, including triangular arrangements.**	■	▪	▪	■	▪	■
	Co-investment in forest finance mechanisms	Developing-country sponsorship of mechanisms such as the Tropical Forest Forever Facility.	■		▪	■		
	Technical cooperation on forest monitoring and policy	Transfer of monitoring systems, methods and policy experience between forest countries.	▪		▪	■		■
	Funds established by developing countries	Resources for biodiversity and forest projects in other developing countries.	■	▪			▪	
	Special Drawing Rights channeling	Long-term, affordable financing for policy reforms and fiscal space; linked to sovereign debt management.	■			■	▪	■
	SDR channels (IMF Resilience and Sustainability Trust; MDB hybrid capital)	Long-term, affordable financing for policy reforms, including forest governance and monitoring.	▪			▪		■
	Debt conversions*	Exchange debt relief for long-term conservation funding, often for protected areas.	■			▪	▪	▪
	Sustainability-linked sovereign bonds and loans*	Tie financing costs to forest targets such as forest cover, deforestation or reforestation.	▪			■	▪	▪
	Innovative mechanisms	New, predictable public revenues through coordinated levies and tax cooperation.	▪			▪	▪	▪
	Global solidarity levies and international tax cooperation	Could provide long-term revenues for forests if allocation includes them; no earmarking today.	▪			▪	▪	▪
	Earmarked and ecological fiscal instruments (domestic precedents)	Dedicate tax revenues to payments for ecosystem services or allocate transfers on forest criteria.	■	▪		▪	▪	▪
	Carbon markets	Convert verified mitigation outcomes into units for compliance obligations or voluntary claims.	▪	▪	▪	■	■	▪
	Jurisdictional REDD+ crediting	Credits verified emission reductions achieved by jurisdiction-wide policies.	▪		▪	■		▪
	Forest carbon removals and project-level crediting	Credits removals from restoration, reforestation, afforestation and improved forest management.		■	▪		■	

■ Dimension of action the source or channel is primarily designed to finance

▪ Additional dimensions to which it can contribute, depending on design and implementation

Blank cells indicate that no relevant relationship was identified for the purposes of this classification, not that none exists.

Source: COP30 Presidency, based on the analysis in Sections A and B of this Part. Note: Sovereign debt management is discussed under Special Drawing Rights channeling for its role in creating fiscal space; it draws mainly on concessional credit enhancement and private capital markets.

Table 9 points to four patterns. First, combating deforestation and conservation are the dimensions served by the widest range of sources, including domestic budgets, results-based payments, jurisdictional REDD+, the Tropical Forest Forever Facility, debt conversions and sustainable value chain finance, consistent with the concentration of accumulated finance in mechanisms addressing deforestation reduction. Second, restoration, reforestation and afforestation, which account for roughly half of estimated tropical forest finance needs, rely mainly on private investment and removals crediting, both of which involve long horizons and are therefore particularly sensitive to the cost of capital. Third, combating forest degradation has few dedicated instruments: it is addressed mainly through the deductions applied by the Tropical Forest Forever Facility and through jurisdictional accounting, while reductions in degradation remain rarely rewarded in practice. Fourth, the cross-cutting enabling conditions on which access to all sources depends are financed mainly through domestic budgets, grants and concessional finance and, increasingly, through reform programmes supported by SDR-based channels and South-South technical cooperation, while innovative mechanisms represent a potential source not yet connected to forest action.

Domestic public resources remain the foundation, provided under fiscal constraints and alongside far larger domestic flows that shape land use. International finance is small in volume, operating below its estimated potential, and its sources differ in what they can finance. The proposals through which the COP30 Presidency suggests these be taken forward are set out in Section D below.

D. COP30 PRESIDENCY PROPOSALS ON THE WAY FORWARD ON FOREST FINANCE

Delivering on the forest-related GST outcome requires a fit-for-purpose forest finance architecture capable of mobilizing resources at scale and responding to different financing needs and stages. Forest policies cannot be disconnected from the general development policies of countries. Sustainable development, considering its three pillars—economic, environmental and social—creates a series of options for forest countries. This Roadmap intends to be an implementation tool, building on decisions that countries have already approved in different multilateral agreements. The challenge is therefore not to build a new architecture from the ground up but to pursue implementation based on existing instruments and sources of finance, contributing to a more coherent portfolio with complementary functions and the capacity to respond to different national circumstances.

Two conditions are central to making this architecture effective: (i) the alignment of domestic financial flows and incentives with forest objectives, which shapes the effectiveness of international finance; and (ii) predictable demand for verified forest outcomes, which can support sustained investment.

The proposals below are organized around these conditions and the complementary measures needed to support them. They do not prescribe particular financial instruments. Rather, they address the conditions under which different instruments can operate effectively and at scale. The proposals follow a sequence: the first two focus on aligning the public and private flows that already shape land use; the third addresses mechanisms for channeling finance to the communities who manage and conserve forests; the fourth and fifth address demand for forest carbon credits and the development of high-integrity forest assets; the sixth addresses countries' capacity to participate in these mechanisms; and the

seventh proposes an ongoing assessment of emerging financial instruments. Three further proposals, D.8 to D.10, are presented for consideration to address sources of finance not covered by the proposals above. Table 10 indicates the sources of finance to which each proposal primarily relates.

Table 10. COP30 Presidency proposals on the way forward on forest finance and sources of finance

			INTERNATIONAL FINANCE					
COP30 Presidency proposal on the way forward on forest finance		Domestic Finance	Grants, concessional finance and low-cost capital	Private sector investment and affordable cost of capital	South-South cooperation	Special Drawing Rights channeling	Innovative mechanisms	Carbon markets
D.1	Align domestic public flows and policies to strengthen the effectiveness of international finance	■	▒	▒		■	▒	
D.2	Translate disclosure into changes in the allocation of private capital			■				
D.3	Strengthen benefit-sharing mechanisms	▒	■	▒	▒			■
D.4	Assure forests a role in carbon markets		▒	▒				■
D.5	Develop high-integrity, compliance-ready forest assets			▒				■
D.6	Finance readiness from future demand		■	▒	▒			■
D.7	Maintain a standing assessment of emerging instruments	▒	▒	▒	▒	▒	▒	▒
D.8	Expand fiscal space for forest action through SDR channeling and debt instruments	▒	▒			■		
D.9	Consider forests in the allocation of innovative mechanisms, including solidarity levies	▒	▒				■	
D.10	Strengthen South-South and triangular cooperation on forest finance	▒	▒		■			

■ Source to which the proposal primarily relates

▒ Additional source to which it relates, depending on design and implementation

Blank cells indicate that no relevant relationship was identified for the purposes of this classification, not that none exists.

Source: COP30 Presidency.

Many of the steps below build on capacities developed over two decades of REDD+ implementation. Maintaining and updating the elements of the Warsaw Framework for REDD+—national strategies or action plans, forest reference emission levels or forest reference levels, national forest monitoring systems and safeguards information systems—strengthens the capacity required for most proposals and is a requirement for several instruments, including Green Climate Fund results-based payments, jurisdictional crediting standards and the Article 6.

The proposals are intended to support implementation through a sequence of complementary steps and are presented below.

D.1 Align public flows and policies to strengthen the effectiveness of international finance.

Domestic resources account for a substantial share of forest finance, and public incentives that can contribute to forest loss operate at a far larger scale than international public forest finance. International finance entering a system whose dominant incentives favor forest conversion may have limited effectiveness. Conversely, aligning domestic policies and financial flows with forest objectives can strengthen the contribution of international finance by reinforcing incentives for sustainable land use through credit terms, tax treatment, and market access. Aligning domestic flows can therefore increase the effectiveness and scale of international support.

Decisions over budgets, subsidies, credit systems, and fiscal arrangements are sovereign. The proposal is therefore focused **on implementation**, supporting country-led efforts **rather than proposing new negotiations and commitments.** The COP30 Presidency proposes an international cooperation effort to assist countries that choose to pursue alignment, including shared analytical work, agricultural public expenditure reviews, and technical assistance. It also encourages closer coordination between the climate and biodiversity processes on the incentives addressed under their respective international commitments.

In relation to sovereign debt instruments, where transactions have often relied on separately developed indicators and verification arrangements, the Presidency encourages the development of a common set of forest-related indicators for strengthening implementation building on existing reporting under the climate and biodiversity conventions. **Such indicators would** reduce transaction costs, improve comparability, and facilitate the use of sustainability-linked instruments and debt conversions, including by smaller issuers.

D.2 Translate disclosure into changes in the allocation of private capital.

The information framework for forest-related financial risk is increasingly developed, while financing exposed to deforestation risk still exceeds dedicated forest finance by orders of magnitude. The COP30 Presidency **sees an opportunity to build** on this information to support implementation through changes in lending, investment, and procurement decisions, with the aim of redirecting private capital towards activities compatible with forest conservation, sustainable use, and recovery. This could include incorporating forest-related risks and verified deforestation-free production into lending and investment

criteria, linking financing conditions to compliance with relevant environmental and land-use requirements, and providing more favorable terms for producers and businesses that demonstrate deforestation-free practices. Such approaches could help translate improved disclosure and risk assessment into financial incentives that support sustainable production and discourage forest conversion.

D.3 Strengthen benefit-sharing mechanisms.

Existing forest finance instruments recognize Indigenous Peoples and Local Communities as right-holders in forest conservation and sustainable management and include commitments for channeling resources to them. However, implementation remains challenging and only a small share of international forest finance reaches communities directly, as Section B discusses. The development of separate delivery mechanisms for different instruments can increase transaction costs, create duplication, and delay the transfer of resources.

The COP30 Presidency therefore believes in the importance of the development of a common framework and associated mechanism for channeling resources to communities, that could support the implementation of different forest finance instruments. This work should proceed in sequence: mapping existing benefit-sharing mechanisms with rights-holders; assessing the extent to which they meet the requirements of the key instruments in operation, particularly the Tropical Forest Forever Facility and jurisdictional REDD+; and designing appropriate implementation arrangements.

The framework should build on common concepts while allowing for the diversity of contexts across forest countries. Territorial funds are one possible mechanism: they could receive resources from different sources and channel them to communities, with the governance arrangements adapted to local conditions and institutional contexts. Meaningful consultation with Indigenous Peoples and Local Communities should be incorporated from the outset, including in the design of benefit-sharing arrangements, rather than being limited to the disbursement of resources.

D.4 Assure forests a role in carbon markets.

Land use offers substantial climate mitigation potential, and carbon markets are the channel through which that potential is most directly converted into revenue. However, demand remains limited and fragmented, and compliance systems, where they allow the use of forest credits at all, often impose quantitative limits on their use. The COP30 Presidency proposes a structured effort to strengthen the participation of forest-related activities in carbon markets, organized around four elements.

First, engagement in the development of eligibility requirements and methodological rules. The Presidency encourages Parties and stakeholders to contribute with evidence and implementation experience to the processes of the crediting mechanism under Article 6 and related rulemaking, so that rules take into account approaches to addressing permanence and leakage through jurisdictional accounting, while providing appropriate opportunities for forest-related activities to participate, consistent with environmental integrity requirements.

