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Study on the Existing Resources for Forests

Section D: Global Forest Financing Facilitation Network (GFFFN)

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Executive summary

The International Arrangement on Forests will undergo a midterm review in 2024. Several tasks and actions have been defined to prepare the review. This consultancy report, which was mandated by the UNFF Secretariat, forms one element of the preparation. It assesses the status of existing resources for forests available from all sources since 2015, including private funding, as well as the gaps and constraints with regard to gaining access to such funds.

The assessment of resources for forests is structured into two broad categories: enabling finance and investments into forest assets. This structure reflects the intentionality of the resources for forests and more conveniently aligns with available data sources than the categorization by funding flows commonly applied by previous studies. In general, sustainable forest management should be a rational choice to forest owners and forest managers. Proceeds from sustainable forest management should cover the costs so that it is a self-financed first-best choice. In countries or regions that, for various reasons, are struggling with unfavorable conditions for sustainable forest management, enabling finance can provide the means to trigger structural change.

Enabling finance

According to OECD statistics, the volume of available international public funding for forests reached USD1557.35 million in 2021, which is a doubling of the resources available in 2015.

Governments can also use their own funds as well as fiscal policies to promote sustainable forest management. From a sample of 65 countries, the median value of domestic government expenditure for forests 2015-2021 was USD2.8/ha, with higher expenditure levels in countries with increasing or no net change of forest areas and lower expenditure levels in countries with net forest loss. Fiscal policies can be used as complementary or alternative measures to support sustainable forest management, especially when budgets available for natural resource management are constrained. The report reviews literature on fiscal policies and provides examples of their application in the forestry sector.

Investments into forest assets

The section on investments into forest assets investigates domestic and foreign direct investments in timberland, private and public equity investing, blended finance, and emerging and innovative finance. The USA are the largest market for timberland investments and approx. 800'000ha – 1'200'000ha changed hands each year from 2015 to 2022. Based on available data, transnational forest land deals in developing countries were most frequent in Brazil but largest in terms of area in the Republic of the Congo. A review of foreign direct investment policies finds that since 2015 efforts to attract foreign direct investments were made in several emerging economies while two developed economies rather tightened their regulations. In terms of private equity, institutional investors from OECD countries together with US-based TIMOs are the big players in the timberland market. In 2020, US-based TIMOs invested USD49 billion for their clients, of which USD23 billion was from non-US institutions. Blended finance is the strategic use of development finance to mobilize additional financial resources for sustainable development. From 2018-2020, blended finance approaches helped leverage USD0.54 billion in the forestry sector. In the category of emerging and innovative finance, green bonds are growing rapidly. Although the share of proceeds used for forests tends to

be very small, the rapid increase in the volume of the green bond market to USD578.4bn in 2021 makes this financing instrument relevant to forests.

Funding gap remains

Despite these positive developments and new opportunities, there still is a huge funding gap. Estimates on funding needs to achieve sustainable forest management and eliminate deforestation globally range between USD70 billion and USD460 billion annually. The diversity of data sources and lack of data in many areas precludes any meaningful aggregation of the overall mobilized funding sums and hence the presentation of a numerical figure on the funding gap. However, the magnitudes of the numbers make it obvious that the sum of mobilized resources for SFM falls short of the estimated resource needs.

Barriers to forest funding

A comparison of past study findings and results of a survey conducted for this study reveal that the barriers to forest funding are well-known and have changed little over the last 30 years. They include investment risks due to unsolved governance issues, political and economic instability, different expectations among funding recipients and funding providers, insufficient coordination, as well as knowledge and data gaps.

Policies disabling unsustainable forest management can complement enabling finance

There is an increasing understanding that the amount of funding available to forests is dwarfed by the resources invested into sectors which often harm forests. These sectors, and the capital backing them, so far have had little incentive to align the effects of their undertakings to SFM. Policies targeting financial markets as well as trade agreements can serve as instruments to disable unsustainable forest management. They can complement the enabling finance and investments into forest assets.

Recommendations

The recommendations to the GFFFN put forward in the report propose to maintain current efforts in developing the Clearing House and regularly checking whether there is a good balance between the various areas of responsibility of the GFFFN. The recommendation to governments around the world is to ambition creating the best conditions for the implementation of sustainable forest management in their jurisdictions but also in countries on which their domestic consumption has an ecological footprint. Several strategies that can contribute to these ends are proposed. Consumers at governmental, corporate and private levels are recommended to signal their demand for products and services produced in sustainably managed forests by making conscious consumption decisions which can help strengthen the market for these products.

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Abbreviations

CBD	Convention on Biological Diversity
CIF	Climate Investment Funds
COP	Conference of the Parties
DAC	Development Assistance Committee
ECOSOC	Economic and Social Council
ETF	Exchange-Traded Fund
FAOSTAT	Food and Agriculture Organization Corporate Statistical Database
FDI	Foreign Direct Investment
FIP	Forest Investment Program
GCF	Green Climate Fund
GEF	Global Environment Facility
GFFFN	Global Forest Financing Facilitation Network
IAF	International Arrangement on Forests
IATI	International Aid Transparency Initiative
IMF	International Monetary Fund
LDC	Least Developed Countries
M&A	Mergers and Acquisitions
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PINE	Policy Instruments for the Environment Database
PES	Payments for Environmental Services
REDD+	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
REIT	Real Estate Investment Trust
SDG	Sustainable Development Goal
SFM	Sustainable Forest Management
SIDS	Small Island Developing States
TIMO	Timber Investment Management Organization
UK	United Kingdom of Great Britain and Northern Ireland
UNCTAD	United Nations Conference on Trade and Development
UNFF	United Nations Forum on Forests
USD	United States dollar

1. Introduction

In 2024, the UN Forum on Forests (UNFF) will convene at UNFF19 to conduct a midterm review of the effectiveness of the International Arrangement on Forests (IAF) in achieving its objectives. The main components of the IAF are the UNFF and its Member States, the UNFF Secretariat, the Collaborative Partnership on Forests, the UNFF Trust Fund, and the UNFF Global Forest Financing Facilitation Network (GFFFN). The actions and tasks to be undertaken in preparation for the IAF midterm review are laid out in the Annex of ECOSOC resolution 2022/17.

The annex of the UNFF17 resolution structures the actions and tasks for the midterm review into 10 sections. One of these (section D) describes the actions related to the Global Forest Financing Facilitation Network (see Box 1). The second task under this section is to "Assess the status of existing resources for forests available from all sources, including private funding, as well as the gaps and constraints with regard to gaining access to such funds." The present consultancy deals with this specific task. Other tasks under section D have been carried out in a separate assessment.

BOX 1: SECTION D OF THE ANNEX OF THE UNFF17 RESOLUTION

D. Actions related to the Global Forest Financing Facilitation Network

1. Assess the progress made by the Global Forest Financing Facilitation Network towards achieving the objectives of the international arrangement on forests, as defined in Council resolution 2015/33.
2. **Assess the status of existing resources for forests available from all sources, including private funding, as well as the gaps and constraints with regard to gaining access to such funds.**
3. Review the performance of the Network and the impacts of its activities, the sufficiency of its resources and the challenges to and constraints on its work.
4. Propose measures to increase the efficiency and added value of the Network and strengthen its capacity to facilitate and enhance access by eligible countries to resources for forests from all sources and review the Network guidelines adopted during the thirteenth session of the Forum, in the context of the midterm review of the international arrangement on forests in 2024.
5. To carry out the above-mentioned tasks, the Forum secretariat, in consultation with members of the Forum and partners, should conduct an assessment of the performance, impacts and resource sufficiency and longevity of the Network and other measures to strengthen its work. The assessment should be presented for discussion at an intersessional meeting, the outcome of which should be submitted to the open-ended intergovernmental ad hoc expert group referred to in paragraph 30 of the present resolution.

1.1. Objective of the study

The objective of this assessment, as noted in the TOR, is to assist in providing relevant information and assessments for consideration during an intersessional expert group meeting, as provided in section D of the annex to ECOSOC resolution 2022/17.

More explicitly, the study is expected to assess the status of existing resources for forests available from all sources, including private funding, as well as the gaps and constraints with regard to gaining access to such funds. The timeframe relevant to the assessment spans from May 2015, when the Forum adopted the resolution of 2015/33 on the IAF Beyond 2015 until the end of 2022..

1.2. Assessment matrix

The assessment matrix below provides an overview of the tasks of the assignment (left column), methods and databases used, and the section of the report that presents the findings. The study draws its finds from previous studies, analyses of data provided in various databases, and a survey that was sent out to a sample of 30 experts.

TABLE 1: ASSESSMENT MATRIX

Assignments	**Methods / *Databases used***	**Sections of the report**
Conduct an assessment of the status of existing resources available from all sources for sustainable forest management, including • private funding, • public domestic funding, • public international funding, • philanthropic funding, • blended financing, • emerging and innovative financing.	Literature review, data analysis: *OECD Stat* *FAOSTAT* *OECD PINE* *The Land Matrix* *UNCTAD FDIstatistics* *Climate Funds Update*	2.2 – 2.4
Conduct an analysis on the main characteristics of the available resources for sustainable forest management, including major sources of those resources, their regional distribution, and major thematic areas for fund/investment.	Literature review, data analysis: *Climate Funds Update* *IATI* *The Land Matrix*	2.2 - 2.5
Conduct an analysis of the gaps, and opportunities in the financial flows to SFM, including in respect to the thematic areas of SFM, and geographical allocations.	Literature review, expert survey	3
Conduct an analysis on the constraints with regard to increasing the availability of and gaining access to existing resources for forests	Literature review, expert survey	3
Make recommendations on measures to increase the amount and accessibility of the resources for SFM, including the role that the GFFFN can play in this respect.	Synthesis	4

Make recommendations on how the GFFFN can implement its 4th priority, i.e. contribute to the achievement of the global forest goals and targets as well as priorities contained in the Forum's Quadrennial Programme of Work	4

2. Status and characteristics of available resources from all sources for SFM

In theory, sustainable forest management should be a rational choice to forest owners / managers and long-term net benefits (monetary and other) should exceed those of all other management options. In this case, sustainable forest management is self-financed there is no need for government intervention and financial support. Due to various reasons, the incentives that forest owners / managers face may be distorted so that unsustainable management options, forest degradation, or deforestation are perceived as more favorable in the short term. Examples of reasons are the lack of markets and prices for some forest ecosystem services (public good characteristics), distorting policies, or competition with unsustainably sourced or illicit timber that suppresses the market price to a level lower than what is needed to cover the cost of sustainably sourced timber. In such cases, there can be a rational for enabling funding that can help create framework conditions under which sustainable forest management becomes the self-financed, first-best option.

Assessing the status of available resources for SFM calls for both an understanding of the scale of funding needed globally as well as the realized funding flows from various sources. This section first presents information on funding needs estimates and then covers different types of funding flows.

2.1. Estimates on funding needs

Global funding needs for sustainable forest management have been exceeding available funding volumes for decades. In the 90ies, funding needs for SFM were estimated to be around USD31.25 billion annually, while in developing countries only USD20 billion were raised annually from domestic and international sources (NN 1997). A decade later, the need for funding to achieve sustainable forest management was estimated to be between USD70 and USD160 billion per year globally (Advisory Group on Finance Collaborative Partnership on Forests 2012; Castrén et al. 2014). This range for the annual need of funding was repeated in The Global Forest Goals Report 2021 (UN DESA UNFFS 2021).

Other recent estimates are available on the funding needed to achieve various SDGs, including SDG 15 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'. SDG 15 does not provide explicit quantitative targets, which complicates estimating the funding need. Kulkarni et al. (2022) argue that the CBD's 30% protected area target can be used as a goal post instead. The funding needed to achieve the 30% protected areas target by 2050 ranges between USD85 to USD166 billion annually, which is similar to the estimate for achieving SFM mentioned above. However, Kulkarni et al. (2022) caution that the opportunity costs of conservation activities are often a magnitude higher than only the direct implementation cost.

Based on a range of third-party estimates especially related to avoiding deforestation and reaching climate goals in forests, the Forest Declaration Assessment Partners (2022) put forward that reducing deforestation globally and implementing restoration and sustainable forest management at a scale sufficient to protect and restore forests will cost up to USD460 billion per year.

A further recent estimate projects that from 2021 to 2050, the sum of financing needs for achieving climate, biodiversity and land degradation targets by means of the management, preservation and restoration of forests amounts to USD4684 billion (UNEP 2021). According to these authors, forests can absorb approximately half of the overall funding needed to achieve the climate, biodiversity and land degradation targets.