Second, diversification of demand across complementary channels, including voluntary markets and results-based payments without a transfer of outcomes, alongside the development of compliance markets. These may include the CORSIA, domestic emissions trading systems, and potential opportunities for high-quality international credits under the European Union's 2040 climate framework.

Third, aggregation of demand through buyer coalitions and multilateral market coalitions, which create predictable purchasing windows, common procurement requirements, and market infrastructure that may be difficult to establish through individual transactions.

Fourth, support for host countries in developing the authorization and accounting capacity required for international transfers under Article 6.2, so that eligible forest-related mitigation outcomes can access international demand where the relevant authorization requirements are met. As environmental integrity standards and safeguards continue to develop, the COP30 Presidency further encourages compliance systems that allow the use of forest credits to periodically review applicable quantitative limits, taking into account improvements in environmental integrity, accounting methodologies, and safeguards, as well as the objectives and requirements of each compliance system.

D.5 Develop high-integrity, compliance-ready forest assets.

Demand at the scale required to support the results needed will depend, in part, on the availability of forest credits that meet robust environmental and social integrity standards, including the requirements of relevant compliance markets, as discussed in D.4.

Restoration is a dimension where financing needs remain particularly significant, accounting for roughly half of estimated tropical forest finance requirements, while existing mechanisms have yet to provide financing at the required scale.

At the same time, demand for high-integrity removals is expected to grow independently through corporate net-zero requirements. Recent research stresses the unique role of removals compared to reductions and suggests the possibility of removal credits having their own separate markets.[404]

D.6 Finance readiness from future demand.

Participation in different forest finance instruments requires readiness: monitoring, accounting, safeguards, benefit-sharing, and institutional capacity. These costs can exceed the resources available to forest countries and are not always fully reflected in estimates of forest finance needs.

Readiness finance has historically depended on official development assistance, which is neither sufficient nor scalable. The COP30 Presidency proposes organizing readiness finance around three principles. First, build on existing capacities and investments: two decades of investment through the readiness facilities, multilateral programmes, and bilateral arrangements have supported the development of national strategies, reference

levels, monitoring systems, safeguards frameworks, and consultation processes under the agreed framework for REDD+. New finance should therefore update and complete this institutional and technical infrastructure, avoiding duplication of existing efforts, with the experience of early participating jurisdictions informing implementation in other countries and jurisdictions.

Second, explore opportunities to link readiness finance to expected future demand, through forward purchase agreements, pre-finance, guarantees, and blended finance structures, allowing anticipated revenues to help finance the capacities needed to generate verified forest outcomes.

Third, establish appropriate risk-sharing arrangements: blended finance mechanisms can help mobilize private investment while avoiding the transfer of disproportionate financial risks to forest countries and communities, through instruments such as floor prices, first-loss capital, and milestone payments. The exchange of readiness experience among countries should build on the technical cooperation mechanisms proposed elsewhere in this Roadmap.

D.7 Maintain a standing assessment of emerging instruments.

Forest finance is an area of continued innovation, and new instruments are likely to emerge through 2030. Such an assessment could help identify opportunities to strengthen the complementarity and coherence of the broader forest finance architecture as new instruments are developed.

The assessment should cover the categories of financial solutions examined in this chapter, identify which instruments can operate at scale and how they complement existing mechanisms, and give particular attention to forest-related objectives and financing needs that are not yet adequately addressed by existing instruments.

D.8 Expand fiscal space for forest action through SDR channeling and debt instruments.

Debt-service obligations constrain the fiscal space available for forest action in many forest countries, while channels that channel SDRs and relieve debt are expanding but have rarely been applied to forests. The COP30 Presidency could encourage: (i) countries that so choose to consider forest-related reform measures, such as those on forest governance, the transparency of concession allocation, forest monitoring and the alignment of rural credit, in reform programs supported through the IMF's Resilience and Sustainability Trust, building on existing experience; (ii) members holding SDRs to consider the voluntary channeling encouraged in the Sevilla Commitment, including through hybrid capital in multilateral development banks, with attention to programs that support forest action; and (iii) the use of the Global Hub on Debt for Development Swaps, together with the common set of forest-related indicators proposed under D.1, to reduce the costs of debt conversions and sustainability-linked instruments that include forest objectives. Decisions on debt and fiscal policy remain sovereign; the proposal supports country-led efforts.

D.9 Consider forests in the allocation of innovative mechanisms, including solidarity levies.

Solidarity levies and other innovative mechanisms could provide the predictable, long-term public revenues that forest instruments with long horizons require, but current proposals do not seem to address forests. The COP30 Presidency encourages engagement with the work of the Global Solidarity Levies Task Force on revenue-allocation mechanisms and with the negotiations on the United Nations Framework Convention on International Tax Cooperation, to share evidence on forest financing needs and on the experience of countries that dedicate tax revenues or fiscal transfers to forests. Any allocation to forests would be a matter for the countries participating in each levy, and could complement existing instruments, such as results-based payments and the Tropical Forest Forever Facility, rather than create new ones.

D.10 Strengthen South-South and triangular cooperation on forest finance.

Developing countries already contribute to the forest finance architecture, as co-investors in mechanisms such as the Tropical Forest Forever Facility and through regional cooperation on forest monitoring, but this contribution is rarely recognized or connected to other sources and cannot be confused as a substitute of North-South cooperation. The COP30 Presidency could encourage: (i) the exchange of experience among forest countries on the design and implementation of forms of capturing resources—including results-based payments, jurisdictional programs, payments for ecosystem services and benefit-sharing arrangements—building on regional mechanisms such as the ACTO working group on South-South cooperation; (ii) triangular arrangements through which bilateral and multilateral partners support such exchanges, including for forest monitoring and readiness under D.6; and (iii) voluntary reporting on South-South forest-related support, to make its contribution more visible. South-South cooperation remains voluntary and a complement to, not a substitute for, the provision of finance by developed countries under Article 9 of the Paris Agreement.

Figure 10 presents an indicative sequencing of the activities, showing which steps come first, which phases require particular attention, which efforts continue beyond their initial steps, and where one proposal depends on progress under another.

Figure 10. Indicative pathways for implementation: sequences and phases

	PROPOSAL	SEQUENCE OF IMPLEMENTATION				
		STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Domestic flows	**D.1 Align domestic public flows and policies**					
	• Country diagnostics: expenditure reviews, incentive mapping • Common debt indicators developed, then adopted in issuances • Design and implementation of realignment measures					
	D.2 Disclosure into private-capital reallocation					
	• Engagement with institutions, regulators, standard-setters • Forest risk integrated into decisions; reallocation observable in flows					
Communities	**D.3 Efficient benefit-sharing mechanisms**					
	• Map existing benefit-sharing mechanisms with rights-holders • Assess fit with requirements of TFFF, JREDD+ and other instruments • Design the common framework and implementing structure • Pilot the structure across contexts; channel resources at scale					
Demand	**D.4 Forests' role in carbon markets**					
	• Engagement in Article 6.4 and related rulemaking • Host-country authorization and accounting capacity (Art. 6.2) • Forest credits enter compliance channels • Quantitative limits kept under review as integrity strengthens					
	D.5 High-integrity, compliance-ready assets					
	• Carbon accounting criteria, from the common reference framework for forest information • Market design: standards, net accounting, governance • Restoration market launched; early issuances • Integrity record accumulates; integration into compliance markets					
Readiness	**D.6 Readiness financed from future demand**					
	• Map existing readiness infrastructure and gaps • Update and complete existing systems; transfer first-mover experience • Structure demand-leveraged instruments, enabled by demand visibility (D.4) • Deployment with risk safeguards; funding mix shifts					
Assessment	**D.7 Standing assessment of emerging instruments**					
	• Assessment established: criteria operationalized, scope defined • Recurring assessment cycles guide support and development					
Further sources	**D.8 Fiscal space through SDR channeling and debt instruments**					
	• Forest-related reform measures in RST-supported programmes • Voluntary SDR channeling, including through MDB hybrid capital • Debt conversions via the Global Hub, with common forest indicators (D.1)					
	D.9 Forests in innovative mechanisms, including solidarity levies					
	• Evidence shared on forest financing needs and country experience • Engagement with the Solidarity Levies Task Force and UN tax negotations • Allocation decided by participating countries; complements RBPs and TFFF					
	D.10 South-South and triangular cooperation					
	• Exchange of experience among forest countries, building on ACTO • Triangular arrengements, including monitoring and readiness (D.6) • Voluntary reporting on South-South forest-related support					

Source: Climate Policy Initiative (CPI) and COP30 Presidency.

THE ROAD AHEAD

"The world is formed not only by what already exists, but by what can actually exist."

Milton Santos[405]

"I am myself and my circumstance."

José Ortega y Gasset[406]

The first Paris Agreement Global Stocktake, agreed by consensus at COP28, gave the international community a clear and shared direction on forests: to enhance efforts towards halting and reversing deforestation and forest degradation by 2030. Two years later, in COP30, Parties resolved through the Global Mutirão decision to decisively transition to a focus on implementation. This Roadmap is offered in that spirit, and its central message is straightforward. Enhancing efforts for the implementation of the forest-related outcome of the first Global Stocktake remains within reach but all actors need to go faster and further. With few years left before 2030, the window is narrowing, and the pace and scale of implementation must increase significantly.

The forest-related outcome of the first Global Stocktake is a global goal, not a target disaggregated among countries. It implies that the aggregate global forest area should stabilize by 2030, and it is to be implemented collectively. Collective implementation thus calls for the combined and coordinated action of national governments, subnational governments, the private sector, Indigenous Peoples and Local Communities, academia, civil society, international organizations, philanthropy, and the economic and financial actors whose decisions shape land use every day.

The Roadmap was developed with this in mind. It was built thanks to the impressive corpus of reports from different institutions and it draws on more than 180 written contributions, over 100 engagements and seven international in-person events, bringing together the perspectives and implementation experience of all these constituencies. It covers every major forest domain, from tropical to boreal forests, as well as peatlands and mangroves. Throughout, it is grounded in respect for the sovereignty of national decisions, the diversity of national circumstances, the development of countries and the rights of Indigenous Peoples and Local Communities over lands, territories and resources.

Across the five forest dimensions—conservation, sustainable forest management, degradation, deforestation, and restoration—addressed in this Roadmap, the COP30 Presidency believes that the ultimate objective, and the one that most clearly unites the Rio Conventions, is the conservation and sustainable use of forests. Reaching it requires action on every dimension at once.

At this critical moment, as UNEP alerts us to the inevitability of the overshoot, three priorities stand out:

1. **Reduce deforestation.** Global deforestation has slowed, but still averaged 10.9 million hectares per year in 2015–2025, so the pace of reduction must be decisively accelerated.

2. **Address forest degradation.** Degraded forests store less carbon, lose biodiversity and become more exposed to new disturbances. Tackling degradation keeps forests healthy and prevents further forest loss.

3. **Remove carbon from the atmosphere through forest restoration, reforestation and afforestation, in ways that are economically viable and profitable.** Restoration can act as a positive tipping point, generating benefits for climate, biodiversity, water security and rural livelihoods that reinforce one another as it scales.