BOX 2: RECENT PLEDGES AND INITIATIVES ON FOREST FINANCE

In this context, it is worthwhile mentioning recent pledges and initiatives on forest finance. As can can be seen below, several bold pledges were made, e.g. at COP26, atnCOP27, and at the One Planet Summit. (Note that there may be additional recent pledges that were not captured in the search, the table does not claim to be comprehensive)

Pledge or initiative	Ambition	Pledge / Financial commitments / Financial target
Great Green Wall Accelerator Launched at the One Planet Summit 2021	Facilitate collaboration among donors and stakeholders involved in the Great Green Wall Initiative; Help all actors to better coordinate, monitor, and measure the impact of their actions	USD 19 billion
Global Forest Finance Pledge Launched at COP26	Incentivize results and support action in ODA eligible forest countries where increased ambition and concrete steps are shown towards ending deforestation by 2030 2030	USD12 billion for forest-related climate finance between 2021-2025.
Forest and Climate Leaders' Partnership Launched at COP27	Halt and reverse forest loss and land degradation by 2030	USD4.6 billion in addition to the USD12 billion committed under the Global Forest Finance Pledge
Natural Capital Investment Alliance Launched at One Planet Summit 2021	Mobilize investment in Nature-based economic opportunities	Commitment to mobilize at least USD10 billion in investment into Natural Capital assets in 2022
Mangrove Breakthrough Launched at COP27	Secure the future of 15 million hectares of mangroves globally by 2030 through collective action on halting mangrove loss, restoring half of recent losses, doubling protection of mangroves globally, and ensuring sustainable longterm finance for all existing mangroves	Target: Invest USD 4billion

IPLC Forest Tenure Joint Donor Statement Launched at COP26	Support the advancement of Indigenous Peoples' and local communities' forest tenure rights and greater recognition and rewards for their role as guardians of forests and nature	USD1.7 billion from 2021-2025
Lowering Emissions by Accelerating Forest finance (LEAF) Coalition	Public-private effort to halt deforestation by financing large scale tropical forest protection	Financial commitments: USD 1.5 billion
Congo Basin Joint Donor Statement Launched at COP26	support ambitious efforts and results in the region to protect and maintain the Congo Basin forests, peatlands and other critical global carbon stores	Initial collective pledge of at least USD1.5 billion of financing between 2021-2025
Forests, People, Cimate (FCP)	'Halt and reverse tropical deforestation while delivering just, sustainable development. [With] a focus on equitable and enduring solutions that safeguard tropical forests and support those defending them, in particular Indigenous Peoples and local communities'.	USD780 million (of which USD400 million are new philanthropic funding as of COP27)
Finance Sector Roadmap for Eliminating Commodity-Driven Deforestation	Provide guidance to financial institutions on eliminating deforestation, conversion, and associated human rights abuses from their portfolios, with a target date of 2025	
Finance Sector Deforestation Action (FSDA)	Inter alia, the signatories commit to 'use best efforts to eliminate forest-risk agricultural commodity driven deforestation activities at the companies in [their] investment portfolios and in [their] financing activities by 2025'.	
Tropical Forest for Climate and People Alliance launched by Brazil, Indonesia, DRC at COP27	Give value to each country's diversity and promote fair remuneration to the ecosystem services each country provides, especially through carbon credits from native forests.	

Note: See hyperlinks for sources.

2.2. Types of funding

The Global Forest Goals put forward that the implementation of sustainable forest management needs to be supported through financial resources (goal 4), governance frameworks (goal 5), and cooperation, coordination, and coherence on forest-related issues (goal 6). Importantly, there is no valuation or guidance on what type of financial resources are favorable for achieving sustainable forest management in the long run. For instance, sustainable forest management can be implemented through government agencies on public forest lands, governments can outsource the sustainable management of forests to private companies, or forest land and forest management can

be entirely privatized. There may be many other forms of organizing the implementation of sustainable forest management and each may have a different set of funding sources that is best suited to meet the particular needs.

Funding for sustainable forest management can be categorized by flows. Singer (2016) differentiates between five such categories: international public finance, domestic public finance, international private finance, domestic private finance, and blended and innovative finance. Although these different flows exist, it is often difficult to trace them in this level of detail. Generally, the availability of financial flow data is best for international public financing because ODA figures are regularly collected by OECD. Yet, systematic global data on flows for sustainable forest management in the other categories is extremely limited (UN DESA UNFFS 2021).

For the purpose of this report, financial flows are structured into two major groups:

- Enabling funding (which includes public international funding, domestic funding and fiscal policies, as well as philanthropic funding); and
- Investments in forest assets (which includes private financing, blended financing, and emerging and innovative financing)

In countries or regions that, for various reasons, are struggling with unfavorable conditions for sustainable forest management, enabling funding can provide the means to trigger structural change. Enabling funding can, for example, help create the physical infrastructure necessary for sustainable forest management, support institutional reform processes, or help establish markets for forest goods and services. Enabling funding is classically provided by public organizations or entities and to some extent by philanthropic organizations.

Investments in forest assets are often driven entirely or partly by institutional or private investors such as pension funds, wealthy family bureaus, or insurance companies. To private investors, forests can be attractive assets because they can help diversify a portfolio both across asset classes as well as across geographies. In particular, timberland returns are largely uncorrelated with other asset classes, and they can serve as a hedge against inflation (Hiegel et al. 2022; Zhang 2022). Private investors are typically attracted to business environments that are stable and provide prospects for favorable risk-adjusted returns. However, often, markets for forest products and services as well as the institutions governing them may mature incrementally. Transitions from public enabling funding for SFM to privately financed sustainable forestry can be supported through blended finance. Blended finance is the strategic use of development finance to mobilize additional financial resources for sustainable development (OECD 2018). Finally, emerging and innovative finance can include a range of different novel financial approaches and mechanisms, such as Payments for Environmental Services (PES), impact investment funds, green bonds, or a coupling of timberland investments with carbon offsetting (Begemann et al. 2023).

2.3. Enabling finance

2.3.1. International resources

The OECD statistics database (OECD.Stat) provides a wealth of data on ODA flows. For the category international public funding, the analysis below makes use of the OECD data on DAC country, non-

DAC country and multilateral funding. Data on ODA for forestry is available from OECD since 1995 (see Figure 1).

Since 1995, the volumes of available international public funding have ranged between a minimum of USD251.10 million in 1999 and a maximum of USD1557.35 million in 2021. Since the adoption of the International Arrangement on Forests in 2015, the volume of forestry marked ODA has increased from USD751.01 million to USD 1557.35 million in 2021. This corresponds to slightly more than a doubling of the available funds in five years. Despite this massive increase in forestry marked ODA, the annual volume of funding falls short of the needs, for which estimates range between USD70 billion and USD460 billion annually (see section 2.1).

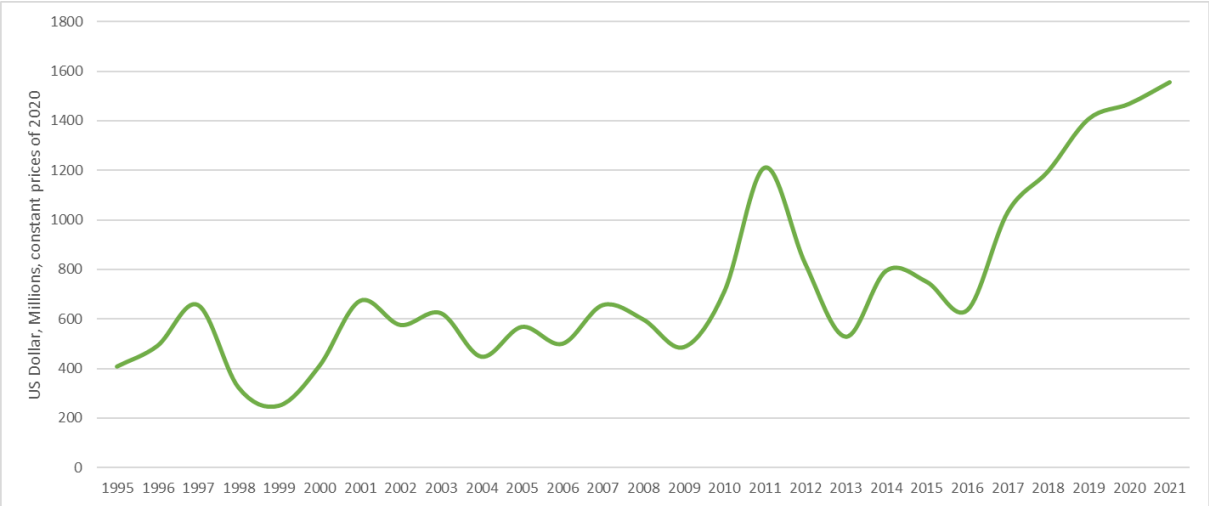


FIGURE 1: FORESTRY MARKED ODA 1995-2021

Data source: OECD (2023a)

In the same time period, total ODA gradually increased from around USD363.2billion to USD405.2 billion (+11%). The percentage increase in forestry marked ODA thus was much larger than the percentage increase of total ODA. The green line in Figure 2 shows that the share of forestry marked ODA of total ODA increased from 0.21% in 2015 to 0.38% in 2021. However, in 1997 when total ODA levels were far lower, the share of forestry marked ODA reached a peak of 0.67%.

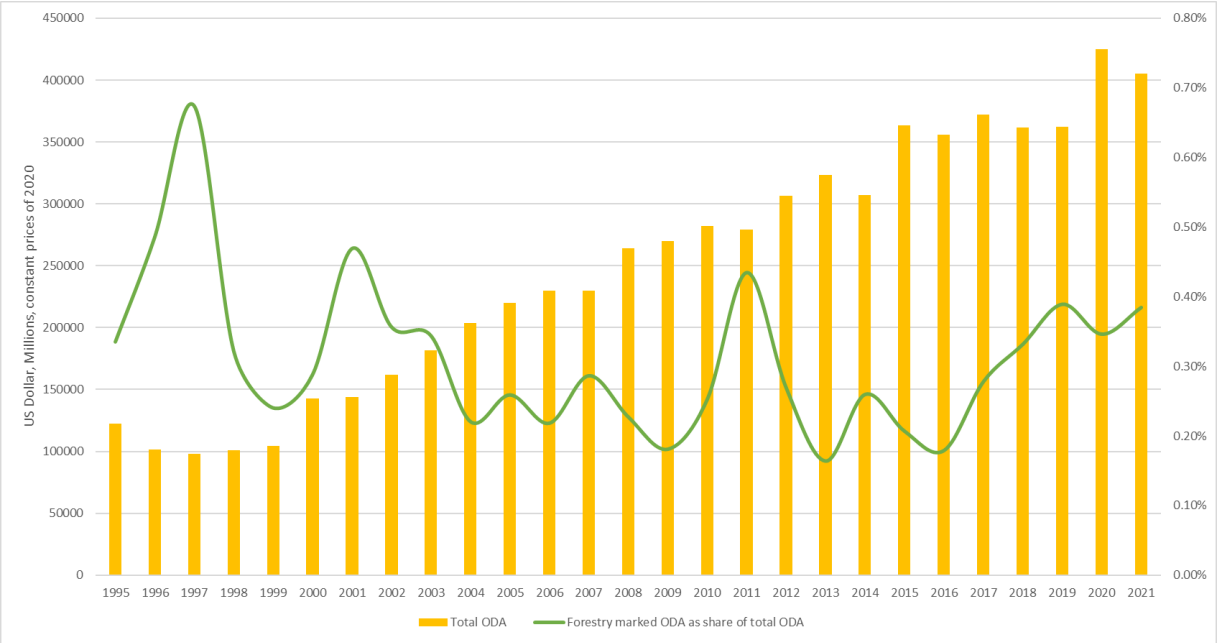


FIGURE 2: TOTAL ODA AND FORESTRY MARKED ODA AS SHARE OF TOTAL ODA 1995-2021

Data source: OECD (2023a)

Figure 3 shows the repartition of forestry marked international public financing by source group. The main sources are the DAC countries, EU institutions, the World Bank Group, UN organizations, regional development banks, as well as non-DAC countries. There are several pathways that funding can take from the donor, through the multilateral system to the partner country. For example, donors can provide core funding to multilateral organizations which then, in a consensus-based approach, decide on the resources' uses. Alternatively, donors can provide funding that is earmarked for a certain purpose from the start. These earmarked funds pass through the multilateral system but bypass the multilateral decision-making system. Observers have named this option that is also common for forest funding "à la carte multilateralism" (OECD 2020).

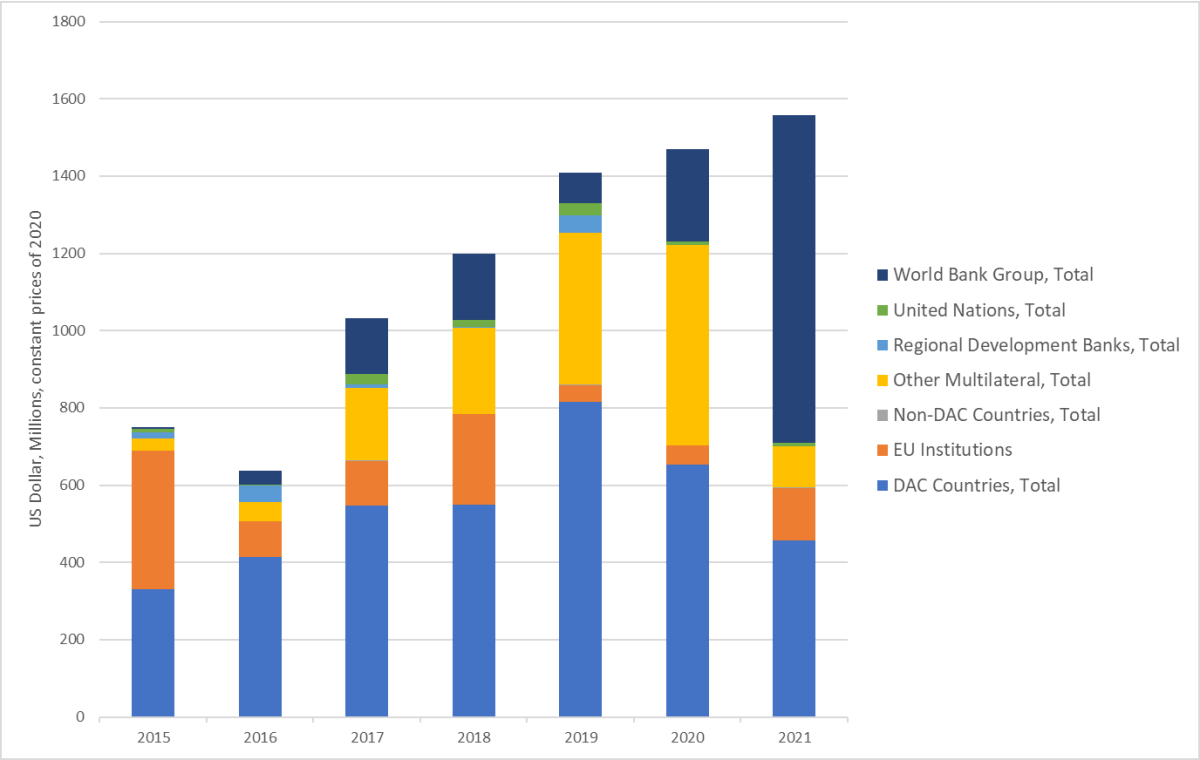


FIGURE 3: FORESTRY MARKED INTERNATIONAL PUBLIC FINANCING BY SOURCE GROUP

Data source: OECD (2023a)

A closer look at the forestry marked funding flows provided by the DAC Countries reveals that from 2015 to 2021, only four countries have together provided almost 80% of the funding. These are Germany (33%), Japan (19%), United Kingdom (15%), and France (11%).

As can be seen in Figure 3, the share of funding provided by the World Bank Group massively increased between 2015 and 2021. The number of forestry sector projects approved by the World Bank's board each year was around 22 since 2015, which is similar to previous years. However, the average project volume increased during the time span from 2015 to 2021.

2.3.2. Selected multilateral financing bodies

The World Bank offers three financing instruments that are suitable for different needs and development challenges (The World Bank 2023c). Investment Project Financing focuses on physical or social infrastructure projects in all sectors that aim at fostering sustainable development and reducing poverty. This financing is usually for the medium to long-term (5-10 years) and includes a wide range of activities. A difference to commercial lending is that lending countries receive sustained global knowledge transfer and technical assistance from the bank, among other things on environmental and social activities (The World Bank 2023d). Development Policy Financing is an instrument that offers rapidly disbursing financing in the form of loans, credits/grants, or guarantees. It supports lending countries in conducting policy and institutional actions for achieving sustainable, shared growth and poverty reduction. The bank assesses whether the supported policies are likely to have impacts on the lending country's environment, forests and other natural resources (The World Bank 2023b). Finally, the Program-for-Results seeks to strengthen institutions, enhance systems and build capacity by helping lending countries improve their national development programs. As the

title suggests, the funds are directly linked to the achievement of tangible program results (The World Bank 2023e). A closer inspection of the projects categorized as specific to the forestry sector on the World Bank's website reveals that the stark increase of forestry marked funding is due to support provided through the Investment Project Financing instrument. However, since 2015, World Bank forestry sector projects were to a certain extent also supported through the Program-for-Results Financing and Development Policy Lending instruments.

Within the category 'Other Multilateral' there are three bodies that have provided substantial forestry marked funding during the period 2015-2021. These are the Green Climate Fund, the Global Environment Facility and the Climate Investment Funds. The Adaptation Fund also provided forestry marked funding but far less that the other three bodies.

The Green Climate Fund (GCF) which was established in 2010 and became operational in 2015 supports developing countries in achieving their Nationally Determined Contributions toward low-emission climate-resilient pathways (Green Climate Fund 2023). The GCF pursues a country driven approach. A network of more than 200 Accredited Entities and delivery partners work with the receiving countries on project design and implementation. These partners include international and national commercial banks, multilateral, regional and national development finance institutions, equity funds institutions, United Nations agencies, and civil society organizations (Green Climate Fund 2023). Coalitions between these partners that can foster transformative change are much encouraged by the fund. The fund works with several financial instruments that it can flexibly combine as needed. The instruments include grants, concessional debts, guarantees or equity instruments. The latter are especially intended to attract private investment and to leverage blended finance.

Half of the fund's resources are invested in adaptation and at least 50% thereof need to be invested in SIDS, LDCs and African States given their high climate vulnerability. The other half of the GCF funds are invested in mitigation projects. 'Forests and land-use' is one of four 'result areas' of the mitigation branch. Results areas are reference points that ensure a strategic approach in developing the fund's programs and projects. The GCF reports that as of June 2022, its Board has approved USD 1.48 billion for the forests and land use result area. (Note that this is inconsistent with the data on the GCF's forestry marked funding in the OECD database). The GCF Board approved through its Readiness and Preparatory Support Programme 175 grants (totaling USD 104.79 million) that included activities on forests, 46 project cycle projects including forests and land use as a result area (totaling USD 984.6 million), and 8 REDD+ projects (totaling USD 496.7 million).

The **Global Environment Facility (GEF)**, which was founded in 1992 before the Rio Earth Summit, serves as the three Rio conventions' financial mechanism. The multilateral fund thus targets biodiversity loss, climate change, land degradation and desertification, and also includes pollution, as well as land and ocean health issues. Forests are central to achieving the Rio conventions' goals and accordingly have figured prominently in the GEF's work (GEF IEO 2022). The GEF supports developing country governments' environmental projects and programs through grants, blended financing and policy support. A new Impact Program on Sustainable Forest Management was developed under the 7th GEF replenishment starting 2018. As can be seen in Figure 4, the share of GEF funding dedicated to SFM has gradually increased over the replenishment periods. Overall, it amounts to USD3.655 billion or 14.8% of the total GEF funds. GEF-6 (2014-2018) and GEF-7 (2018-2022) overlap with the

time period relevant to this study. 42% of the overall SFM funds granted by GEF were spent in these two periods.

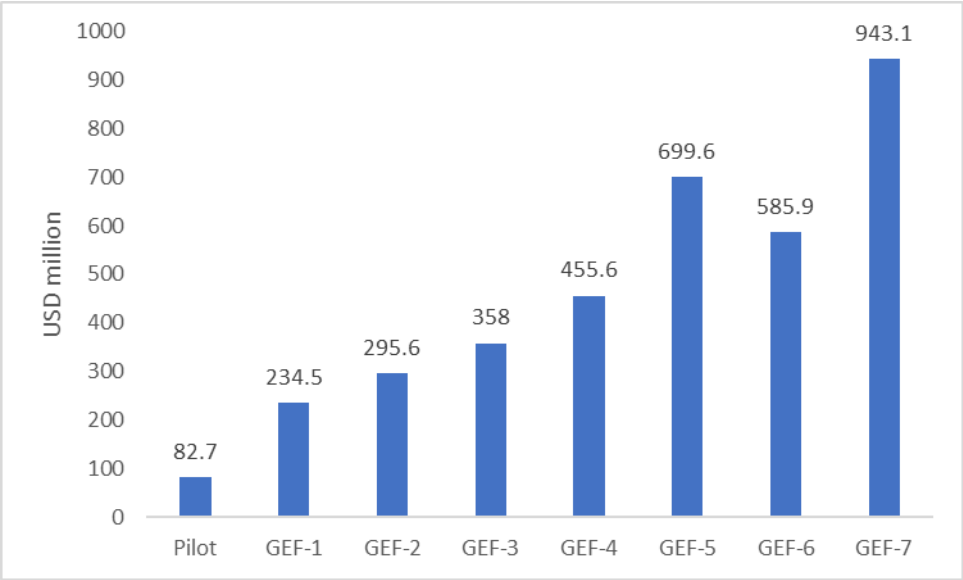


FIGURE 4: GEF FUNDS FOR SFM

Data source: (GEF IEO 2022, Table 1.1)

Projects are developed, implemented, and executed jointly with at least one of 18 GEF agencies. 12 of these have managed GEF SFM projects, of which four have accounted for the bulk of all SFM projects throughout the replenishment periods, UNDP 35%, WB 30%, FAO 13%, and UNEP 10% (GEF IEO 2022).

The **Climate Investment Funds (CIF)** is a multilateral fund that finances climate pilot projects in developing countries. The **Forest Investment Program (FIP)** is a program nested within the CIF. The FIP which was approved in 2009 seeks to empower 'developing countries in managing their natural resources in a way that achieves the triple win of being good for the forests, good for development, and good for the climate' (Climate Investment Funds 2023). The FIP addresses the drivers of deforestation and forest degradation through direct investments, and it offers grants and low-interest loans that are intended to foster collaborations between the governmental and community levels as well as businesses in finding 'sustainable solutions for people and economies that rely on forests, while maintaining important ecosystem services' (Climate Investment Funds 2022).

The CIF annual report for 2021 states that the FIP has allocated USD678 million to 50 projects (Climate Investment Funds 2022). However, as of December 2021 actual disbursement amounted to USD355 million allocated to 44 projects. The FIP works together with six development banks: the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank, and the World Bank.

2.3.3. Bilateral donors

Apart from contributions to multilateral funds, several donor countries also host bilateral funds. The UNFF Clearing House on Forest Financing provides an overview of the bilateral funding opportunities.

The countries listed in the Clearing House that have one or several bilateral forest funding opportunities are Belgium, Canada, Denmark, Finland, France, Germany, Japan, Korea, Netherlands, Norway, Spain, Sweden, Switzerland, UK, and the USA. More detailed information on the various funds is presented in the Annex (Table 11). In total the table counts 33 bilateral funds. They include long-standing government funded agencies, such as GIZ and SIDA, but there are also other donors such as an entrepreneurial development bank (FMO), or even a comparatively small private sector company. Accordingly, the available overall funding and funding per project differs substantially. Project volumes vary significantly between a few thousand USD to several million. Often the funds lay out detailed eligibility criteria. These are not included in the overview table. Roughly two-thirds of the funds have a global outreach, while one third has a narrower geographical scope.

2.3.4. Domestic public funding mechanisms

Domestic public funding mechanisms can be split into two broad groups: government expenditure and fiscal policy. Following the rationale presented by Heine et al. (2021), government expenditure can function as enabling funding that helps resource users become more efficient in using forest resources. An efficiency improvement is achieved when an agent can produce the same level of output while using less input or by producing more output with the same level of input. There can be many reason(s) constraining a more efficient use of resources, e.g. a lack of knowledge, lack of access to the credit market, market failure and others (Heine et al. 2021). Depending on the constraints, public expenditure can be used to remedy the deficiencies, e.g. by supporting education or facilitating access to (micro-) credits.

Due to their public good characteristic, many forest ecosystem services are not traded on markets, do not receive a price and thus often do not enter forest resource users' decision-making processes. The resulting resource use decisions thus are often skewed towards optimizing the extraction and commercialization of resources that can be placed on the market. While these decisions may be optimal from a private myopic resource user's perspective, they are suboptimal from a societal perspective if they entail negative externalities on the forest ecosystem and its wealth of ecosystem services. Governments can use fiscal policies as a tool to let forest resource users internalize negative externalities into their decision-making processes. In other words, well-designed fiscal policies can help incentivize using forest resources more sustainably (Heine et al. 2021). Different design mechanisms and their expected effects on SFM are discussed below. Apart from targeting forest resource uses directly, fiscal policies can also target economic activities that often have detrimental effects on forests, for instance agriculture and mining. In these cases, fiscal policies can help align other economic activities to SFM objectives. The revenues generated (e.g. through taxes) can later be redistributed, e.g. as enabling funding. The latter is particularly important for countries with constrained budgets available for natural resource management. Available data on government expenditure and fiscal policies is presented consecutively below.

2.3.5. Government expenditure

Data on government expenditure for forests is provided by FAOSTAT for a selection of countries. The data is collected annually through a questionnaire that was developed by FAO and the International Monetary Fund (IMF). The FAO data on government expenditure for forests is available for 65 countries (excluding countries with either no data entries for government expenditure for forests 2015-2021 or only an occasional zero). The dataset thus is incomplete and can only provide a glimpse of the government expenditure situation in a limited set of countries. The Global Forest Resources

Assessment 2015 reported data on government expenditure from 1990-2010, but the FRA2020 report does not continue to report this data. For the available data provided by FAO, Figure 5 plots the average annual government expenditure for forests 2015-2021 per ha of forest cover against the forest area annual net change rate. For better visibility, the vertical axis uses a log scale. Monetary values are expressed in USD of 2015. The intersection of the two axes is placed at this sample's median value of government expenditure for forests, which is USD2.8/ha. For countries with a negative annual net change rate of forest area, the median annual government expenditure was USD1/ha. Median government expenditure in countries with no net change or an increase in forest area is at USD4/ha.

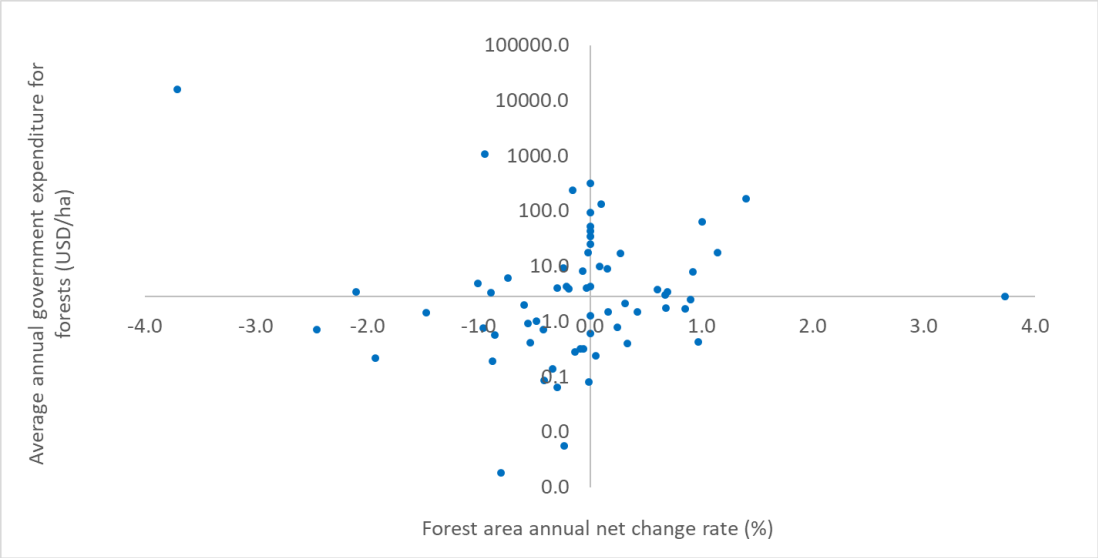


FIGURE 5: ANNUAL GOVERNMENT EXPENDITURE AND FOREST AREA CHANGE

Data source: FAOSTAT

There are 18 countries in the upper right quadrant. These countries have a zero change or increase of forest area and their government expenditure for forests is above the median level. These countries are: Albania, Azerbaijan, Belarus, Brunei Darussalam, Cuba, Denmark, Fiji, Grenada, Iceland, Jordan, Kazakhstan, Kyrgyzstan, Lesotho, Mauritius, Saint Lucia, Saint Vincent and the Grenadines, Switzerland, and Tonga. The 13 countries in the lower right quadrant are Australia, Burundi, Cabo Verde, Chile, Eswatini, Ghana, Lebanon, Poland, Republic of Moldova, Russian Federation, Uzbekistan, Vanuatu, Viet Nam.