Across the national, international and financial dimensions, the preparation of this Roadmap made one thing clear: much is already being done. Countries have built policies, institutions, monitoring systems and economic instruments. Two decades of REDD+ have created lasting national capacities. New instruments such as the Tropical Forest Forever Facility are being established, and more than 20 Plans to Accelerate Solutions (PAS) now work within the Global Climate Action Agenda in forest-related areas. The COP30 Presidency recognizes the effort of every actor that has brought us this far.

The moment, however, calls for acceleration and scale. Forest finance reached about US$ 84.5 billion in 2023, against an estimated need of more than US$ 300 billion a year by 2030. Closing such gaps and changing the incentives that still favor conversion and other economic uses of territories where forests are located requires structural change. That change will not come from the forest community alone. It requires mobilizing actors and sectors beyond those traditionally engaged in the forest agenda: ministries of finance, agriculture, infrastructure, trade and justice, and local governments; central banks and financial supervisors; commodity producers, traders and buyers; MDBs and vertical funds; and investors and lenders.

Each Part of the Roadmap closes with a set of COP30 Presidency proposals for the way forward. The paragraphs below recall their main elements, so that the national, international and financial dimensions can be read together as complementary parts of a single implementation effort.

At the national level, the COP30 Presidency recognizes that countries' existing policy and institutional arrangements are the natural starting point for implementing the forest-related outcome of the first Global Stocktake. The emphasis is less on producing new strategies than on strengthening countries' capacity to turn existing commitments into measurable progress by 2030.

The COP30 Presidency suggests that countries review their domestic policy frameworks so that the 2030 outcome is fully embedded in national planning, with clear implementation measures, financing strategies, governance arrangements and monitoring frameworks. To support this country-led exercise, the Roadmap offers a set of guiding questions organized in five steps—Diagnose, Align, Target, Deliver and Evaluate and adjust implementation—covering the setting of conditional and unconditional targets and an implementation pathway that can be embedded in country platforms. As the 2030 outcome falls within the current cycle of Nationally Determined Contributions, this exercise is most valuable now: countries may wish to use it to reinforce the implementation of their existing NDCs, national strategies and policies, while the lessons learned can also inform future rounds of NDCs.

At the international level, the Presidency puts forward four proposals, each with an implementation pathway of indicative milestones.

First, building on existing systems, improve national and international reporting through aligned terms and definitions, wider coverage and greater interoperability, without creating parallel requirements.

Second, establish a multistakeholder implementation process through 2030 that connects existing technical cooperation around country-identified needs, including through peer-to-peer, regional, South-South and triangular cooperation.

Third, combat transnational environmental crime by strengthening investigative capacity, tracing illicit financial flows and recovering criminal assets. With negotiations on an additional protocol to the United Nations Convention against Transnational Organized Crime about to begin, the COP30 Presidency encourages all to engage actively in this process.

Fourth, shape trade-related incentives so that market access rewards sustainable and deforestation-free production, pairing measures with cooperation that helps producing countries meet them, so that trade reinforces rather than complicates national implementation.

On finance, the Presidency, after the many contributions, identifies two conditions for an effective forest finance architecture: the alignment of domestic financial flows and incentives with forest-related outcomes, and predictable demand for verified forest outcomes.

It is important that the international community understands that most of the resources for this agenda currently come from national budgets, and most tropical forests are located in developing countries. International finance, which can be critical, still plays a relatively modest role. Scaling up international public finance from developed countries is essential both to provide direct support to LDCs and other countries with limited fiscal space and to help mobilize additional sources of finance in emerging and middle-income countries.

The ten financial proposals do not create a new architecture or prescribe instruments; they address the conditions under which existing ones can operate at scale. Alongside the COP30 Presidency report: Implementing the Baku to Belém Roadmap to 1.3T, these proposals build on two decades of capacities developed under the Warsaw Framework for REDD+. They call for:

- aligning public flows and policies;
- translating disclosure into changes in the allocation of private capital;
- developing a common framework for channeling resources to Indigenous Peoples and Local Communities;
- securing a significantly larger role for forests in carbon markets;
- developing high-integrity credits, particularly for removals, including through compliance-ready forest assets;
- financing readiness from future demand;
- maintaining a standing assessment of emerging instruments;
- expanding fiscal space through SDR channeling and debt instruments;
- considering forests in the allocation of solidarity levies and other innovative mechanisms; and
- strengthening South-South and triangular cooperation on forest finance.

Ultimately, this effort makes one conclusion inescapable: implementation is imperative. The Roadmap's proposals, and the indicative sequencing of activities, are an offer from the COP30 Presidency to help us move forward.

Keep the collective dialogue going to 2028

The conversation opened in Belém, the first COP in the Amazon forest, has been constructive because it stayed focused on implementation and open to all stakeholders working towards forest protection. We recognize that those who choose to take up this effort will give it its meaning, and that sustained political support will be essential to turn enhanced efforts towards halting and reversing deforestation and forest degradation by 2030 into results on the ground.

In this context, the COP30 Presidency invites those best placed to carry the conversation forward to keep that space open. Future COP Presidencies and the High-Level Climate Champions can take further the Action Agenda's axis on stewarding forests, oceans and biodiversity, strengthen its Plans to Accelerate Solutions and the coalitions behind them.

The United Nations system, whose work provides a significant part of the analytical foundations of this Roadmap, can keep the monitoring instruments current, help close the data gaps identified, and draw on the Roadmap in the work it already does. We also call upon Turning the Tide on Deforestation (TTD), launched by the UN Secretary General in 2019 and led by FAO, UNEP, UNDP and UNFCCC secretariats, to continue strengthening coordination among agencies and countries through communication and advocacy, and to track progress towards the goal. The tide has turned: Brazil, which only a few years ago accounted for a large share of global deforestation, has reduced deforestation in the Amazon by more than 70% since 2022, with deforestation reaching its lowest level in the historical series, showing that everything seems impossible until it is done.

As it was made clear during the process of developing this Roadmap, the second Global Stocktake (GST2), to be concluded in 2028, will be the first collective assessment of progress since Parties' commitments on forests were reaffirmed. Those taking part in this conversation may wish to bring to it a shared reading, by national circumstances, of where the world stands, and to anchor that reading in the Roadmap as an input to this process.

A final message

In my first letter as COP30 President, I stated that change is inevitable, by choice or by catastrophe, and that we still hold the choice. Almost two years later, I believe this more firmly than ever.

In Belém, at the gateway to the Amazon, the forest itself reminded us what is at stake and how little time remains. There, I committed to developing a Roadmap to put into practice what all of us agreed at COP28: to enhance efforts towards halting and reversing deforestation and forest degradation by 2030. Federal and local governments, Indigenous Peoples and Local Communities, companies and financial institutions, scientists and civil society from every forest—and non-forest—region answered our call. The partners who worked with us on this Roadmap gave it their time and their best judgment. We listened to them and we learned from them, and this Roadmap is the result.

The period from now to 2030 is the decisive implementation window. The COP30 Presidency invites every government, institution and community to take part in this global *Mutirão* for the world's forests, started in Belém. I hope it helps us deliver what we agreed together in Dubai. We can do it together, by choice.

APPENDIX I: RELATED PLANS TO ACCELERATE SOLUTIONS UNDER THE GLOBAL CLIMATE ACTION AGENDA FRAMEWORK

Solutions and Initiatives that are already being delivered as part of the UNFCCC Global Climate Action Agenda show practical examples of how the implementation of this Roadmap can be supported and existing efforts all actors can join. The tables below presents Plans to Accelerate Solutions (PAS) and Initiatives related to each of the Roadmap topics. It focuses on Plans and Initiatives under Axes 2 and 3 of the Action Agenda, as well as Activation Group 29 (Axis 6), respectively:

- Axis 2: Stewarding Forests, Oceans, and Biodiversity
- Axis 3: Transforming Agriculture and Food Systems
- Activation Group 29 (Axis 6): Bioeconomy and Biotechnology

The lists are not exhaustive, and other PAS and Initiatives may also contribute to the implementation of the Roadmap, including those addressing sustainable timber construction, the protection of environmental defenders, access to water in vulnerable communities, clean cooking, land tenure, Digital Public Infrastructure, harmonization of accounting in carbon markets and mobilization of finance among others.

The lists of PAS and initiatives are dynamic and continuously updated as plans and initiatives update their information on the UNFCCC NAZCA platform and advance the implementation of climate solutions. The COP30 Presidency therefore invites stakeholders to engage actively in this process and to contribute to the strengthening of existing plans, to propose new ones, and to join efforts to accelerate their implementation.

Access the full list of PAS and initiatives, including their goals and activities:
https://climateaction.unfccc.int/PAS

PAS / Host Initiatives	A1	A2	A4	A3	A5	B2	III	3 to 5 Principal policies and implementation approaches (national and international)
TFFF, PES and forests conservation *Host Initiative: Tropical Forest Forever Facility - TFFF* Brazil-led global facility providing results-based finance for forest conservation, mobilizing public-private capital and ensuring direct benefits to tropical countries and Indigenous peoples.	■		■	■			■	• Protected areas • Forest zoning and regulations on forest conversion • Finance and Markets • Innovative financial mechanisms
Direct access financing for IPs & LCs *Host Initiative: TFFF with support from New Animal, GATC, FCLP, UNDP, FFF, TNC, CI, and others.* By 2030, expand direct finance to IPs and LCs, speed predictable funding, and secure land tenure and capacity building to scale evidence-backed Indigenous-led finance, governance, and conservation.	■	■				■	■	• Recognition and protection of collective territorial rights • Forest concessions, community forest management and other forest-use arrangements • Land governance and tenure security • Finance and Markets • Innovative financial mechanisms
Integrating Deforestation Into Financial Decision-Making *Host Initiative: The Nature Conservancy (TNC), Deforestation Investor Group, Finance Sector Roadmap, Mission 2025* Integrates deforestation risks into finance via disclosures, governance, and investor action to shift capital flows and support 2030 goals to halt and reverse forest loss.						■	■	• Certification systems and supply-chain traceability • Forest-aligned credit • Capacity-building • Finance and Markets • Aligning fiscal policies

REDD+ and combatting deforestation
Host Initiative: UN-REDD Programme and Forest & Climate Leader's Partnership (FCLP)
 	
This will accelerate efforts to scale jurisdictional REDD+ as a high-integrity approach to halt & reverse deforestation, mobilize public & private investment, and strengthen its enabling environment.
	■					■	■	• Payments for ecosystem services (PES)
								• Finance and Markets
								  • Innovative financial mechanisms
								  • Carbon markets

→

■ Strong relation ■ Relation

Areas of action

A1) Forest conservation
A2) Sustainable Forest Management
A3) Combating degradation
A4) Combating deforestation
A5) Restoration, reforestation and afforestation
B2) Technical cooperation and capacity-building
III) Finance and Markets