The two quadrants on the left side of the figure contain the countries with forest loss. Countries with forest loss but above median average government expenditure for forests are in the upper left quadrant. These 14 countries are: Armenia, Egypt, El Salvador, Gambia, Israel, Kenya, Mexico, Namibia, Republic of Korea, Samoa, South Africa, Sudan, Sweden, and Togo. Finally, the countries in the lower left quadrant are providing less than the median level of government expenditure for forests and have a negative annual change rate of forest area. The 20 countries in this quadrant are: Angola, Argentina, Benin, Brazil, Central African Republic, Chad, Equatorial Guinea, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Myanmar, New Caledonia, Papua New Guinea, Paraguay, Peru, Senegal, United Republic of Tanzania, and Zambia.

2.3.6. Fiscal policies

Fiscal policy instruments, in particular taxation, often aim at achieving revenue generation, environmentally sound forest practices and value addition (Hansen and Lund 2018). A large body of literature has researched the effects of different tax designs on forest management decisions, building on the assumptions that the government is a social planner aiming only at welfare optimization and the forest managers are rational profit optimizing agents. If the primary aim is to replenish the government budget, a neutral tax should be chosen that does not distort forest management decisions. Taxes that impact forest managers' decisions, can be well-suited when the government's objective is to lengthen (or shorten) in particular the rotation length (Ollikainen 2014). Taxes that make standing forests more valuable (e.g. cutting fees) are better suited for achieving sustainability than taxes or fees further down in the values chain such as taxes on exports or processed products. This is because the latter do not provide incentives to efficiently use forest resources (Hansen and Lund 2018). However, the practical application of tax policies is often easier further down the value chain or at export points than in the forest sector itself. This creates a tradeoff between ease of implementation and using the policy instruments' incentive power as a leverage for SFM. In view of such tradeoffs, meeting several goals simultaneously, as is often the case for transitions to SFM (e.g. promoting sustainable timber extraction, ecosystem service provision, reducing negative externalities, accounting for equity), may rather require a policy mix consisting of a set of consistent and coherent policy instruments.

Heine et al. (2021) provide an overview of the expected effects of different fiscal mechanisms on SFM incentives (see Table 2). Theoretical derivations for many of these expected effects can for example be found in Amacher et al. (2009).

The last column in Table 2 presents examples for the fiscal mechanisms derived from OECD's PINE (Policy Instruments for the Environment) database. The database was launched in 1996 and initially only contained information on environmentally related taxes in OECD countries. It now contains information for more than 90 countries on a wide range of policy instruments including taxes, fees and charges, tradable permits, deposit-refund systems, environmental subsidies, and voluntary approaches. For each instrument the database lists information on the time when the instrument was introduced, what it applies to, its geographical coverage, the environmental domains it aims to address, the industries concerned, exemptions, costs or rates, and importantly, revenues. Overall, the database contains descriptions of around 3400 policy instruments for the environment of which about half are taxes (OECD 2023b). Table 10 in the Annex reports on all policies relevant to forests and trees contained in the PINE database within the category taxes, fees and charges. Nearly all countries that have reported fiscal forest policy instruments in the PINE database are located in the northern hemisphere. For around a dozen, mostly European countries, revenue information is provided for the time period relevant to this consultancy. This data is presented in Table 3.

TABLE 2: FISCAL MECHANISMS

Mechanism and description	Expected impact on SFM incentives	Revenue and administrational effort	Examples from PINE database
Excise tax: Tax on timber and other forest-	Mixed impact Can increase incentives for illegal or informal	Revenue increasing High admin. cost	Timber taxes in various countries, in some countries revenues are used for forest

derived products, e.g. unit-, profit-, resource rent-based	logging, selective harvesting, and land use change		management (e.g. Bosnia and Herzegovina, Canada/Quebec, Hungary)
Area fee: Fee based on harvested forest area	Mixed impact Can lead to more intensive harvesting	Low admin. cost	Charges for excluding areas from forestry reserves (Bulgaria)
Export tariff: Tax on exported timber and other forest products	Mixed impact Can distort consumption and marketing decisions and can lead to inefficiency and waste in the domestic industry	Revenue increasing Low admin. cost	No examples in PINE database
Input tax: Charges on input factors	Mixed impact, can be mechanism to help control illegal logging	Revenue increasing High admin. cost	Water taxes (Spain, South Africa)
Subsidy or tax expenditure, tax exception: Fiscal incentives and tax discounts	Strong impact on incentives for SFM if well targeted	Revenue decreasing High admin. cost	Fuel tax exceptions for forestry in various countries
Combination of tax and subsidy/ rebate:Tax and rebate based on adoption of SFM or other environmental indicator	Strong impact on incentives for SFM if well targeted	Potentially revenue neutral Medium admin. cost	No examples in PINE database
Ecological fiscal transfer: Portion of central government fiscal transfers allocated based on environmental indicators	Strong impact on incentives for SFM if well targeted	Revenue neutral Low admin. cost	No examples in PINE database

Source: Based on Heine et al. 2021, Table ES.2

TABLE 3: REVENUES OBTAINED THROUGH FISCAL MECHANISMS RELATED TO FORESTS AND TREES

Country	Name of instrument	Revenue from fiscal mechanisms in million USD					
		2015	2016	2017	2018	2019	2020
Austria	Vienna -- Charge for tree protection	1.85	1.55	2.77	2.62	4.67	3.42
Colombia	Tax on forestry products				0.016		
Colombia	Compensatory Fee for the Permanent Use of the Bosque Oriental de Bogotá Protected Forest Reserve.			0.0661	0.07		
Colombia	Compensatory Fee for Timber Harvesting in Natural Forests			4.7	4.11	3.55	
Costa Rica	Tax on timber	2	2.42	2.45	2.75		
Croatia	Contributions for forest	6.87	7.06	7.28	9.56	16.96	16.97
Czech Republic	Fee for the withdrawal of forest land	2.4	3.6	2.55	3.12	2.73	4.33
Lithuania	Tax on timber sales	26.17	27.1	28.74	35.18	32.62	
Poland	Charge for bush and tree removals	31.3	24.6	11.91	13.43	14.14	22.9
Poland	Forest tax - local	54.99	67.82	69.1	71.27	69.33	67.58
Sweden	Forestry levy	2.03	1.48	1.53	1	0.8235	0.4079
Ukraine	Tax on Timber	50.35	51.87	49.58	56.91		

Source: OECD PINE Database (OECD 2023b)

2.3.7. Philantropic funding

The OECD database (OECD 2023a) reports on funding flows by major international private donors. In total, the list contains 41 private entities, mostly foundations, and 5 postcode lotteries. Of these, 15 have provided funding for SFM between 2015 and 2021. During this time period, most private funding was made available by the BBVA Microfinance Foundation, the Bernard van Leer Foundation, the Bezos Earth Fund, and the Bill & Melinda Gates Foundation. While the first two foundations regularly provided small amounts of funding, the Bezos Earth Fund, and the Bill & Melinda Gates Foundation provided a comparatively large amount of funding in one year only.

Further private foundations that made smaller amounts of funding available are the Bloomberg Family Foundation, Carnegie Corporation of New York, Charity Projects Ltd (Comic Relief), Children's Investment Fund Foundation, Citi Foundation, Conrad N. Hilton Foundation, David & Lucile Packard Foundation, Fondation Botnar, Ford Foundation, Gatsby Charitable Foundation, Gordon and Betty Moore Foundation, and the Grameen Crédit Agricole Foundation.

2.4. Investments in forest assets

The overall capital invested in timberland globally is estimated to amount to around USD60 - USD100 billion (Fu 2021). There are several different ways how investments are made into forest assets. Based on Chudy and Cubbage (2020) and Baral and Mei (2022), there are three main categories: direct investments, private equity investing and public equity. These three categories help structure the discussion of investments in forest assets. However, there is not necessarily a sharp line between the categories. In some cases, the categories may simply provide different perspectives on the same asset. For example, a stretch of land may be purchased at some point in time by a pension fund which outsources the management to an intermediary. This asset can be discussed as a direct investment but also as a private equity investment.

Direct investments, such as outright purchases of timberland or concessional land deals, allow investors to gain high control at the operational forest management level. Mergers and acquisitions of forest companies as well as green- and brownfield forest investments [1]can also be counted to this group. Direct investments are long-term in their outlook, but liquidity is low (i.e. assets can be hard to sell and convert to cash).

Private equity investing, especially through timberland investment management organizations (TIMOs), has gained importance since the 1980ies. TIMOs are intermediaries that invest in timberland on behalf of institutional investors or other prosperous investors, for example pension funds, insurance companies, banks, foundations, and large family offices. Pension funds that invest in forest assets mostly come from OECD countries (United States, Canada, Sweden, Germany, Denmark, Finland, Germany, France, Spain, Australia, New Zealand, Korea, the UK) with notable exceptions from Brazil and Uruguay (Binkley et al. 2020). Investors with significant capital can have exclusive TIMO accounts where a manager tailors the investments to the investors' needs. Alternatively, there are cummingled[2] TIMO funds that pool the capital of several like-minded investors (Fu 2021).

Public equity. Public equity in this context are shares in publicly traded forest or timber related companies. In the US market, this includes real estate investment trusts (REITs) and exchange-traded funds (ETFs). Internationally, there is a growing market for sustainable forest funds. Investors who purchase shares of forest and timber companies, usually have little influence on operational management decisions. Liquidity in most cases is obviously higher than in the case of direct investments in timberland.

There can be several pros' and cons' for timberland assets from an investor's point of view. Interest in timberland assets can be driven by expectations of favorable risk-adjusted returns as well as the diversification potential across asset classes and geographies, given that timberland returns are largely uncorrelated with other asset classes, and they can serve as a hedge against inflation (Hiegel et al. 2022; Zhang 2022). Emerging economies can have favorable conditions such as high biological growth rates or high domestic demand for timber that is currently met by comparatively expensive imported timber (Binkley et al. 2020). Favorable tax treatments and subsidies can create additional incentives for investing in timberland assets. Binkley et al. (2020) provide an in-depth overview of constraining factors – these include, inter alia, prohibitively high transaction costs and a lack of

[1] See section 2.4.3 for explanations of the terms.

[2] "Commingled funds are a type of pooled fund that is not publicly listed or available to individual retail investors. Instead, these are used in closed retirement plans, pension funds, insurance policies, and other institutional accounts." Quoted from https://www.investopedia.com/terms/c/commingledfund.asp

understanding of the asset class, fear of natural disasters, and land conflicts beyond the investors' control that could fall back on the investors' reputation.

BOX 3: PRIVATE EQUITY COMPARED TO PUBLIC EQUITY

Note that the use of the words public and private in the context of equity is different from the conventional understanding, e.g. of publicly or privately owned forest. Private equity "describes investment partnerships that buy and manage companies before selling them. Private equity firms operate these investment funds on behalf of institutional and accredited investors."(Investopedia 2023). These investors are large-scale, such as banks or pension funds, and are managed professionally. Public equity refers to the shares of a company that is listed on a public stock exchange. Table 4 summarizes characteristics of private and public equity.

TABLE 4: PRIVATE VERSUS PUBLIC EQUITY

	Private equity	**Public equity**
Access to information	Information is confidential and typically is only disclosed to investors under confidentiality obligations	All material, price-sensitive information is publicly disclosed
Investor involvement	Investors often have direct control over key decisions and strategic direction	Passive shareholders
Ownership structure	Private, often concentrated ownership	Broad public ownership which can change from day to day
Time horizon	Multi-year strategic planning	Typically, quarterly earnings reporting cycle
Liquidity	Typically less liquid as there is no active secondary market for the assets. There are often restrictions on the sale of shares by investors.	High, shares are publicly tradeable on a stock market

Source: (Schroders 2020, Figure 1)

2.4.1. Direct investments

Outright purchase of private forest land has conventionally been the preferred option for timberland investments. However, this requires that forests can be privately owned. Globally, 22% of forests are privately owned while 73% are under public ownership (the rest falls in "unknown" or "other" ownership categories). Regions with comparatively high shares of private ownership are Oceania (47%), North and Central America (36%), and South America (34%) (FAO 2020). The shares of private forest land are not necessarily constant; in several regions they have changed between 2010 and 2015 (see Figure 6). In Asia private forest land doubled in this time period. Private forest land also increased in Europe and Oceania. Reasons for increases in the share of private forest land can be privatization and restitution processes, but also private afforestation initiatives as well as

deforestation on public land. Timberland assets have grown in the past decades in parallel with the increase of private forest land (Chudy and Cubbage 2020).

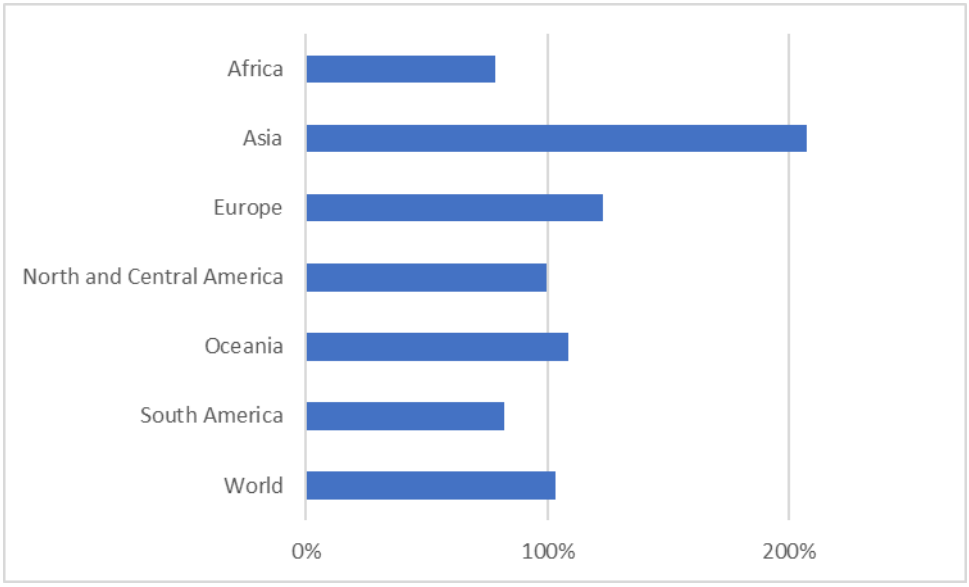


FIGURE 6: RELATIVE INCREASE OR DECREASE OF PRIVATE OWNERSHIP 2015 COMPARED TO 2010

Data source: FAO (2020)

Estimates suggest that the area of private timberland suitable and available for institutional investment is unequally distributed across continents, with the bulk being in North America (46%), Europe (22%), Latin America (16%), Oceania (10%), Asia (5%), and Africa (0.8%) (IWC 2009 cited inFu 2021). In case of public forest ownership, investors need to organize their business in the frameworks of concessions, leases, or similar arrangements such as Crown Tenure cutting-rights in Canada (Chudy and Cubbage 2020; Fu 2021).

Below, data on domestic direct investments is presented first, followed by foreign direct investments.

2.4.2. Domestic direct investments

The USA is arguably the largest market for timberland investments. As can be seen in Figure 7, from 2015 to 2022 between 2 and 3 million acres (approx. 800’000ha – 1’200’000ha) of timberland in the USA changed hands each year. Institutional investors are the main market actors selling and purchasing large timberland estates located especially in the Southern United States.

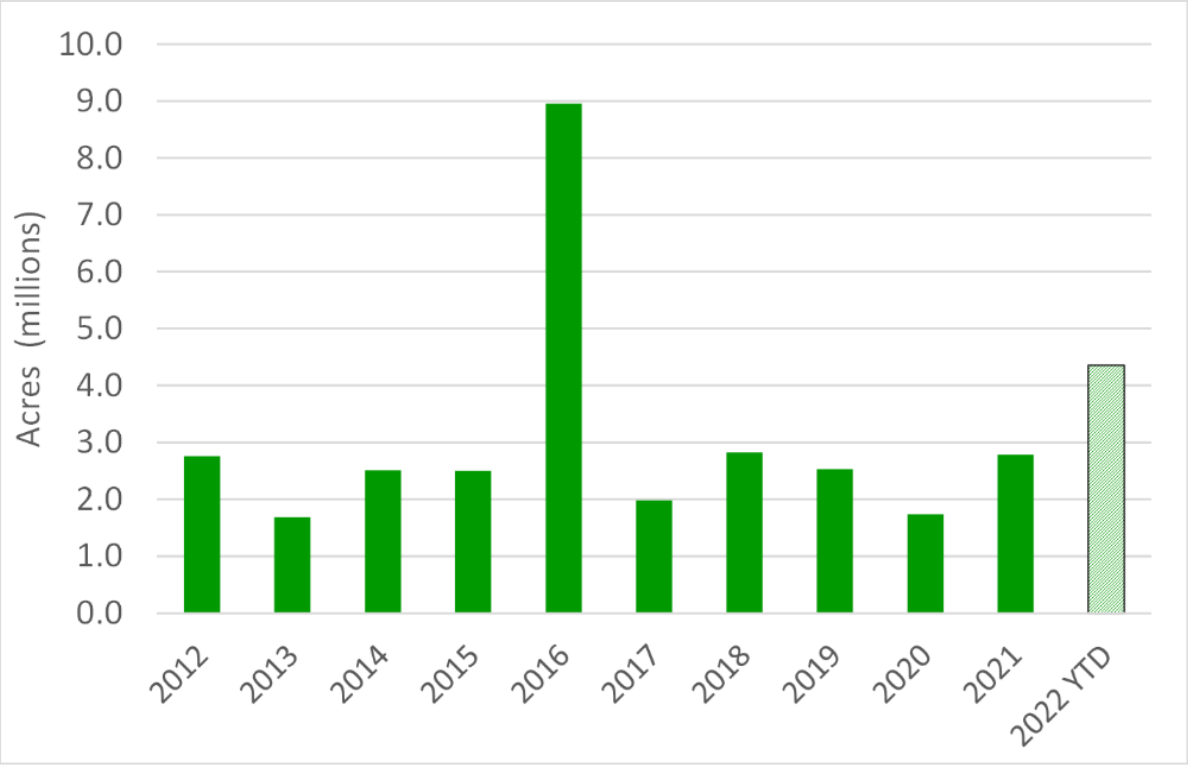


FIGURE 7: TIMBERLAND TRANSACTIONS IN THE USA SINCE 2012

Source: (FORISK 2022bimage quoted from website)

Internationally, there is little data available on timberland markets. One data source for international land deals is 'The Land Matrix', which is an independent land monitoring initiative. It provides data on large-scale (starting at 200ha) forest land deals in low- and middle-income countries. According to the initiative's website, it promotes transparency and accountability in decisions over large-scale land deals by capturing and sharing data about these deals at global, regional, and national level. The Land Matrix database provides, inter alia, data on intended, concluded, and failed attempts to acquire forest land through purchase, lease or concession and differentiates between transnational and domestic deals. Table 5 lists domestic forest land deals (2015-2023) contained in the database and Figure 8 shows how large the deals are in terms of area.

For some of these investments, it is possible to trace the top parent company and to find more information on the investments through internet searches. The parent companies associated to the land deals listed in Table 5 are mostly national forestry enterprises, some of which are publicly traded, and sawmills. In Uruguay one parent company is a publicly traded forestry financial trust fund.

TABLE 5: DOMESTIC FOREST LAND DEALS (2015-2023) RECORDED IN THE LAND MATRIX DATABASE

Country of forest land deal	Main intention Timber plantation	Forest logging / management	Forestry unspecified / REDD
Argentina	1	1	2
Brazil	7	4	

Cambodia		1	
Cameroon		4	
Liberia		2	
Uganda	1		
Uruguay	5		

Source: The Land Matrix (2023)

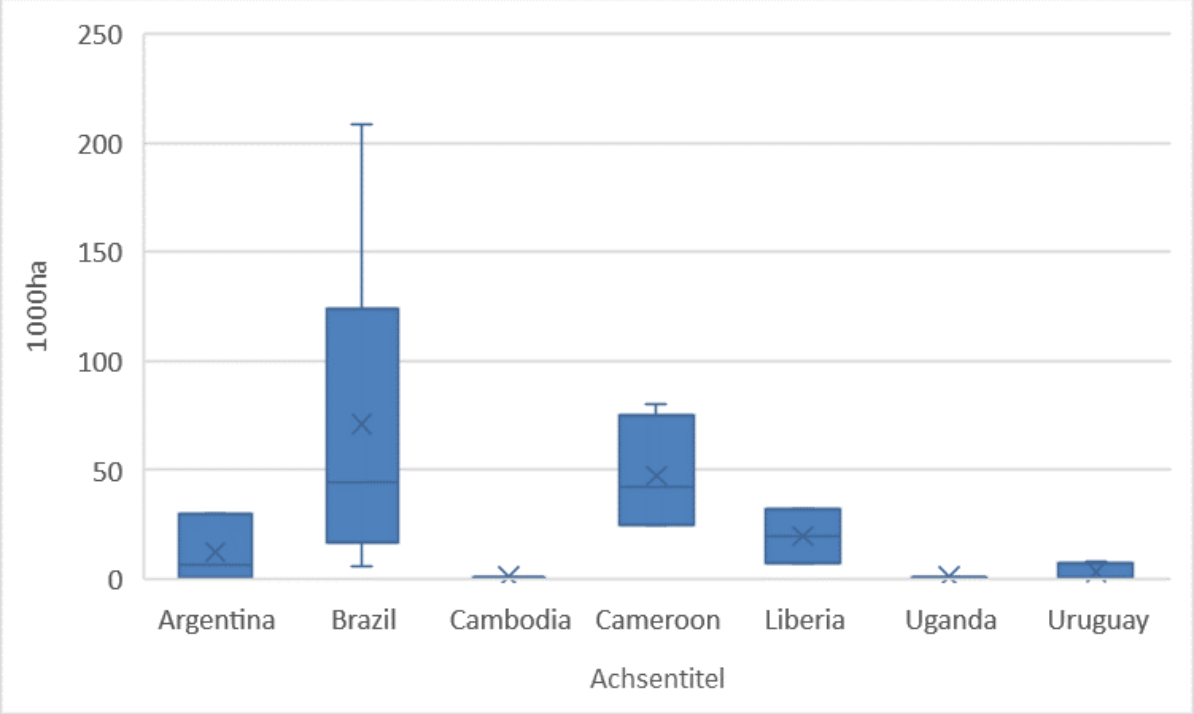


FIGURE 8: SIZE OF FOREST LAND DEALS (2015-2023) RECORDED IN THE LAND MATRIX DATABASE

Source: The Land Matrix (2023)

2.4.3. Foreign Direct Investments

When an investor acquires timberland in another country, this cross-border transaction counts as Foreign Direct Investment (FDI). FDI is defined as "an investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor (FDI enterprise or affiliate enterprise or foreign affiliate)" (UNCTAD 2022g).

FDI can take several different forms. Mergers and acquisitions (M&A) are generally the most common type of FDI. A merger is when two businesses join forces to proceed as one new business, rather than two. An acquisition is when one business is taken over from another, which then becomes the new owner. Greenfield investments are a third form of FDI. In greenfield investments, a business creates a new operation in a foreign country from scratch, i.e. without merging with or taking over an existing business (Shehadi 2020). There has been little international forestry greenfield investment, apart from some examples of pension funds that have invested in afforestation of plantations in Brazil. Brownfield investment refers to the repurposing of existing investments, e.g.

afforestation on degraded land. A recent study argues that there are substantially better prospects for brownfield forestry investments than greenfield investments in Africa (Poulsen et al. 2019). They argue that expanding afforestation projects around existing projects could allow investors to capitalize on previous lessons learned, silvicultural developments, existing seedling nurseries, physical infrastructure and human resources. Such expansions would decrease risk and would allow to benefit from economies of scale.

Generally, greenfield investments are expected to create new jobs and foster technology transfers to the receiving country. However, for the investing business this can be risky and time consuming. Mergers and acquisitions primarily entail a change of ownership and management structures, but do not necessarily create new jobs (Shehadi 2020).

BOX 4: FOREIGN DIRECT INVESTMENT DEBATE

For the primary sector, there is a debate around the desirability of FDI. Two competing theories have been put forward: the modernization theory and the dependency theory. As summarized in Mihalache-O'keef and Li (2011), in the modernization theory, the assumption is that the technology and know-how transfer that comes with FDI generates growth, increases absolute incomes and contributes to social welfare, e.g. by alleviating hunger. The dependency theory's line of argument is that even if FDI results in overall economic growth, it comes at the cost of destructing local entrepreneurship, crowding out domestic firms and strengthening the target country's (eventually authoritarian) regime (Mihalache-O'keef and Li 2011). As a result, inequality increases with negative implications on food security for the poor. In a recent empirical investigation, for the time period 2001-2020, of foreign direct investments in developing countries, Nyiwul and Koirala (2022) find that the effect of FDI on value added in agriculture, forestry and fishing remains positive for up to five years. They conclude that FDI has a medium- to long-term positive effect on value added in the sector. However, a recent review of large-scale land acquisitions, including forest land, finds that socio-economic benefits in terms of employment, positive productivity spillovers, or infrastructure are rare (Lay et al. 2021).

Table 6 provides an overview of the numbers and values of global M&A as well as greenfield FDI in agriculture, forestry and fishing for the time period 2015-2021.

In the data provided by UNCTAD on FDI, forestry is subsumed in one category with agriculture and fishing. At a global scale, the sector was less affected by the pandemic than other sectors. The numbers and volumes of M&A and greenfield FDI have remained more or less stable since 2015. However, this data can at best serve as information on the upper boundary of forest FDI volumes.