PAS and initiatives information: https://climateaction.unfccc.int/PAS

PAS / Host Initiatives	A1	A2	A4	A3	A5	B2	III	3 to 5 Principal policies and implementation approaches (national and international)
The Power of Nature *Host Initiative: ENACT Partnership and Nature4Climate* Nature is our most powerful climate ally, yet it remains under-used and underfunded. The PAS aims to make climate solutions nature positive, so that nature loss is halted and reversed by 2030. The plan backs the global targets to protect 30% of land and sea and to restore 30% of degraded ecosystems by 2030. It also supports the Global Goal on Adaptation's target on ecosystems. It sets out clear actions to in three core areas: mitigation, biodiversity resilience, and freshwater ecosystems.	■	■	■	■	■	■		• Protected areas • Ecosystem-specific recovery approaches • Plans and programs for forest recovery and establishment at scale • Capacity-building • Finance and Markets
Global Partnership for Enhanced Climate Action in Tourism *Host Initiative: UN Tourism* The Plan will generate knowledge and guidance, including the publication of Policy Guidelines on Climate Adaptation in Tourism and the Guide on Regenerative Approaches for Climate Action in Tourism.		■					■	• Forest concessions, community forest management and other forest-use arrangements • Bioeconomy strategies, programs and action plans • Finance and Markets
Land tenure for Afro-descendant communities *Host Initiative: The Rights and Resources Initiative (RRI)* Strengthen land tenure, governance, and leadership in Afro-descendant communities to promote conservation, climate action, biodiversity, SDGs, regional cooperation, and sustainable development.	■	■				■		• Recognition and protection of collective territorial rights • Forest concessions, community forest management and other forest-use arrangements • Land governance and tenure security • Capacity-building
Plan to Accelerate an InterGovernmental Land Tenure Commitment for Indigenous Peoples *Host Initiative: Global Land Alliance (GLA)* The plan secures IP&LCs' rights to protect >150M hec by 2030 and a financial commitment of $1.5bn, contributing to halt deforestation, combat climate change, and conserve biodiversity.	■	■					■	• Recognition and protection of collective territorial rights • Forest concessions, community forest management and other forest-use arrangements • Land governance and tenure security • Capacity-building • Finance and Markets

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■ Strong relation ■ Relation

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PAS and initiatives information: https://climateaction.unfccc.int/PAS

PAS / Host Initiatives	A1	A2	A4	A3	A5	B2	III	3 to 5 Principal policies and implementation approaches (national and international)
Integrated Fire Management *Host Initiative: Global Fire Management Hub, hosted by FAO* The Global Fire Management Hub advances Integrated Fire Management through knowledge sharing, capacity-building, wildfire-resilient communities, risk reduction and early warning, and policy support.								• Protected areas • Monitoring and law enforcement • Integrated fire management • Land governance and tenure security • Capacity-building
Synergistic implementation across the Rio Conventions *Host Initiative: Synergies Collaboration Platform (SCP)* This PAS will drive synergistic implementation of the Rio Conventions by tackling challenges and opportunities for integrated action through whole of society and government collaboration.								• Capacity-building • Finance and Markets
Tackling Environmental Crime to Achieve Zero Deforestation *Host Initiative: Global Coalition Against Environmental Crime* Global action to tackle environmental crime and illicit financial flows are central to secure tropical forests and build a Roadmap to Zero Deforestation by 2030.								• Protected Areas • Recognition and protection of collective territorial rights • Monitoring and law enforcement • Certification systems and supply-chain traceability • Capacity-building
Blue Package: Ocean-Based Solutions for the Climate Crisis *Host Initiative: Ocean & Climate Platform* The 'Blue Package' sets out action-oriented strategies to implement key steps, overcome barriers, and unlock scalable solutions under the Ocean Breakthroughs, while integrating AG7 initiatives.								• Harvesting regulations • Plans and programs for forest recovery and establishment at scale • Ecosystem-specific recovery approaches • Capacity-building • Finance and Markets
Accelerating Actions on Land Restoration & Sustainable Agriculture in the Global South *Host Initiative: Global EverGreening Alliance (Restore Africa and Restore Asia)* Five task forces will drive and deliver measurable outputs for each identified roadblock, developing clear messaging, tools, and engagement strategies to coordinate action with key stakeholders.								• Agroforestry policies and programs • Plans and programs for forest recovery and establishment at scale • Capacity-building • Finance and Markets

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PAS and initiatives information: https://climateaction.unfccc.int/PAS

PAS / Host Initiatives	A1	A2	A4	A3	A5	B2	III	3 to 5 Principal policies and implementation approaches (national and international)
Private Sector and Subnational Government Actions to Restore Degraded Landscapes *Host Initiative: Riyadh Action Agenda (UNCCD COP16 Presidency)* Launch a coalition of organizations to accelerate private sector and subnational action in land restoration, conservation and sustainable land management by 2030, with accountability and transparency.								• Plans and programs for forest recovery and establishment at scale • Capacity-building • Finance and Markets
Regenerative Agriculture for Healthy Soil and Healthy Diets *Host Initiative: Coalition of Action 4 Soil Health (CA4SH)* Accelerating regenerative agriculture for healthy soil and healthy diets by linking science, policy, and finance to restore land, improve nutrition, and transform food systems.								• Agroforestry policies and programs • Certification systems and supply-chain traceability • Capacity-building • Finance and Markets

Resilient Agriculture Investment for Net Zero Land Degradation (RAIZ)
Host Initiative: Food and Land Use Coalition (FOLU) and FAST Partnership
 	
RAIZ unlocks finance for farmland restoration at scale by helping countries assess the cost and build optimal financing mechanisms, creating the connective tissue between governments and investors.
								• Certification systems and supply-chain traceability
								• Forest-aligned credit
								• Capacity-building
								• Finance and Markets
								  • Innovative financial mechanisms
								  • Aligning fiscal policies

Access to Finance for Agrifood Systems Transformation *Host Initiative: FAST Partnership* This PAS aims at strengthening collaboration among farmers and financial actors to enhance access to finance for agrifood systems transformation								• Agroforestry policies and programs • Certification systems and supply-chain traceability • Capacity-building • Finance and Markets

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Strong relation Relation

Areas of action

A1) Forest conservation
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PAS and initiatives information: https://climateaction.unfccc.int/PAS

PAS / Host Initiatives	A1	A2	A4	A3	A5	B2	III	3 to 5 Principal policies and implementation approaches (national and international)
Enabling and Showcasing Delivery of Ambitious National Commitments on Food Systems Transformation *Host Initiative: Alliance of Champions for Food Systems Transformation (ACF) and Global Alliance for Improved Nutrition (GAIN)* Strengthening Leadership and Accelerating Food Systems Transformation: This Plan to Accelerate will present 100+ governments with a toolbox to support acceleration of food systems transformation.								• Forest concessions, community forest management and other forest-use arrangements • Bioeconomy strategies, programs and action plans • Agroforestry policies and programs • Capacity-building • Finance and Markets
Terra - Together for the Expansion of Resilient and Restorative Agroecology and Agroforestry *Host Initiative: Consultative Group on International Agricultural Research (CGIAR)* TERRA aims to scale up agroecology and agroforestry systems to restore biodiversity, enhance climate resilience and mitigation potential, strengthen food security, and generate decent rural incomes.								• Forest concessions, community forest management and other forest-use arrangements • Agroforestry policies and programs • Certification systems and supply-chain traceability • Capacity-building • Finance and Markets
Bioeconomy Challenge: A Global Roadmap for Transformative Bioeconomy Action *Host Initiative: Nature finance* The Bioeconomy Challenge is a 3-year multi–stakeholder Platform to translate the G20 High-Level Bioeconomy Principles into concrete actionable strategies for a sustainable and inclusive bioeconomy.								• Forest concessions, community forest management and other forest-use arrangements • Bioeconomy strategies, programs and action plans • Capacity building • Finance and Markets
Pipeline aggregation and bioeconomy finance & investments *Host Initiative: Earth Investment Engine (EIE)* This collaborative platform is addressing challenges to accelerate investments towards bioeconomy. It aims to accelerate capital mobilization from the current level of US$5 bn per year to US$30 bn.								• Bioeconomy strategies, programs and action plans • Capacity building • Finance and Markets

Strong relation Relation

Areas of action

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III) Finance and Markets

PAS and initiatives information: https://climateaction.unfccc.int/PAS

APPENDIX II: RELATED INITIATIVES UNDER THE GLOBAL CLIMATE ACTION AGENDA FRAMEWORK

Initiative	Description
4/1000 Initiative	The "4 per 1000 Initiative: Soils for Food Security and Climate" was launched at COP 21 in December 2015. The Initiative carries the vision of worldwide healthy and carbon-rich soils (especially agricultural and forest soils) to combat climate change and end hunger. It promotes the natural sequestration of organic carbon in soils, and support for the most advanced scientific research in this field, globally.
Action Agenda on Regenerative Landscapes (AARL)	Catalysing a transformative shift towards regenerative and agroecological practices across global landscapes, aiming to establish resilient, sustainable food systems that benefit both nature and people.
African Forest Landscape Restoration Initiative (AFR100)	Aims to address the environmental, social and economic challenges through Forest and Landscape Restoration, in Africa. It is a Pan-African initiative implemented at the national level by 34 African countries, with the main objective is to restore 100 million hectares of degraded forests and lands, by 2030.
AgroEcology Coalition	A global network of 486 members, including 53 governments and 427 organizations, formed after the 2021 UN Food Systems Summit. It implements food system transformation based on the 13 HLPE-FSN principles and the 10 FAO Elements of Agroecology to address climate and nutrition crises.
Brazil Restoration and Bioeconomy Financial Coalition	Sequester 1 gigaton of CO_2e by 2050, playing a vital role in global climate action.
CA4SH (Coalition for Action for Soil Health)	CA4SH aims to improve soil health globally by scaling adoption of healthy soil practices, strengthening monitoring, integrating evidence into policy, and mobilizing inclusive investment to deliver climate mitigation, adaptation, and resilience benefits.
Canopy Trust	Canopy Trust mobilizes sustainable finance for forest conservation, restoration, and land use, aiming to reduce emissions, enhance carbon sinks, and build forest community resilience in line with Paris Agreement Articles 5,6, and 7.
Catalytic Capital for the Agricultural Transition (CCAT)	VOX Capital's CCAT fund finances land restoration for Brazilian farmers using subordinated debt and concessional capital to reduce risk. It leverages catalytic capital to attract commercial investors through instruments like CRAs, Fiagros, and FIDCs. The goal is to raise US$200 million in catalytic capital and mobilize US$800 million in private investment by 2028.
CitiesWithNature	CitiesWithNature (CWN) recognizes & enhances the value of urban nature & provides an online platform for cities to engage, connect & work towards a more sustainable urban world. Since its launch in 2018, 360+ cities from 78 countries globally have joined CWN.
Deforestation Free Transition Pathway	Bringing together practical guidance to support financial institutions to eliminate deforestation, conversion, and associated human rights abuses from their portfolios.
Earth Investment Engine	The bioeconomy finance landscape is constrained by a diverse, invisible and fragmented pipeline. The EIE exists to break this deadlock by addressing structural barriers to unlock vast stocks of capital and turn them into sustained investment flows in order to achieve climate and nature goals
ENACT	Convenes state and non-state actors to advance NbS and support the joint implementation of the Rio Conventions.
FAST Partnership	A partnership contributing to improve the quantity and the quality of climate finance to support agrifood systems transformation.



Initiative	Description
Finance for Biodiversity Foundation	The Finance for Biodiversity Foundation (FfB) supports the finance sector in integrating biodiversity into strategies and decision-making through peer learning, collaboration, and the development of practical guidance.
Finance Sector Deforestation Action	The Finance Sector Deforestation Action (FSDA) unites 34 financial institutions managing over US$8 trillion. Following a COP26 commitment, they work to eliminate agricultural commodity-driven deforestation risks (from cattle, soy, palm oil, pulp, and paper) in their investment and lending portfolios by 2025 through individual strategies and jurisdictional requirements.
Food and Land Use Coalition	The Food and Land Use Coalition (FOLU) is a global community of farmers, policymakers, businesses, and civil society. Operating through platforms in countries like Brazil, China, and Indonesia, it accelerates the transformation of food and land use systems. FOLU brokers partnerships and conducts research to find solutions that benefit people, nature, and climate.
Forest & Climate Leaders Partnership (FCLP)	The Forest & Climate Leaders' Partnership (FCLP) unites 37 countries and the EU to accelerate progress to halt and reverse deforestation and land degradation by 2030.
Forest, Agriculture & Commodity Trade (FACT) Dialogue	To protect forests and other ecosystems while promoting sustainable trade and development while addressing the climate and biodiversity crisis.
Forest and Farm Facility	The FFF strengthens the capacity of smallholder, Indigenous and local community producer organizations to build climate resilience through forest and farm landscape restoration, sustainable enterprises and inclusive finance, contributing to just rural transitions aligned with the Paris Agreement.
Forest Declaration Assessment	Track, assess, and accelerate progress toward halting and reversing deforestation and forest degradation by 2030, in line with the Paris Agreement's objective to limit warming to 1.5°C and enhance sinks and resilience.
Forest Forward Initiative	Forests Forward is a signature WWF programme for corporate action in support of nature, climate, and people.
Forest Solutions Group	As a platform of leading forest industry companies, provide "open-source" support (guidance, metrics, methods) to achieve a "just" transition towards net-zero through decarbonization, removals and emissions avoidance.
Global Drought Resilience Partnership	The Riyadh Global Drought Resilience Partnership (RGDRP), launched at UNCCD COP16 in 2024, aims to shift drought management toward proactive climate resilience. Supporting ~80 vulnerable countries, it will be hosted at UNCCD, funded by Saudi Arabia for 10 years, with $12B pledged for land restoration and drought action ahead of COP30.
Global Fire Management Hub	To reduce wildfire emissions and strengthen climate resilience by advancing integrated fire management that combines science and Indigenous knowledge to promote sustainable fire use and lower destructive wildfire intensity globally.
Global Grasslands and Savannahs	The GGSI, led by WWF and partners, works globally to protect, restore, and sustainably manage grasslands and savannahs—vital ecosystems storing 25–35% of terrestrial carbon.
Initiative	Through collaboration, guidelines, and best practices, it boosts carbon storage, biodiversity, and climate resilience.
Global Landscapes Forum (GLF / CIFOR-ICRAF)	The GLF is dedicated to the landscape approach. It is at the landscape level that production goals, consumption needs and protection targets can be combined, and that people are organized and ready to restore billions of hectares of idle, degraded land.



Initiative	Description
Global Mangrove Alliance	The Global Mangrove Alliance aims to turn the tables on the world's mangroves through three critical pathways: halt loss, restore half and double protection. Achieving these goals will generate considerable benefits for people across the planet.
Global Restoration Initiative	WRI is partnering with governments, businesses, and communities around the world to restore millions of hectares of degraded land, centering local solutions as the primary engine of this emerging movement.
Governors' Climate and Forests Task Force (GCF)	Empower state and provincial leaders, and connect them with partners and stakeholders, to implement innovative jurisdictional programmes that protect tropical forests, promote low- carbon development, and unlock financial opportunities.
High Ambition Coalition for Nature and People	Support members in the conservation and effective management of at least 30% of land and 30% of the oceans globally by 2030 to meet climate and biodiversity targets by protecting and conserving key biodiversity areas and carbon sinks.
Initiative Shandia	The Global Alliance of Territorial Communities (GATC) unites IPLCs from COICA, AMAN, APIB, and REPALEAC. It establishes direct funding mechanisms and dialogue with donors to provide predictable financial support for Indigenous Peoples and Local Communities, focusing on capacity-building and experience exchange.
Intergovernmental Land Tenure	Tropical forest countries are seeking to deliver an Intergovernmental Land Tenure
Commitment	Commitment, to recognize a quantitative target of lands or territories stewarded by Indigenous Peoples & Local Communities by 2030.
LEAF Coalition	The LEAF Coalition is a public private initiative focused on tackling tropical deforestation by catalysing a market for high-integrity jurisdictional REDD+ credits. Backed by the four governments and over 30 major corporations, it had raised $1 billion+ in financial commitments.
Mangrove Breakthrough	The Mangrove Breakthrough aims to halt mangrove loss, restore half of recent losses, double global protection, and secure $4 billion in sustainable finance by 2030 for all existing mangroves.
Na Mesa da COP30	Creation of new markets devoted to the agriculture most aligned with climate action.
Nature Action 100	Nature Action 100 is a global investor-led engagement initiative that aims to support greater corporate ambition and action on reversing nature and biodiversity loss to mitigate financial risk and to protect the long-term economic interests of investors' clients and beneficiaries.
Nature Positive Initiative	The State of Nature Metrics project launched in 2024 to build global consensus on a set of universal metrics to measure and drive nature positive outcomes for corporates and other users. These metrics are currently being piloted by over 30 companies and financial institutions in 32 countries in all continents and across several sectors by November.
Nature4Climate (N4C)	Nature4Climate (N4C) is a global coalition of environmental organizations dedicated to promoting nature's role in tackling the climate crisis. Our goal is to accelerate the implementation of nature-based solutions (NbS) on a global scale, to unlock nature's potential to mitigate 10 million metric tons of carbon dioxide annually by 2030.
NbS Capital Mobilization Platform	COP30 Brazil NbS Capital Mobilization, led by C4C & Deloitte, is by COP 30 gathering at least $5 B in allocations & strategic intent to invest in Brazil NbS through 2027, positioned to scale to at least 1M Ha by 2030. This is a key milestone of the Brazil NbS Investment Collaborative, & the NbS Investment Platform, profiling $16B global pipeline.



Initiative	Description
NBSAP Accelerator Partnership (NBSAPAP)	The NBSAP Accelerator Partnership, hosted by CBD, UNDP, and UNEP, supports countries in accelerating National Biodiversity Strategies. It connects governments with technical and financial partners, providing in-country facilitation to materialize support for biodiversity needs and knowledge exchange.
One Planet Business for Biodiversity (OP2B)	Drive transformational system change and catalyze action to protect and restore cultivated and natural biodiversity within agricultural value chains.
Peatland Breakthrough	The Peatland Breakthrough is a global effort to protect and restore peatlands at scale. It brings together public and private stakeholders to raise ambition, mobilize finance, and advance sustainable land use. By elevating peatlands on the global agenda, it supports climate goals, biodiversity, and resilient livelihoods in a net-zero world.
Race to Belém	The Race to Belém drives action to protect Brazil's forests at scale, mobilizing public and private finance for jurisdictional REDD+ programs that cut emissions, empower communities, and accelerate global climate progress.
Regen10	The 2026 Regen10 Outcomes Framework is the first globally co-developed reference for what regenerative agriculture can and should deliver across farms and the wider landscape systems that sustain them.
Restore Africa & Restore Asia	World's largest community-led, nature-based carbon removal programme. In Africa it currently spans 4 African countries & will restore over 1.8 million hectares of land, supporting 1.5 million households & in Asia it's about to begin implementation in Vietnam and the Philippines.
Riyadh Action Agenda (RAA)	A landmark of the CCD COP16 Presidency, the Riyadh Action Agenda provides a bold, action-oriented legacy, connecting state and non-state actors to drive coordinated action on land restoration, drought, agrifood systems, and preventing land degradation. It fosters collaboration among constituencies, amplifies solutions, and drives collective action.
Sustainable Business COP	A strategic initiative backed by 40+ countries. It mobilises the private sector to deliver the 1.5°C goal, focusing on 8 priority areas for a just, resilient, and regenerative economy, including Energy, Bioeconomy, Green Skills, and Transition Finance.
Scale for Resilience	S4R's overarching goal is to make up to 3 million vulnerable people more resilient to climate change by 2030, by scaling access to adaptation and resilience finance – especially nature-based solutions – through a network of inclusive financial service providers (iFSPs).
Sustainable Wood for a Sustainable World	SW4SW promotes wood as a climate-neutral material to accelerate decarbonization in construction and building sector. It strengthens forest value chains to deliver climate-resilient rural and urban landscapes while enhancing livelihoods.
Synergies Collaboration Platform	The Synergies Collaboration Platform (SCP) is a global multi-stakeholder initiative working to promote collaboration on ambitious, coherent and synergistic implementation of national climate, biodiversity and land policies across the three Rio Conventions.
Tropical Forest Alliance	The Tropical Forest Alliance (TFA) is on a mission to catalyze the power of collective action to drive the world's transition to deforestation- and conversion-free agricultural commodities.
UN-REDD	UN-REDD supports 64 countries on climate targets through forest-based solutions with full engagement of Local Communities, IPs, women. It fosters multistakeholders engagement to mobilize public & private finance, advance REDD+ RBPs, carbon markets, PES. and provides policies and tools driving sustainable forest and agrifood systems transformation.
UNEP Biodiversity Taxonomy Framework	UNEP - The Working Group on Sustainable Finance Taxonomies of Latin America and the Caribbean (LAC) is developing a regional framework for nature-positive taxonomies with a focus on the conservation, restoration, and sustainable use of biodiversity and its ecosystems in LAC, launched at CBD's COP16.