TABLE 6: NUMBERS AND VALUES OF M&A AND GREENFIELD FDI TRANSACTIONS

Agriculture, foresty, and fishing	2015	2016	2017	2018	2019	2020	2021
Number of cross-border M&A sales	65	68	84	77	79	130	65
Value of cross-border M&A sales (USD millions)	3033	4134	1954	796	1842	1474	1881
Number of cross-border M&A purchases	30	47	34	46	53	89	175
Value of cross-border M&A purchases	7 633	125	-1011	-860	-1493	1005	167

Number of announced greenfield FDI projects	35	45	66	86	71	59	42
Value of announced greenfield FDI projects (USD millions)	2421	1390	3197	2962	2264	2686	1758

Sources: UNCTAD (2022a, 2022b, 2022c, 2022d, 2022e, 2022f)

Based on data provided by 'The Land Matrix', Table 7 provides information on the number of transnational forest land deals between 2015-2023. While forest logging and management is a common goal of forest land deals in many geographies, timber plantations are concentrated in Brazil. Figure 9 illustrates that the sizes of the transnational forest land deals tend to be far larger in the Congo basin than elsewhere.

These findings are consistent with research on timberland ownership and control strategies among top forest product firms globally. While there has been a trend toward divestment and outsourcing of timberland in the USA since the 1980ies, internationally there is a reversed trend toward vertical integration (Korhonen et al. 2016). For the years 2007-2012 Korhonen et al. (2016) find that the top 100 forest product companies increased their timberland in ownership and control especially through growth in emerging countries. However, Fu (2021) argues that the market for timberland in emerging economies remains rather thin and with a lack of comparable sales price data, it is difficult to estimate the value of resources made available for forests.

TABLE 7: NUMBER OF TRANSNATIONAL FOREST LAND DEALS BETWEEN 2015-2023

Country of forest land deal	Main intention		
	Timber plantation	Forest logging / management	Forestry unspecified / REDD
Argentina	1	2	
Brazil	32		1
Cameroon		1	
Central African Republic		1	
Chile		1	
Congo, Dem. Rep.		2	
Congo, Rep.	1	1	1
Gabon		1	
Liberia		3	
Mozambique		1	
Romania	2	1	
Russian Federation		20	

Data source: (The Land Matrix 2023)

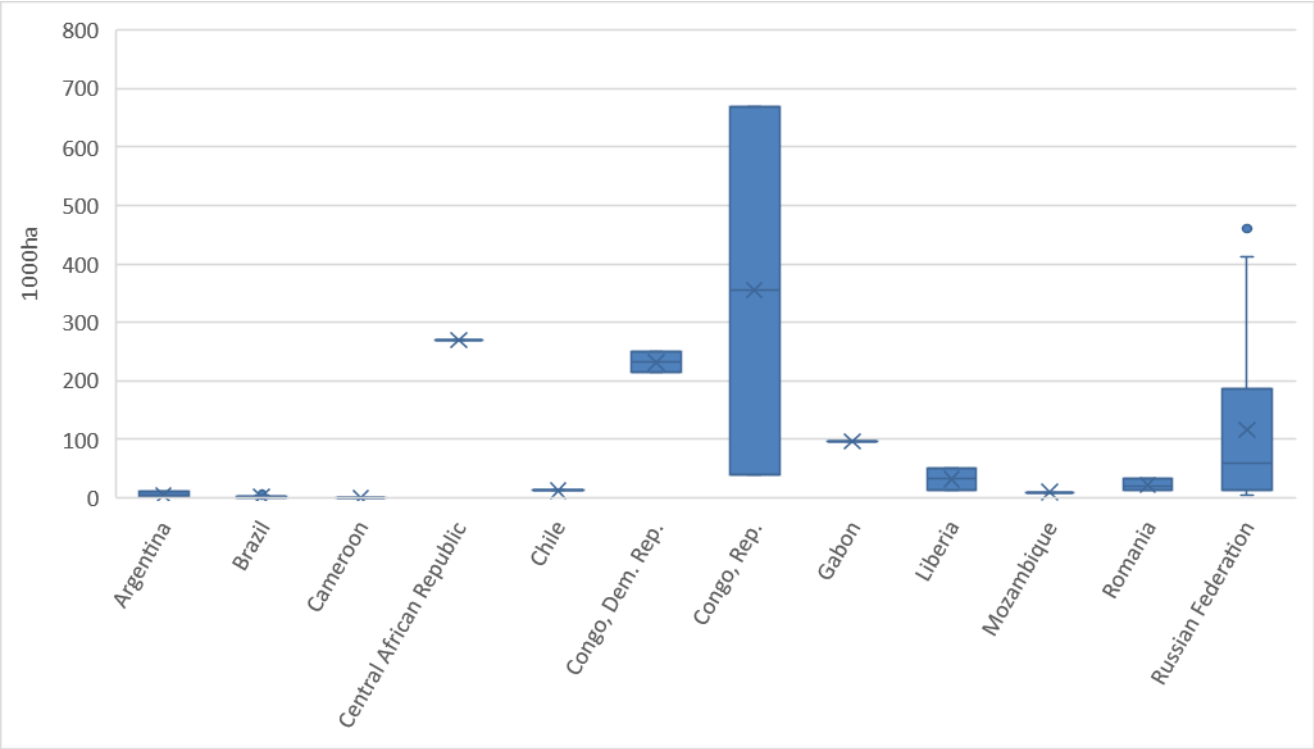


FIGURE 9: SIZE OF TRANSNATIONAL FOREST LAND DEALS BETWEEN 2015-2023

Data source: (The Land Matrix 2023)

Governments can use regulatory instruments to attract or limit FDI. The UNCTAD maintains a database (Investment Policy Monitor) with information on changes in national FDI policies. For the period 2015-2022, the database contains information on changes to FDI policies related to forests in six countries (see Table 8). While in Gabon, China, Indonesia, and North Macedonia the changes seek to attract foreign investors, the changes in New Zealand and Poland rather tighten the regulations.

TABLE 8: CHANGES TO FDI POLICIES CONCERNING FORESTRY (2015-2022)

Country	New or changed regulations affecting FDI in the foresty sector (2015-2022)
Gabon	A new Special Economic Zone, the Mpassa-Lebombi, was announced that aims at attracting investment in the agricultural and forestry sectors. Firms wishing to set up in this zone need to export at least three-quarters of their production. In return, they receive tax exemptions, efficient infrastructure and access to the local resources.
China	The manufacturing and application of new technology and new products for forestry biomass were included to the list of encouraged industries for foreign investment at the national level.
Indonesia	The "Omnibus Law" aims to attract investment, create new jobs, and stimulate the economy by, among other things, simplifying the licensing process and harmonizing various laws and regulations, and making policy decisions faster for the central government to respond to global or other changes or challenges. Inter alia, it simplifies environmental assessment requirements and licensing procedures, dispenses with statement of environmental

	management and monitoring capability, integrates environmental permits and business licenses, removes the concept of strict liability and limitations on minimum forest cover for river basins and islands, and creates scope for greater government discretion in permitting forests.
North Macedonia	Regulations on strategic investment were adopted that offer special treatment to investment projects of a certain size and that meet certain geographical conditions. Among others, investment projects in forestry are eligible to apply for the preferential treatment.
New Zealand	The Overseas Investment (Forestry) Amendment Act 2022, made the test for overseas investors interested in converting land into new production forestry, more stringent.
Poland	Rules for the purchase of agricultural and forest land were changed so that, among other things, the State Treasury represented by the State Forests Agency now holds a pre-emption right with respect to the sale of forest land.

Source: (UNCTAD 2023)

2.4.4. Private equity

TIMOs

In the USA, timber companies were traditionally vertically integrated to secure their supply of timber. In the 1980ies they started outsourcing the management of the land and the harvest of the timber to TIMOs (Mei 2019). Due to the favorable forest conditions and special tax provisions, TIMOs emerged in the South US and later Pacific Northwest and Northeast. TIMOs manage the timberland for their investors but do not own the land. Among the 10 largest timberland managers in the U.S. and Canada, there are 6 TIMOs. These are Manulife (Hancock), Resource Management Service (RMS), Wagner Forest Management, Forest Investment Associates (FIA), The Forestland Group, and Molpus Woodlands Group. Together they manage approx. 5.5million ha (FORISK 2022a). In recent years, the timberland market has consolidated and there is expectation that mergers, acquisitions, and joint ventures will continue or increase (Mei 2019).

Institutional investors from OECD countries together with US-based TIMOs are the big players in the timberland market. In 2020, US-based TIMOs invested USD49 billion for their clients, of which USD23 billion was from non-US institutions (Timberlink 2021, cited in Zhang 2022). As the North American market started becoming saturated, institutional investment expanded to other geographies. Estimates suggest that around 66% of the institutional investment is in the USA, 19% in Australia and New Zealand, 9% in Latin America, 3% in Canada and Asia, and 1% in Africa and Europe (TimberLink 2018, as cited in Chudy and Cubbage 2020). In Latin America, especially Brazil and Columbia and in Asia Malaysia and Laos have seen foreign institutional investments (Binkley et al. 2020). In Uruguay, domestic pension plans are large investors in domestic forest funds. Similarly in Brazil, there is some domestic investment from pension plans in forest funds, although the interest by international pension plans allegedly has been stronger (Binkley et al. 2020).

Smallholders

At a global scale, smallholder tree farming is a multi-billion dollar business that provides jobs and income to millions but it is rarely reflected in national accounts due to the informality of the sector

and lack of data (Midgley et al. 2017). Planted forest areas are increasing significantly and in several countries smallholders are increasingly playing an important role in the provision of industrial wood (Arvola et al. 2020). Land and tree tenure as well as wood demand have been found to be key factors to propel smallholder commercial tree growing (Arvola et al. 2020), while deficient access to finance is often a limiting barrier (Tomaselli et al. 2013). The Forest and Farm Facility aims at strengthening smallholders by providing financial support and technical assistance, inter alia to strengthen tenure rights (FAO 2023). From 2018-2022 global contributions to the Forest and Farm Facility were USD39million (FAO 2022). However, empirical research on microfinance in more general terms suggests that this type of finance has modestly positive effects but lacks transformative impacts .

From a more bottom-up perspective, Starfinger et al. (2023) explain that there are different channels through which smallholders can access credit. They identify three main channels: firstly, banks and non-bank financial institutions (e.g. development banks, credit cooperatives, savings unions), secondly, private sector actors (e.g. enterprises, sawmills, local traders, or other individual credit providors), and thirdly, NGOs or local organizations. However, smallholders often encounter difficulties in accessing the formal credit market. Banks can be hesitant to accept trees as collateral because bankers are unfamiliar with the forest sector and have little experience in valuing trees and there is substantial risk that the trees could be lost, e.g. due to theft, fire, storm, or mismanagement (Starfinger et al. 2023). From a regional perspective Starfinger et al. (2023) put forward that much of the literature provides case studies from Asian countries while comparatively few case studies cover Latin American and African countries. Case studies from Europe only addressed formal access to credit. There is very little data on volumes of finance provided to smallholders. One exception is provided by Liu et al. (2017) who report that loans using forestland as collateral reached 13.2 billion US dollars in China (although it is not entirely clear which timespan this number refers to).

2.4.5. Public equity

There are several ways retail investors can access forest assets. They can purchase shares of timber Real Estate Investment Trusts (REITs), funds – in particular forestry index exchange-traded funds (ETFs), or publicly traded shares of forest companies (Binkley et al. 2020). However, there are very few 'pure play' publicly traded forestry companies and they are characterized by small market capitalization and little market liquidity (Binkley et al. 2020).

REITs emerged as US-based investment vehicles in the 1960ies. They finance or own income-generating real estate properties within any of 12 defined property sectors. One of these property sectors is timberland (Baral and Mei 2022). The first US-based timber REIT was established in 1999. Today there are 4 US-based timber REITS (in parentheses approximate market capitalization as of February 2023 based on https://companiesmarketcap.com/): Weyerhaeuser (USD24.07 billion), Rayonier (USD5.22 billion), PotlatchDeltic (USD3.92 billion), and CatchMark (USD0.51 billion). Apart from owning or managing forests in the USA and Canada, especially Weyerhaeuser and PotlatchDeltic are also significantly involved in the lumber supply chain. Rayonier and CatchMark rather pursue so-called 'pure-play' timber models.

Three forest- and timber-related funds are briefly presented below. Only these three were identified through searches on websites providing financial data, but there could be further similar funds that were not captured in the search.

The 'iShares Global Timber & Forestry UCITS ETF' was launched in 2007 and has 29 holdings. It is listed on the SIX Swiss Exchange, London Stock Exchange, Xetra, and Bolsa Institucional de Valores.

The 'Invesco MSCI Global Timber ETF' was also launched in 2007. It currently has 82 holdings and is traded at the NYSE ARCA. The 'Pictet - Timber - P USD' was launched a year later in 2008. It is an actively managed fund and as of January 2023 has 59 holdings. Table 9 shows the top 10 holdings in each of the funds. The darker the color the more of a portfolio share is allocated by one of the funds to the company (left column). As can easily be seen, there is a lot of overlap between the funds, for example all three funds hold shares of the Weyerhaeuser REIT. The REITs Rayonier and PotlatchDeltic are also listed among the top 10 holdings for two of the funds. Apart from the REITs, the funds mostly invest in paper and packaging companies.

TABLE 9: 10 TOP HOLDINGS OF THREE FOREST- AND TIMBER-RELATED FUNDS

Share of fund's portfolio	iShares Global Timber & Forestry UCITS	Invesco MSCI Global Timber ETF	Pictet - Timber - P USD
Amcor		5.17	
Avery Dennison		4.93	
Graphic Packaging Holding Co			2.51
Holmen Class B	4.46		
International Paper	4.7	4.96	
Mondi		3.9	
Packaging Corp of America		5.09	
PotlatchDeltic Corp	4.68		6.39
Rayonier Reit Inc	5.36		6.32
Smurfit Kappa	5.54	4.3	
Stora Enso	5.12	3.67	2.73
Suzano SA			2.75
Svenska Cellulosa B	6.14		3.17
UFP Packaging LLC			2.29
UPM-Kymmene		5.39	2.35
West Fraser Timber Ltd	4.7		3.93
Westrock	5.01	4.23	
Weyerhaeuser	8	4.89	6.62

Data sources: BlackRock (2023)[3], INVESCO (2022), PICTET Asset Management (2023)

2.4.6. Blended finance

As mentioned above, blended finance is the strategic use of development finance to mobilize additional financial resources for sustainable development (OECD 2018). The combination of public or philanthropic and private finance reduces the risk for private investors and can make investments in emerging markets attractive that private investors on their own would deem to be too risky. According to a recent OECD report, from 2015-2020 official development assistance leveraged private sector financing amounting to nearly USD250billion in total (OECD 2023c). From 2018-2020, USD13.5billion of private finance were mobilized in the production sector. Thereof, 4% (or around USD0.54billion) were leveraged in the forestry sector (OECD 2023c).

[3] Note that Global Canopy has identified BlackRock as one of the major financiers of companies in forest risk commodity supply chains.

The ‘Mobilizing Finance for Forests’ program launched by the UK government and the Dutch entrepreneurial development bank (FMO) is an example of a blended finance investment program. It is managed by the Dutch entrepreneurial development bank and aims to unlock ‘private sector investment in projects that protect and restore tropical forests across Africa, Asia and Latin America’ (FMO 2023). It invests in projects that increase the value of standing forests and projects that reduce deforestation pressure by integrating forest protection and restoration into agricultural production. The fund will allocate £150million (~USD182,4million) and expects to leverage more than one billion USD from the private sector (FMO 2023).

A further example is the ‘eco.business Fund’ which ‘aims to promote business and consumption practices that contribute to biodiversity conservation, to the sustainable use of natural resources and to mitigate climate change and adapt to its impacts, in Latin America, the Caribbean, and sub-Saharan Africa’ (eco.business Fund 2023). Forestry is one of the fund’s priority sectors. The fund uses three channels to invest in its target group: investments in local financial institutions, direct investments to businesses and financing to real-sector intermediaries.

2.4.7. Emerging and innovative finance

There is currently no agreed definition on exactly what innovative finance is. Rather it can be described as complementary voluntary contribution that can assist developing countries in mobilizing additional resources for development (United Nations General Assembly 2011). For the purpose of this report, sustainable finance initiatives, in particular PES including REDD+, and Green Bonds are placed under this heading. Begemann et al. (2023) investigate the relationship between forests and sustainable finance. In interviews with over 50 experts mostly from Europe, they identified several narratives on how forests connect to sustainable finance. These narratives reached from optimistic views that forests are attractive as an asset class and that public finance should leverage more private finance, over considerations on the role of (un-)sustainable finance in driving deforestation and its ability to mitigate climate risks, to skepticism that private finance could solve public forest issues (Begemann et al. 2023).

PES

Over the past decades PES programs have evolved from small, experimental pilot projects to large-scale funding opportunities in forest areas. PES programs provide incentives to landowners or land stewards to manage their land in an environmentally more friendly way. Key aspects of PES are that they are voluntary and payments are made conditional on agreed rules of natural resource for offsite services (Wunder 2015). PES programs can target services that benefit people at the local-level (e.g. hydrological services provided by forests to cities or water companies), at the region level (e.g. China’s Grain for Green program with payments for water and soil quality improvements through re- and afforestation on sloped land), or the global-level (e.g. REDD+ in developing countries) (Alix-Garcia and Wolff 2014).

PES programs for forest ecosystem services have been mainstreamed in Latin and South America and often include social as well as environmental targets. In a review of PES programs in the Amazon region, Montero-de-Oliveira et al. (2023) identify factors related to program implementation that can increase as well as decrease chances of achieving the program aims. In particular they find that combining payments with in-kind benefits and capacity building can play-out positively. As often,

trust building is key and can be fostered through equitable and transparent participation. By contrary, confidence in a program can be damaged by unequally distributing information among stakeholders belonging to different social and ethnic groups. Unreliable payments and discretional targeting can further hamper stakeholders' willingness to participate and comply with a PES program's targets (Montero-de-Oliveira et al. 2023). These factors are largely consistent with other reviews of PES that especially point to adverse self-selection issues, which result in a lack of additionality. Implementation deficiencies on the side of administrators can be major constraints, such as selecting low-risk areas for program implementation and attaching too many objectives to a program (Wunder et al. 2020).

Improvements in land tenure security can provide opportunities for up-scaling PES in tropical regions. It will be important to closely review and learn from existing experiences with PES to design and implement programs with realistic goals.

REDD+

REDD+, which can be seen as a global-level PES, sets out to reduce greenhouse gas emissions from deforestation and forest degradation. REDD+ implementation follows a phased approach "beginning with the development of national strategies or action plans, policies and measures, and capacity-building, followed by the implementation of national policies and measures and national strategies or action plans that could involve further capacity-building, technology development and transfer and results-based demonstration activities, and evolving into results-based actions that should be fully measured, reported and verified" (UNFCCC 2011).

In terms of financing, the rationale is that high-income countries pay low- and middle-income countries for reducing emissions by avoiding deforestation and forest degradation. REDD+ financing programs have generally been aligned to the phased approach. REDD+ funding has been disbursed mainly through 8 bilateral and multilateral initiatives (see Figure 10). In sum, the deposited contributions listed in Figure 10 amount to USD3988million (note that this data includes funding before 2015). The largest contributions have been made by the governments of Norway and Germany (Parrotta et al. 2022).

However, many countries are still working on reforms to become REDD+ ready and are not yet entitled to receive results-based REDD+ finance (Forest Declaration Assessment Partners 2022). Some frustrations may be arising over the slow speed of reforms in the REDD+ countries and slow disbursement of funds on the part of the donors.

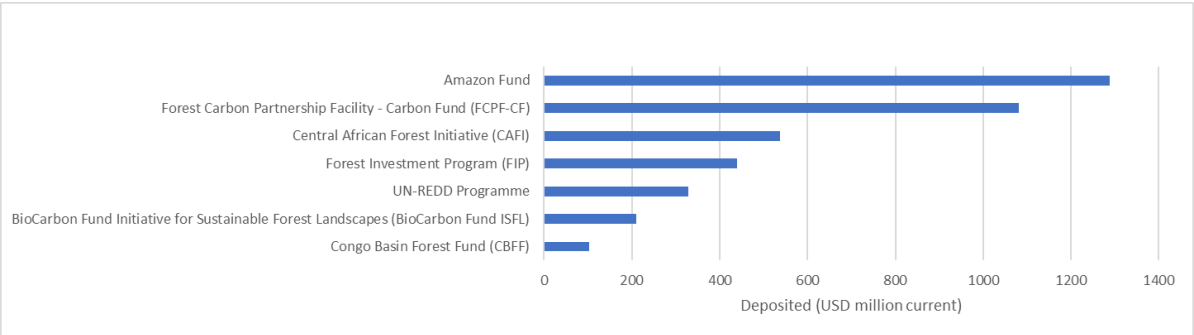


FIGURE 10: REDD+ FUNDS

Source: Climate Funds Update (2023b)

However, demand from companies has allowed the voluntary carbon market to substantially grow. The volume of credits traded in the voluntary carbon market increased by 89% in 2021 (Forest Declaration Assessment Partners 2022). Forestry and land use projects made up for 45% of the credits on the voluntary market where as only 10% of credits in the compliance market originated from schemes that allow using forest carbon credits (Forest Declaration Assessment Partners 2022).

Green bonds

Bonds can be issued by companies as corporate bonds or by different levels of government as public debt. For instance, bonds can be issued by supranational agencies, by governments as sovereign bonds, or by local governments as municipal bonds (Schoenmaker and Schramade 2021). Bond holders receive the face value of the bond at maturity and (usually) coupons, i.e. periodic interest payments. Green bonds are a comparatively new type of bond that focus on financing green projects. There is no universally agreed definition of what qualifies as green bond, but there are voluntary guidelines such as the 'Green Bond Principles' (ICMA 2022), or sovereign taxonomies, such as in the EU, China, or Columbia that list various forestry activities (including, sustainable forestry, afforestation, reforestation, forest restoration) as eligible uses of the proceeds of a green bond (European Commission 2023; People's Bank of China et al. 2021; Government of Columbia 2023).

Green bonds emerged in 2007 and after a slow pick-up have grown quickly in recent years (Schoenmaker and Schramade 2021). The Climate Bonds Initiative reported that at the end of September 2022, the cumulative green bond issuance passed USD2tn. Since 2015, energy, buildings and transport have captured at least three-fourths of the bond market volume. Forestry bonds make up for only a small slice of the overall volume. In 2017, the volume of outstanding green bonds was USD118 billion and 2% thereof were being issued in the forestry sector (The World Bank 2017). As of June 2022, the volume of the green bond market amounted to USD1464.5bn. In terms of the use of proceeds, 3% were attributed to the land use sector (Climate Bonds Initiative 2023).

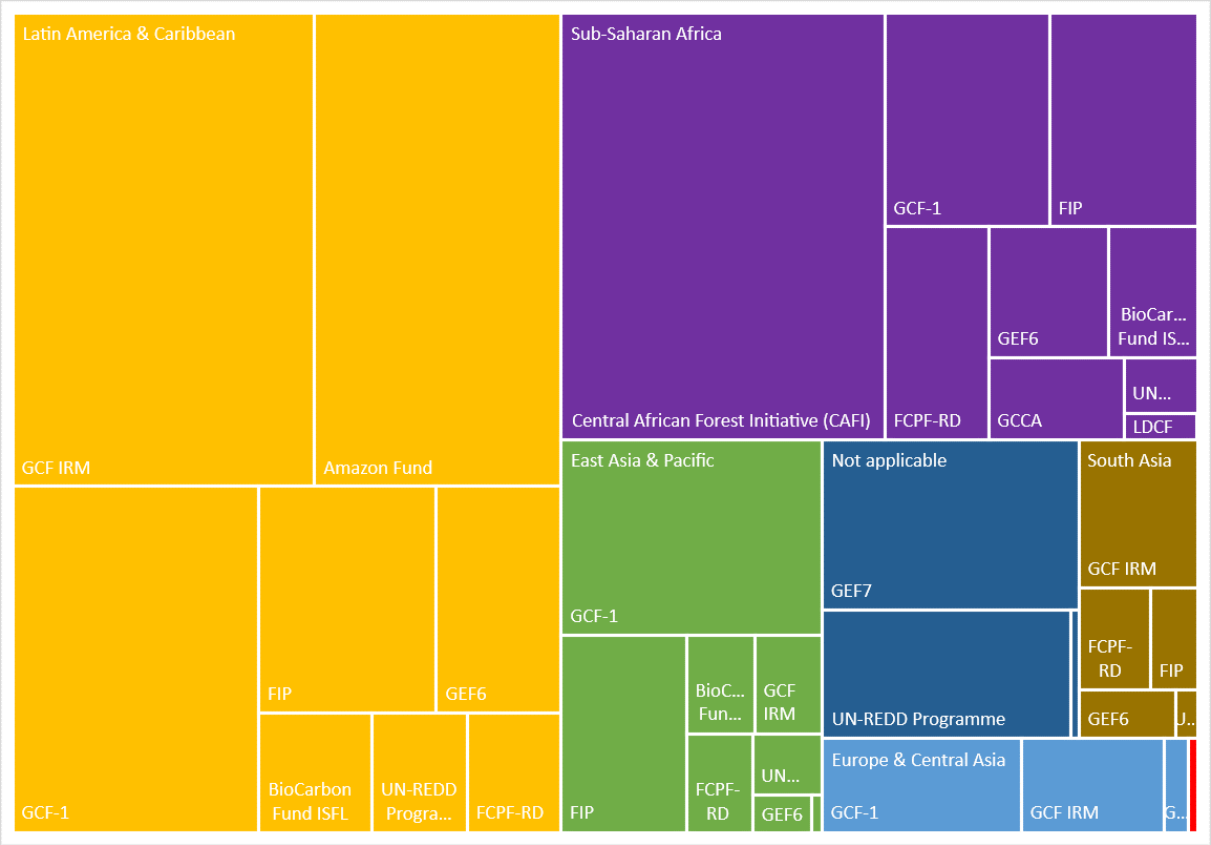
According to Cranford et al. (2011), two types of investors may be particularly interested in forest bonds – impact investors and institutional investors. Impact investors are motivated by the impact that their investment decisions can make next to the prospects in terms of financial returns. Institutional investors may be interested in the diversification potential provided by forest bonds, but are likely to require excellent investment grade credit ratings and high liquidity (Cranford et al. 2011).

2.5. Regional distribution of resources for forests

Several data platforms and publications provide information on forestry marked funds by recipient country. None of them is comprehensive in covering all SFM funding. While some sources provide data for single funds, others cover multiple funds but report only on a specific topic, notably climate finance. Thus, to some extent, the data provided by different platforms and initiatives may overlap. The OECD database which allows to investigate forestry marked funding by donor, does not provide an option to investigate the same funding flows by recipient country. The subsections below thus present information on the regional distribution of SFM funds by data platform.