GLOSSARY

1. Afforestation: Under the Kyoto Protocol framework, the direct human-induced conversion to forest of land that has not been forested for a period of at least 50 years, through planting, seeding and/or the human-induced promotion of natural seed sources.[407]

2. Agroforestry: The deliberate integration of woody perennials (such as trees, shrubs, palms or bamboos) with agricultural crops and/or livestock within the same land-management system, in some form of spatial and temporal arrangement.[408]

3. Assisted natural regeneration: A restoration approach that supports natural forest regeneration by facilitating natural successional processes, mainly by removing or reducing barriers to regeneration such as competing vegetation, recurrent fire or grazing.[409]

4. Bioeconomy: There is no internationally agreed definition of bioeconomy, but it could be described as productive approach that creates value from biological resources, products, services, and knowledge. In the forest context, it connects biological resources associated with forests and trees to markets and value chains and, depending on its design, can support sustainable use, conservation, and recovery.[410]

5. Biosecurity: A strategic and integrated approach to analyzing and managing risks from harmful organisms, including measures to prevent the introduction and spread of pests and non-native species that may affect trees, forests, and forest products.[411]

6. Blended finance: Structures that use public and concessional resources to reduce the risks, and therefore the cost, of private investment, often combined with guarantees and currency-hedging instruments.[412]

7. Capacity-building: Strengthening the ability of countries, institutions and other actors to effectively implement action, at individual, organizational and institutional, and systemic levels. Also referred to as capacity development.[413]

8. Carbon markets: Markets that convert verified mitigation outcomes into transferable units that can be traded and used to meet legally binding obligations (compliance markets, such as Article 6 of the Paris Agreement and CORSIA) or voluntary commitments (voluntary markets).[414]

9. Carbon dioxide removal (CDR): Anthropogenic activities removing carbon dioxide (CO_2) from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical CO_2 sinks and direct air carbon dioxide capture and storage (DACCS), but excludes natural CO_2 uptake not directly caused by human activities. In this Roadmap, forest carbon removals refer to the subset of CDR resulting from the increase in carbon stocks in forest biomass and soils through restoration, reforestation, afforestation and the enhancement of forest carbon stocks; because this storage can be reversed by disturbances, permanence arrangements are central to its integrity.[415]

10. Certification: A system for providing assurance that products or production practices meet defined sustainability criteria. Forest certification may address environmental, social, and economic criteria.[416]

11. Chain of custody: A certification or traceability mechanism that tracks certified material through the stages of production and processing.[417]

12. Collective territorial rights: Rights held collectively by Indigenous Peoples and Local Communities over lands, territories, and resources traditionally owned, occupied, used or otherwise acquired. These may include rights to ownership, use, development, management, and control, and may derive from traditional occupation and customary tenure systems.[418]

13. Community forest management: Arrangements that provide communities with defined rights and responsibilities to manage and benefit from forest resources.[419]

14. Conservation: Maintaining existing forests and their ecological condition. Conservation does not necessarily imply the absence of human use.[420]

15. Corresponding adjustment: The accounting procedure by which the country of origin reflects the transfer of mitigation outcomes in the accounting of its NDC, so that they are not double counted.[421]

16. Country platforms: Country-led arrangements that coordinate actions, strengthen implementation capacity, develop an investment pipeline, and mobilize and coordinate finance aligned with national plans.[422]

17. Critical thresholds: Points beyond which environmental changes can progressively undermine forest resilience and contribute to ecosystem transitions. Examples include changes in temperature, fire regimes, canopy loss, fragmentation, and defaunation.[423]

18. Customary tenure: Land and resource tenure systems based on customary rules, practices, and institutions rather than solely on statutory legal arrangements.[424]

19. Defaunation: The depletion of animal populations, which can affect seed dispersal, forest regeneration, and ecological functioning.[425]

20. Deforestation: The conversion of forests to other land uses.[426]

21. Drivers of deforestation and forest degradation: Activities, pressures, and underlying social, economic, and institutional conditions contributing to forest loss or degradation. Direct drivers include agricultural expansion, infrastructure development, mining, fuelwood collection, and urban expansion; underlying factors include markets, policies, governance, land and resource rights, poverty, landlessness, conflict, technological change, and investment.[427]

22. Due diligence: The process through which enterprises identify, prevent, mitigate and account for actual and potential adverse impacts in their operations and supply chains, including deforestation risks.[428]

23. Ecological connectivity: The unimpeded movement of species and the flow of natural processes that sustain life on Earth.[429]

24. Ecological integrity: The ability of a forest to maintain its characteristic structure, composition, and functions, including biodiversity, under prevailing environmental conditions, and to continue self-organizing and regenerating.[430]

25. Ecosystem resilience: The capacity of forests and other ecosystems to withstand and recover from disturbances. Repeated pressures can reduce this capacity.[431]

26. Ecosystem services: Benefits that ecosystems provide to people, including climate regulation, stabilization of hydrological cycles, soil protection, and biodiversity-related functions.[432]

27. Edge effects: Ecological changes occurring along the boundaries of forest fragments. The Roadmap identifies edge effects as a contributor to tropical forest degradation.[433]

28. Emission reductions: Mitigation outcomes resulting from reducing the release of carbon already stored in forests, calculated as the difference between actual emissions and a baseline or reference level.[434]

29. Enabling conditions: Domestic conditions that allow forest policies and implementation approaches to operate effectively and at scale. The Roadmap groups them into land governance and tenure security, capacity-building, environmental education, and information integrity.[435]

30. Enhanced Transparency Framework (ETF): The framework established under Article 13 of the Paris Agreement for reporting and reviewing information on climate action and support, building on the Convention's existing measurement, reporting and verification (MRV) system.[436]

31. Enrichment planting: An active restoration intervention involving the planting of trees in degraded or secondary forest to increase the density of existing species or add new species, complementing natural regeneration.[437]

32. Environmental education: Formal and non-formal education that strengthens knowledge and skills and fosters public participation in addressing deforestation and forest degradation. Under the UNFCCC it is framed as Action for Climate Empowerment (ACE).[438]

33. Forest-aligned credit: Credit policies and practices that incorporate forest-related criteria into financing decisions, potentially restricting or conditioning access to credit, integrating forest risks into assessments, or differentiating financing terms.[439]

34. Forest-based bioeconomy: Bioeconomy activities drawing on forests and trees across land-use systems, including agroforestry and restored landscapes, and including timber and non-timber forest products, wood-based energy, and other bio-based products and services.[440]

35. Forest carbon stocks: Carbon stored in forest ecosystems (aboveground and belowground biomass, dead wood, litter, and soil organic matter). Reforestation and afforestation can contribute to increasing these stocks and associated carbon removals.[441]

36. Forest condition: The state of a forest in terms of its ecological characteristics, functions, and capacity to provide environmental, economic, and sociocultural benefits.[442]

37. Forest concessions: Arrangements through which governments grant defined, often time-bound rights to manage or use public forests under specified conditions, while ownership may remain with the state.[443]

38. Forest conversion: The conversion of forests to other land uses.[444]

39. Forest degradation : To date, there is no internationally agreed definition of forest degradation.

40. Forest dimensions: The five complementary dimensions around which the Roadmap organizes national action: conservation; sustainable forest management, agroforestry and bioeconomy; combating deforestation; combating forest degradation; and restoration, reforestation and afforestation.[445]

41. Forest disturbance: An event or activity that changes forest conditions, including fire, drought, storms, pests, diseases, logging, fuelwood collection, overgrazing, and overhunting. Disturbance does not necessarily constitute degradation.[446]

42. Forest governance: The way in which public and private actors, including formal and informal institutions, governments, Indigenous Peoples, Local Communities, and other stakeholders, negotiate, make, and enforce decisions about the management, use, and conservation of forest resources.[447]

43. Forest health: Forest condition in relation to threats from organisms and other pressures that can cause tree mortality, damage, or degradation. Forest health measures include monitoring, biosecurity, prevention of the introduction and spread of non-native species, risk assessment, and targeted control.[448]

44. Forest monitoring: The collection and analysis of timely, spatially explicit information on deforestation, degradation, and disturbances to support policymaking, forest accounting, reporting, and management.[449]

45. Forest stewardship: The long-term, responsible care and management of forests.[450]

46. Forest zoning: The identification of the predominant ecological, social, or productive forest values and the establishment of zones with specific management objectives and permitted or restricted uses.[451]

47. Fragmentation: The division of forests into smaller or more isolated patches, potentially contributing to degradation and undermining ecological resilience and functioning.[452]

48. Free, prior and informed consent (FPIC): The right of Indigenous Peoples to give or withhold consent, freely, in advance and on the basis of adequate information, to measures that may affect their lands, territories, resources or rights. It is also promoted as good practice with local communities.[453]

49. Global Stocktake (GST): The process established under Article 14 of the Paris Agreement to assess, every five years, collective progress toward its goals. The first Global Stocktake (Decision 1/CMA.5, para. 33) established the direction for enhancing efforts to halt and reverse deforestation and forest degradation by 2030.[454]

50. Harvesting regulations: Rules governing forest harvesting, including sustainable forest management plans, harvesting practices, allowable harvest levels, species restrictions, and prohibitions such as on clear-cutting.[455]

51. Implementation gap: The difference between an agreed objective or commitment and current trajectories, indicating the pace and scale of additional action required to achieve it.[456]

52. Implementation time window: The period during which accelerated action is critical to achieving an objective. The Roadmap identifies the period from COP30 through 2030, including the process leading up to the second Global Stocktake, as a critical implementation time window.[457]

53. Information integrity: An information ecosystem in which reliable and accurate information is available to all, enabling people to engage meaningfully in public life, make informed decisions, and exercise their rights.[458]

54. In-situ conservation: The conservation of ecosystems and natural habitats and the maintenance and recovery of viable species populations in their natural surroundings.[459]

56. Integrated fire management: An approach addressing the full fire management cycle, from risk reduction to preparedness, response, and post-fire recovery, combining scientific, Indigenous, and traditional knowledge and recognizing the appropriate use of fire as a management tool where relevant.[460]

57. Irrecoverable carbon: Carbon stored in ecosystems that is vulnerable to human activities and may not be recoverable by mid-century (2050) once those ecosystems are lost or degraded.[461]

58. Jurisdictional REDD+: REDD+ implemented and accounted for at national level or, as an interim step, at subnational jurisdictional level, linking finance to verified results consistent with national inventories and NDCs rather than to individual project sites.[462]

59. Land-based carbon dioxide removal: Carbon dioxide removal associated with land systems, such as afforestation, reforestation, improved forest management, agroforestry, and soil carbon sequestration. The Roadmap identifies reforestation as a land-based removal option within the agriculture, forestry, and other land use (AFOLU) sector.[463]

60. Land governance: The rules, institutions and processes that define land status, access and use, including the designation of public land, recognition of rights, land boundaries and information, and resolution of competing claims. It is broader than tenure security.[464]

61. Leakage: The displacement of deforestation, degradation or emissions from the area of an intervention to other areas, offsetting part of its mitigation outcome.[465]

62. Legally binding forest recovery requirements: Enforceable obligations, defined by law or regulation, to recover degraded forests or re-establish forest cover, applying to landholders or other responsible actors, or requiring governments to meet restoration targets within defined timeframes.[466]

63. Moratoriums: Restrictions on activities associated with forest conversion, or on the purchase and commercialization of commodities linked to deforestation. They may be public (for example on permits) or private and sectoral (for example on sourcing from land deforested after a cut-off date).[467]

64. National Adaptation Plans (NAPs): National planning instruments, established under the Cancun Adaptation Framework (COP16), that support countries in identifying medium- and long-term adaptation needs and developing strategies to address them.[468]

65. Nationally Determined Contributions (NDCs): National climate action plans communicated by countries under the Paris Agreement (Article 4.2), outlining their efforts to reduce emissions and adapt to climate change.[469]

66. Natural regeneration: Forest recovery or establishment through natural ecological processes and sources, such as seed sources, soil seed banks, and resprouting vegetation, rather than direct planting.[470]

67. Non-timber forest products (NTFPs): Goods of biological origin other than wood, derived from forests, other wooded land, and trees outside forests, that can support forest-based value chains, economic activities, and livelihoods.[471]

68. Payments for ecosystem services (PES): An incentive-based approach providing economic benefits to landholders, communities, or other actors conditional on maintaining or enhancing ecosystem services, or on undertaking agreed practices that generate them. Program design may involve targeting, payment levels, contract duration, and conditionality, and can support forest protection, reforestation, natural regeneration, and agroforestry.[472]

69. Protected areas: Geographically defined areas designated or regulated and managed to achieve specific conservation objectives. They may be publicly or privately owned and range from strictly protected areas to areas permitting sustainable use.[473]

70. REDD+: Policy approaches and positive incentives for reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. It is implemented in phases and subject to the Cancun safeguards.[474]

71. Reduced-impact logging: Forest harvesting practices designed to reduce logging-related damage and associated biodiversity and carbon impacts compared with conventional logging.[475]

72. Reforestation: Under the Kyoto Protocol framework, the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources on land that was previously forested but converted to non-forest.[476]

73. Restoration: The reversal of forest degradation or the loss of productivity of ecosystem goods and services, such as food, wood, biodiversity, and water. It can range from removing drivers of degradation to allow natural regeneration, to assisted natural regeneration and active interventions such as enrichment planting or tree planting.[477]

74. Results-based payments: Payments linked to verified results measured against a reference level, including outcomes associated with REDD+, such as reducing emissions from deforestation and forest degradation, conserving forest carbon stocks, sustainably managing forests, and enhancing forest carbon stocks. REDD+ results-based payments do not create transferable units.[478]

75. Seed and seedling supply systems: Systems that organize the sourcing, collection, production, storage and distribution of forest reproductive material needed for forest recovery and establishment.[479]

76. Standing forests: Existing forests that remain in place and continue providing climate, biodiversity, water, soil, and other ecological functions.[480]

77. Supply-chain traceability: The ability to establish the origin and movement of commodities through supply chains. Traceability may operate independently of certification or form part of certification systems.[481]

78. Sustainable forest management (SFM): A dynamic and evolving concept aimed at maintaining and enhancing the economic, social, and environmental values of all types of forests for present and future generations. It may include sustainable production of timber, non-timber forest products, and other forest goods and services.[482]

79. Tenure security: The certainty that rights to land and natural resources will be recognized by others and protected in cases of specific challenges.[483]

80. Tipping dynamics: Potential nonlinear changes in forest systems when interacting pressures and feedbacks increase the risk of transition to a substantially different ecosystem state. The Roadmap cautions against assuming a single basin-wide Amazon tipping point and emphasizes the relevance of local and regional thresholds.[484]

81. Transnational environmental crime: Forest-related and other environmental offences, such as illegal logging and mining, land grabbing and wildlife trafficking, whose supply chains, financial flows or criminal networks span several jurisdictions, even when the underlying offence occurs in a single State.[485]

82. Tropical Forest Forever Facility (TFFF): A financing mechanism that rewards the maintenance of standing tropical and subtropical forests at national scale through per-hectare payments, with deductions for each hectare deforested or degraded. Payments are financed by returns on a public–private investment fund, and at least 20% go to Indigenous Peoples and Local Communities.[486]

83. Undesignated public forests: Publicly owned forests for which, although state ownership remains, a specific land or management regime has not yet been assigned.

ENDNOTES

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16. The Agenda 21 is a plan of action under the United Nations System adopted in 1992 in the context of the United Nations Conference on Environment and Development (UNCED) aiming to accelerate sustainable development.

17. Nationally Determined Contributions (NDCs) are climate action plans created under the Paris Agreement (Article 4.2), in which each country outlines its post-2020 efforts. They aim to reduce national emissions and adapt to climate change, so that global emissions peak as soon as possible and reach a balance between sources and sinks in the second half of this century.

18. National Adaptation Plans (NAPs) were established by the COP16 and aims to identify their medium- and long-term adaptation needs and develop strategies to address them. Their aims are to reduce vulnerability to climate change by building adaptive capacity and resilience, and to integrate adaptation into development policies, programmes and planning.

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Note: Discussions of climate finance depend on distinguishing three concepts that are often conflated. Sources are where finance originates. Channels are the routes by which external finance reaches developing countries—bilateral, multilateral, carbon markets, and private finance. Instruments operate at two points: those by which finance is raised from a source. The literature frequently treats these interchangeably, without attending to which sources are routed through which channels, or to the instruments used at each step. This distinction is not merely analytical: the same source can yield a materially different aggregate flow depending on the channel and instrument through which it passes.

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274. The table brings together, for each source of international finance, measures of recent activity, estimated annual potential and additional indicators reported for selected instruments. Some rows describe a source as a whole and others a specific mechanism that forms part of it; rows are therefore not additive, within or across sources. Coverage and methods differ from the CPI/PUC-Rio mapping: some entries measure finance paid or disbursed, others rely on estimates or indicators. The figures should therefore not be reconciled or added across the two mappings or across rows.

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(US$ 5 million).

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371. Intergovernmental Panel on Climate Change (IPCC). Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Annex I: Glossary. 2022, pp. 1813–1814. Sequestration: "The process of storing carbon in a carbon pool." Sink: "Any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere" (UNFCCC Article 1.8).

372. Intergovernmental Panel on Climate Change (IPCC). Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Annex I: Glossary. 2022, pp. 1795–1796. Carbon dioxide capture and storage (CCS): "A process in which a relatively pure stream of carbon dioxide (CO2) from industrial and energy-related sources is separated (captured), conditioned, compressed and transported to a storage location for long-term isolation from the atmosphere." The Glossary notes that CCS "alone does not remove CO2 from the atmosphere", but can help reduce atmospheric CO2 if combined with bioenergy production (BECCS) or if CO2 is captured from the air directly and stored (DACCS).

373. COP30 Presidency Report: Implementing the Baku to Belém Roadmap to 1.3T. 2026.

374. Intergovernmental Panel on Climate Change (IPCC). Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Summary for Policymakers. 2022. Paragraphs C.11.1 and C.11.3, p. 36: "Afforestation, reforestation, improved forest management, agroforestry and soil carbon sequestration are currently the only widely practiced CDR methods (high confidence)"; "The removal and storage of CO2 through vegetation and soil management can be reversed by human or natural disturbances; it is also prone to climate change impacts."

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378. United Nations Framework Convention on Climate Change (UNFCCC). Decision 1/CP.16. The Cancun Agreements. 2010.

379. West, T.A.P. et al. Action needed to make carbon offsets from forest conservation work for climate change mitigation. Science 381(6660), 873–877. 2023.

380. United Nations Framework Convention on Climate Change (UNFCCC). Report of the Subsidiary Body for Scientific and Technological Advice on its sixtieth session (FCCC/SBSTA/2024/7). 2024. Paragraphs 134 and 144: "emission avoidance" is not currently eligible under Articles 6.2 and 6.4 of the Paris Agreement, and its further consideration has been postponed to 2028. Forest-related activities that reduce emissions or enhance removals remain eligible.

381. Article 5.2 of the Paris Agreement recognizes national and, as an interim step, subnational measuring, reporting and verifying of results. This is referred to as "jurisdictional REDD+" in this document. REDD+ national strategies or action plans and safeguards information systems must be developed at national level.

382. According to the UNFCCC REDD+ framework (decision 1/CP.16, paragraph 71, further elaborated in the Warsaw Framework for REDD+), only measurement, reporting and verification may be subnational, and only as an interim measure towards national systems. The other essential elements, the national strategy or action plan and the safeguards information system, must be national.

383. The Architecture for REDD+ Transactions (ART) is an independent programme that registers, verifies and issues credits for jurisdictional REDD+ results under The REDD+ Environmental Excellence Standard (TREES), version 2.0. TREES credits emission reductions and removals at national or, as an interim step, subnational scale against historical reference levels, applies safeguard requirements based on the Cancun safeguards, maintains a buffer pool to address reversals, and includes a specific crediting approach for high-forest, low-deforestation (HFLD) jurisdictions. TREES units are among those eligible under CORSIA. In November 2024, the Integrity Council for the Voluntary Carbon Market approved the TREES crediting level for its Core Carbon Principles label; in May 2026 it concluded that the HFLD crediting approach was not yet approved, pending remedial changes. Architecture for REDD+ Transactions (ART). The REDD+ Environmental Excellence Standard (TREES) v2.0. Integrity Council for the Voluntary Carbon Market (ICVCM). Integrity Council approves three REDD+ methodologies. 2024. Integrity Council for the Voluntary Carbon Market (ICVCM). Decision on TREES HFLD crediting. 2026.

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401. Verra. JNR Program Guide, version 4.1.

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404. Herzog, Howard J., and Niall Mac Dowell. Carbon Removal. MIT Press Essential Knowledge Series. 2025.

405. Brazilian geographers, in *Toward an Other Globalization: From the Single Thought to Universal Conscience*, 2000

406. Spanish philosopher, Meditations on Quixote, 1914

407. COP30 Presidency Roadmap, Part I, based on Decision 16/CMP.1 (Kyoto Protocol). FAO's Global Forest Resources Assessment (FRA) uses a different, land-use-based definition: "establishment of forest through planting and/or deliberate seeding on land that, until then, was under a different land use".

408. COP30 Presidency Roadmap, Part I, based on IPCC AR6 and FAO definitions; FAO, Sustainable Forest Management (SFM) Toolbox—Agroforestry. Agroforestry systems are not classified as forests under FAO's definition, although national definitions may differ.

409. Based on FAO, Assisted natural regeneration (fao.org/forestry/our-focus/forest-management/assisted-natural-regeneration). Part I of the COP30 Presidency Roadmap distinguishes it from removing drivers of degradation to allow natural regeneration and from active interventions such as enrichment planting.

410. COP30 Presidency Roadmap, Part I, based on the G20 High-Level Principles on Bioeconomy (2024), which frame bioeconomy as an "innovative and complementary productive paradigm" without setting a single agreed definition.

411. Based on FAO (2007), FAO Biosecurity Toolkit, and FAO, Sustainable Forest Management (SFM) Toolbox—Forest pests.

412. COP30 Presidency Roadmap, Part III, based on Convergence (2025), Blended Finance for Nature-Based Solutions.

413. COP30 Presidency Roadmap, Part I, based on UNFCCC, Capacity-building efforts under the UNFCCC; UNDP (2009), Capacity Development: A UNDP Primer; FAO (2010), Corporate Strategy on Capacity Development; and World Bank (2009), The Capacity Development Results Framework.

414. COP30 Presidency Roadmap, Part III. Forest credits are generated through baseline-and-credit systems, in which credits are issued for the difference between a baseline and measured performance. See also ICVCM (2024), Core Carbon Principles, and ICAO, CORSIA Emissions Unit Eligibility Criteria.

415. COP30 Presidency Roadmap, Part III, based on IPCC (2022), AR6 Working Group III, Annex I: Glossary ("anthropogenic removals" or "carbon dioxide removal", CDR). Removals are distinct from emission reductions.

416. COP30 Presidency Roadmap, Part I, based on OECD–FAO (2023), OECD-FAO Business Handbook on Deforestation and Due Diligence in Agricultural Supply Chains; WRI (2023), Traceability and transparency in supply chains for agricultural and forest commodities; and FAO, SFM Toolbox—Forest certification.

417. COP30 Presidency Roadmap, Part I, based on FAO, SFM Toolbox—Forest certification.

418. COP30 Presidency Roadmap, Part I. The wording is close to the UN Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007), Article 26.

419. COP30 Presidency Roadmap, Part I, based on FAO, SFM Toolbox—Forest tenure.

420. COP30 Presidency Roadmap, Part I, based on the Convention on Biological Diversity (1992) and CBD Decision V/6.

421. COP30 Presidency Roadmap, Part III, referring to Articles 4, 6 and 13 of the Paris Agreement; Decision 2/CMA.3 (guidance on cooperative approaches under Article 6.2). No adjustment is required for REDD+ results-based payments, which create no transferable units.

422. Based on the guidance in Part I of the COP30 Presidency Roadmap on organizing national implementation pathways and mobilizing finance aligned with national plans.

423. COP30 Presidency Roadmap, Introduction, based on Brando et al. (2025), Tipping points of Amazonian forests: Beyond myths and toward solutions, Annual Review of Environment and Resources 50.

424. Based on FAO (2002), Land tenure and rural development (FAO Land Tenure Studies 3), and FAO (2012), Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT).

425. COP30 Presidency Roadmap, Introduction.

426. COP30 Presidency Roadmap, Part I, consistent with FAO, Global Forest Resources Assessment 2025, which defines deforestation as "the conversion of forest to other land use independently whether human-induced or not", including the permanent reduction of tree canopy cover below 10 percent and excluding harvested areas where the forest is expected to regenerate.

427. COP30 Presidency Roadmap, Introduction, based on FAO, SFM Toolbox—Reducing deforestation; Seidl et al. (2017), Forest disturbances under climate change, Nature Climate Change 7; and Lapola et al. (2023), The drivers and impacts of Amazon forest degradation, Science 379. For degradation, the Roadmap also lists unsustainable logging, fuelwood collection and charcoal production, overgrazing and overhunting, and disturbances such as uncontrolled fire, drought, pests and diseases.

428. Based on OECD–FAO (2023), OECD-FAO Business Handbook on Deforestation and Due Diligence in Agricultural Supply Chains. Under the EU Deforestation Regulation (Regulation (EU) 2023/1115), operators must submit a due diligence statement.

429. Based on the Convention on the Conservation of Migratory Species of Wild Animals (CMS), as also used in IUCN, Guidelines for conserving connectivity through ecological networks and corridors (Hilty et al., 2020).

430. Based on Rogers et al. (2022), Using ecosystem integrity to maximize climate mitigation and minimize risk in international forest policy, Frontiers in Forests and Global Change 5, as cited in Part I of the COP30 Presidency Roadmap.

431. COP30 Presidency Roadmap, Introduction; consistent with the IPCC AR6 Glossary definition of resilience.

432. Based on the Millennium Ecosystem Assessment (2005), Ecosystems and Human Well-being, which defines ecosystem services as "the benefits people obtain from ecosystems". Examples from Part I of the COP30 Presidency Roadmap.

433. COP30 Presidency Roadmap, Introduction, based on Bourgoin et al. (2024), Human degradation of tropical moist forests is greater than previously estimated, Nature 631.

434. COP30 Presidency Roadmap, Part III. Consistent with UNFCCC terminology, the Roadmap refers to "reducing emissions" rather than "avoided emissions" (UNFCCC, FCCC/SBSTA/2024/7).

435. COP30 Presidency Roadmap, Part I. The Roadmap also refers more broadly to secure rights, institutional capacity, access to finance and technical assistance, and monitoring and law enforcement.

436. COP30 Presidency Roadmap, Introduction; Paris Agreement, Article 13; Decision 18/CMA.1 (modalities, procedures and guidelines for the transparency framework).

437. Based on the UN-REDD Programme glossary, citing Forest Restoration Research Unit, Chiang Mai University (2008), Research for Restoring Tropical Forest Ecosystems: A Practical Guide.

438. COP30 Presidency Roadmap, Part I; UNFCCC, Article 6; Paris Agreement, Article 12. ACE has six elements: education, training, public awareness, public participation, public access to information, and international cooperation.

439. COP30 Presidency Roadmap, Part I, where the approach is also referred to as "credit aligned with forest objectives".

440. COP30 Presidency Roadmap, Part I, based on FAO, Sustainable forest-based bioeconomy approaches. The Roadmap also uses "forest-related bioeconomy" and "sustainable forest bioeconomy".

441. Carbon pools based on IPCC (2006), Guidelines for National Greenhouse Gas Inventories, Volume 4 (Agriculture, Forestry and Other Land Use). Conservation and enhancement of forest carbon stocks are REDD+ activities (UNFCCC Decision 1/CP.16, para. 70).

442. Based on the description of forest degradation in the Introduction and Part I of the COP30 Presidency Roadmap, drawing on FAO, Global Forest Resources Assessment 2025.

443. COP30 Presidency Roadmap, Part I, based on FAO, SFM Toolbox—Forest tenure.

444. COP30 Presidency Roadmap, Part I, which uses the term as equivalent to deforestation.

445. COP30 Presidency Roadmap, Part I.

446. COP30 Presidency Roadmap, Introduction, based on FAO, SFM Toolbox—Reducing deforestation.

447. Based on FAO, SFM Toolbox—Forest governance.

448. Based on FAO, SFM Toolbox—Forest pests, and FAO, Forest health and protection, as cited in Part I of the COP30 Presidency Roadmap.

449. COP30 Presidency Roadmap, Part I.

450. Based on the use of the term in the Introduction and Part I of the COP30 Presidency Roadmap, in relation to sustainable forest management and to the governance and management of forests by Indigenous Peoples and Local Communities.

451. COP30 Presidency Roadmap, Part I.

452. Based on the Introduction of the COP30 Presidency Roadmap, drawing on Bourgoin et al. (2024) and Brando et al. (2025).

453. Based on the UN Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007), Articles 10, 19, 29 and 32; ILO Indigenous and Tribal Peoples Convention, 1989 (No. 169); and FAO (2016), Free Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities.

454. COP30 Presidency Roadmap, Introduction; Paris Agreement, Article 14; Decision 1/CMA.5, Outcome of the first global stocktake (2023).

455. COP30 Presidency Roadmap, Part I.

456. Based on the Introduction and Part I of the COP30 Presidency Roadmap, which also uses the term for gaps between national policies and their implementation in practice.

457. COP30 Presidency Roadmap, Introduction.

458. COP30 Presidency Roadmap, Part I, referring to the Global Initiative for Information Integrity on Climate Change (United Nations, UNESCO and Brazil).

459. Convention on Biological Diversity (1992), Article 2, as cited in Part I of the COP30 Presidency Roadmap. The full CBD definition adds: "and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties".

460. COP30 Presidency Roadmap, Part I, based on FAO (2024), Integrated fire management voluntary guidelines: Principles and strategic actions—Second edition (Forestry Working Paper No. 41).

461. Based on Noon et al. (2022), Mapping the irrecoverable carbon in Earth's ecosystems, Nature Sustainability 5, as cited in Part I of the COP30 Presidency Roadmap.

462. COP30 Presidency Roadmap, Part III, based on UNFCCC Decision 1/CP.16, para. 71, and the Warsaw Framework for REDD+ (2013). The Architecture for REDD+ Transactions (ART TREES) is an example of a jurisdictional standard.

463. COP30 Presidency Roadmap, Parts I and III, based on IPCC (2022), Climate Change 2022: Mitigation of Climate Change (AR6 Working Group III).

464. COP30 Presidency Roadmap, Part I, based on Palmer, Fricska and Wehrmann, Towards improved land governance (FAO/UN-HABITAT, Land Tenure Working Paper).

465. Based on the IPCC AR6 Glossary. Part III of the COP30 Presidency Roadmap notes that national or jurisdictional accounting can reduce the risk of displacement between project areas.

466. COP30 Presidency Roadmap, Part I.

467. COP30 Presidency Roadmap, Part I.

468. COP30 Presidency Roadmap, Introduction; UNFCCC Decision 1/CP.16 (Cancun Adaptation Framework).

469. COP30 Presidency Roadmap, Introduction; Paris Agreement, Article 4.

470. Based on Part I of the COP30 Presidency Roadmap; see also FAO, Global Forest Resources Assessment, Terms and Definitions ("naturally regenerating forest").

471. Based on FAO's working definition of non-wood forest products (FAO, 1999).

472. COP30 Presidency Roadmap, Part I, based on Wunder et al. (2018), From principles to practice in paying for nature's services, Nature Sustainability 1, and Börner et al. (2017), The Effectiveness of Payments for Environmental Services, World Development 96.

473. Convention on Biological Diversity (1992), Article 2, as used in Part I of the COP30 Presidency Roadmap. The Roadmap also refers to the six IUCN management categories (Dudley, ed., 2008, Guidelines for Applying Protected Area Management Categories).

474. UNFCCC Decision 1/CP.16, paras. 70–73 and Appendix I (Cancun safeguards); Warsaw Framework for REDD+ (2013); Paris Agreement, Article 5.2; as referred to in the Introduction and Part III of the COP30 Presidency Roadmap.

475. Based on the UN-REDD Programme glossary, citing TNC, CI and WCS (2010), Reducing Emissions from Deforestation and Degradation (REDD): A Casebook of On-the-Ground Experience.

476. COP30 Presidency Roadmap, Part I, based on Decision 16/CMP.1 (Kyoto Protocol). For the first commitment period, reforestation was limited to land that did not contain forest on 31 December 1989. FAO's FRA defines reforestation differently: "re-establishment of forest through planting and/or deliberate seeding on land classified as forest".

477. COP30 Presidency Roadmap, Part I, based on FAO, SFM Toolbox—Forest restoration, and UNEP (2021), Ecosystem restoration for people, nature and climate.

478. COP30 Presidency Roadmap, Part III. REDD+ activities as set out in UNFCCC Decision 1/CP.16, para. 70, and the Warsaw Framework for REDD+ (2013).

479. COP30 Presidency Roadmap, Part I.

480. Based on the use of the term in the Introduction and Part I of the COP30 Presidency Roadmap.

481. COP30 Presidency Roadmap, Part I, based on OECD–FAO (2023) and WRI (2023).

482. UN General Assembly Resolution 62/98 (2007), Non-legally binding instrument on all types of forests, Annex, para. 4 (since 2015, the United Nations forest instrument, A/RES/70/199), as cited in Part I of the COP30 Presidency Roadmap; FAO, Global Forest Resources Assessment 2025.

483. Adapted from FAO (2002), Land tenure and rural development (FAO Land Tenure Studies 3). Part I of the COP30 Presidency Roadmap notes that formal recognition of rights does not by itself ensure that they can be exercised in practice.

484. COP30 Presidency Roadmap, Introduction, based on Flores et al. (2024), Critical transitions in the Amazon forest system, Nature 626; Brando et al. (2025); and Lenton et al. (eds.) (2025), The Global Tipping Points Report 2025.

485. Based on Part II of the COP30 Presidency Roadmap, drawing on UNODC (2024), Crimes That Affect the Environment: The Landscape of Criminalization, and the United Nations Convention against Transnational Organized Crime (UNTOC).

486. COP30 Presidency Roadmap, Part III, based on Tropical Forest Forever Facility, Concept Notes 3.0 and 3.1 (2025).

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