2.5.1. Recipients of climate funding for forests

The Climate Funds Update initiative provides data on multilateral climate finance initiatives and allows to filter by sector. Between 2015 and 2022, the total amount of forestry funding tracked by the initiative from a set of 13 funds4 amounted to USD2168.8 million. These resources were disbursed to 64 recipients. Half of the resources went to five recipients: Brazil (21%), Dem. Rep. Congo (9%), Indonesia (8%), Global program support funding (7%), and Argentina (4%). In terms of regional distribution, 46% of the funding went to Latin America, 28% to Sub-Saharan Africa,11% to the East Asia & Pacific region, 8% to non-country specific recipients, 4% to South Asia, 4% to Europe and Central Asia, and 0.1% to the Middle East and North Africa (see



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[4] Adaptation Fund (AF), Amazon Fund, BioCarbon Fund Initiative for Sustainable Forest Landscapes (BioCarbon Fund ISFL), Central African Forest Initiative (CAFI), Forest Carbon Partnership Facility - Readiness Fund (FCPF-RF), Forest Investment Program (FIP), Global Climate Change Alliance (GCCA), Global Environment Facility (GEF6), Global Environment Facility (GEF7), Green Climate Fund (GCF-1), Green Climate Fund IRM (GCF IRM), Least Developed Countries Fund (LDCF), UN-REDD Programme

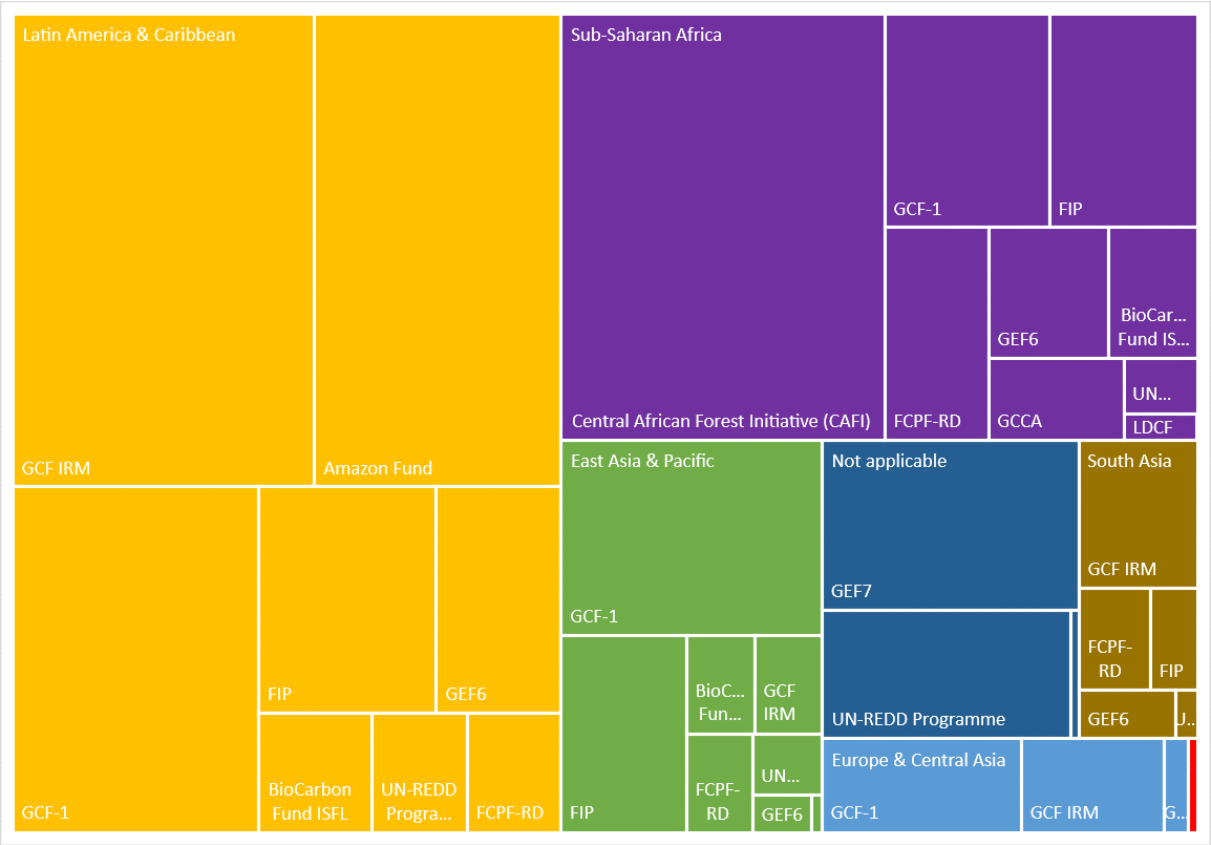

FIGURE 11: CLIMATE FINANCE 2015-2022 IN THE FORESTRY SECTOR BY WORLD BANK REGION

Data source: Climate Funds Update (2023a)

2.5.2. Recipients of GEF6 and GEF7 SFM funding

THE EVALUATION REPORT "GEF SUPPORT TO SUSTAINABLE FOREST MANAGEMENT" PRESENTS THE SFM RELATED GRANTS AND PROJECTS OVER THE GEF REPLENISHMENT PERIODS 1-7, USING MAY 2021 AS A CUT-OFF DATE (GEF IEO 2022). AS MENTIONED PREVIOUSLY, GEF 6 AND GEF 7 OVERLAP WITH THE TIMESPAN RELEVANT TO THIS REPORT. IN TOTAL, THE EVALUATION REPORT COUNTS 224 SFM RELATED GRANTS AND PROJECTS WITHIN GEF6 AND GEF7. THE GEF GRANTS FOR THESE PROJECTS AMOUNT TO USD1646MILLION WHICH WERE PAIRED WITH CO-FINANCING AMOUNTING TO USD12076MILLION. THE DATA ON COUNTRIES' GEF GRANTS AND CO-FINANCING IS PLOTTED IN FIGURE 12: SFM GEF PROJECTS, GRANTS AND CO-FINANCING (GEF6 & GEF7, UNTIL MAY 2021)

(labels are added to the datapoints of the 20 largest recipients of SFM GEF6 and GEF7 funding). Brazil was the largest recipient, followed by funding for global projects, Colombia, Peru and Mexico. Latin and South American countries received approximately 30% of the GEF funds. Note that the sum of GEF6 and GEF7 funds included in the Climate Funds Update initiative (see previous section) is smaller than the amount of GEF6 and GEF7 SFM funding that is included in the evaluation by GEF IEO (2022).

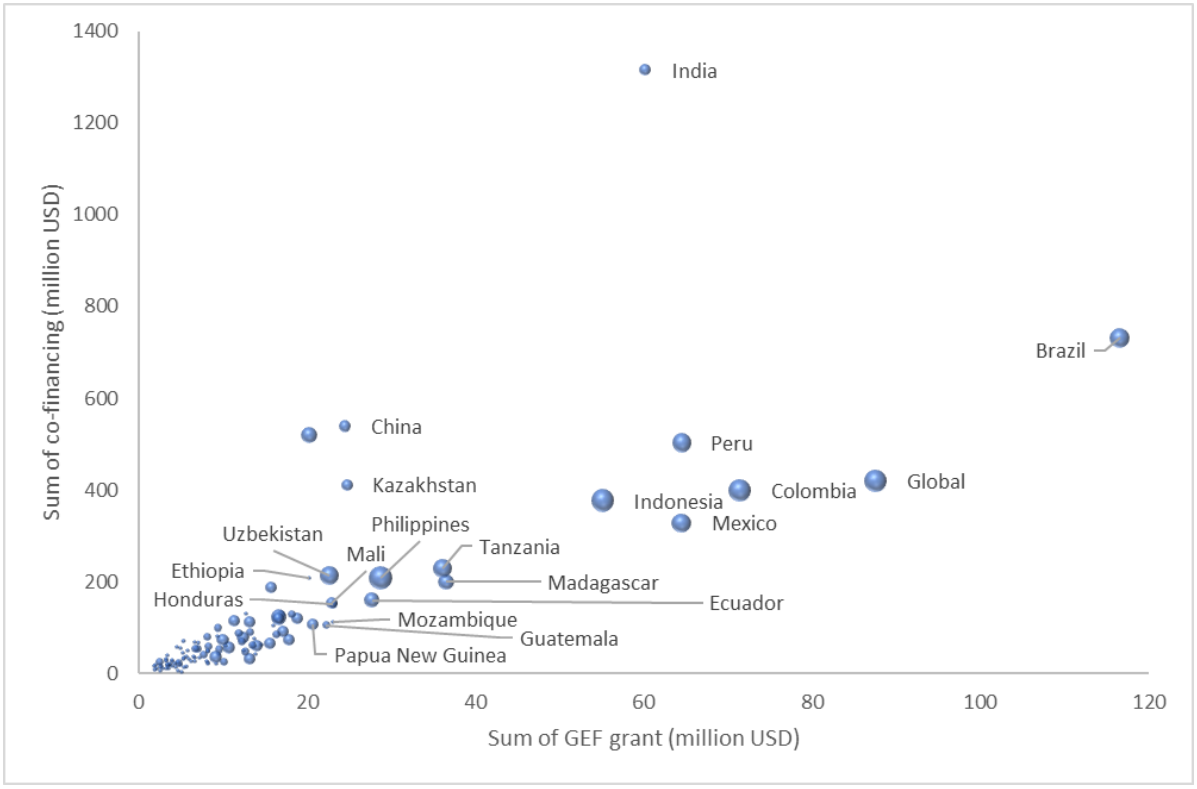

FIGURE 12: SFM GEF PROJECTS, GRANTS AND CO-FINANCING (GEF6 & GEF7, UNTIL MAY 2021)

Source: GEF IEO (2022)

Note: The size of the bubbles indicates the number of SFM funded projects in a country.

IN TERMS OF REGIONAL DISTRIBUTION, THE LARGEST SHARE OF THE SFM GEF6 AND GEF7 FUNDS HAVE GONE TO LATIN AMERICAN AND CARIBBEAN STATES (32.8%) AND SIMILAR SHARES HAVE GONE TO AFRICAN STATES (29.2%), AND ASIA-PACIFIC STATES (30%) (SEE FIGURE 13: REGIONAL DISTRIBUTION OF SFM GEF& AND GEF7 FUNDS

Source: GEF IEO (2022)

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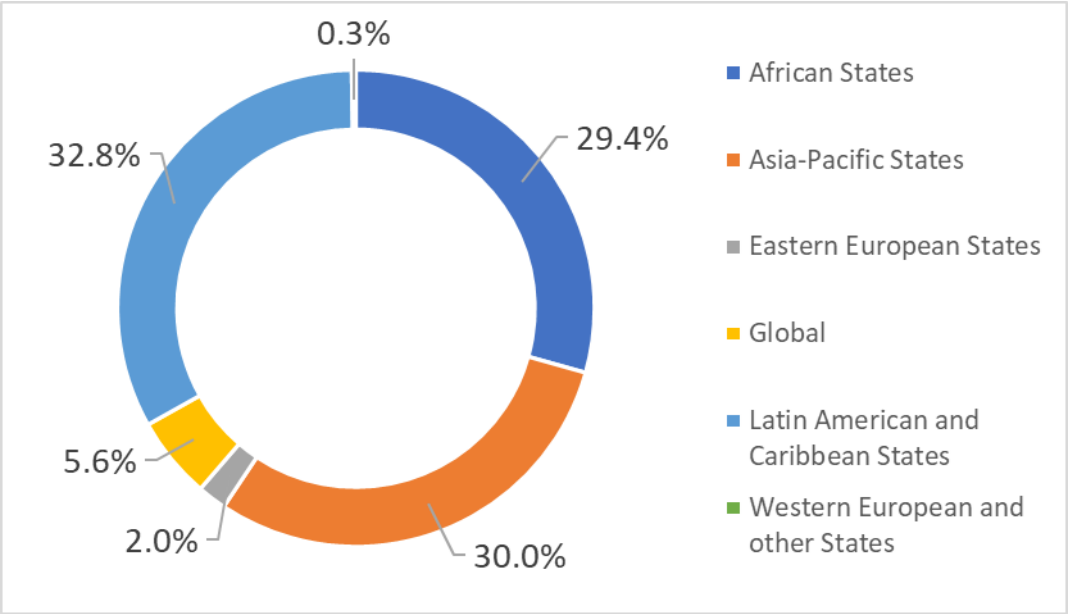

FIGURE 13: REGIONAL DISTRIBUTION OF SFM GEF& AND GEF7 FUNDS

Source: GEF IEO (2022)

2.5.3. Self-reported forest sector funding

THE IATI DATABASE ALLOWS GOVERNMENTS, MULTILATERAL INSTITUTIONS, PRIVATE SECTOR AND CIVIL SOCIETY ORGANIZATIONS AND OTHERS TO REPORT INFORMATION ABOUT THEIR DEVELOPMENT AND HUMANITARIAN ACTIVITIES. APPLYING AVAILABLE FILTERS[5] TO SEARCH THE IATI DATABASE FOR RESOURCES FOR FORESTS, REVEALS THAT FOR THE YEARS 2015-2023, THE REPORTED BUDGETED RESOURCES FOR FORESTS AMOUNT TO USD5896MILLION. (THE DATA IN THIS TIME SPAN IS NOT DIRECTLY COMPARABLE TO THE OECD DATA, BUT FOR THE PERIOD 2015-2021 WHICH IS COVERED BY BOTH DATABASES, THE SUM OF RESOURCES REPORTED BY THE OECD DATABASE (USD8056MILLION) IS LARGER THAN THAT REPORTED BY THE IATI DATABASE (USD4386MILLION SPENDING; USD4308MILLION BUDGET)). THE IATI WEBSITE PROVIDES A TOOL FOR VISUALIZING THE DATA BY RECIPIENT COUNTRY. OVERALL, THE DISTRIBUTION PATTERN OF RESOURCES FOR FORESTS IN FIGURE 14: AVAILABLE RESOURCES FOR FORESTS REPORTED IN THE IATI DATABASE

is similar to the patterns described by other sources. Latin and South America, Sub-Saharan Africa, as well as South-East Asia are the major receiving regions.

[5] Filters applied: Resource Flows: Disbursement, Expenditure, Budget; Sector Category: Agriculture, Forestry, Fishing; Sector: Forestry policy and administrative management, Forestry development, Fuelwood/charcoal, Forestry education/training, Forestry research, Forestry services; Calendar Years: 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023

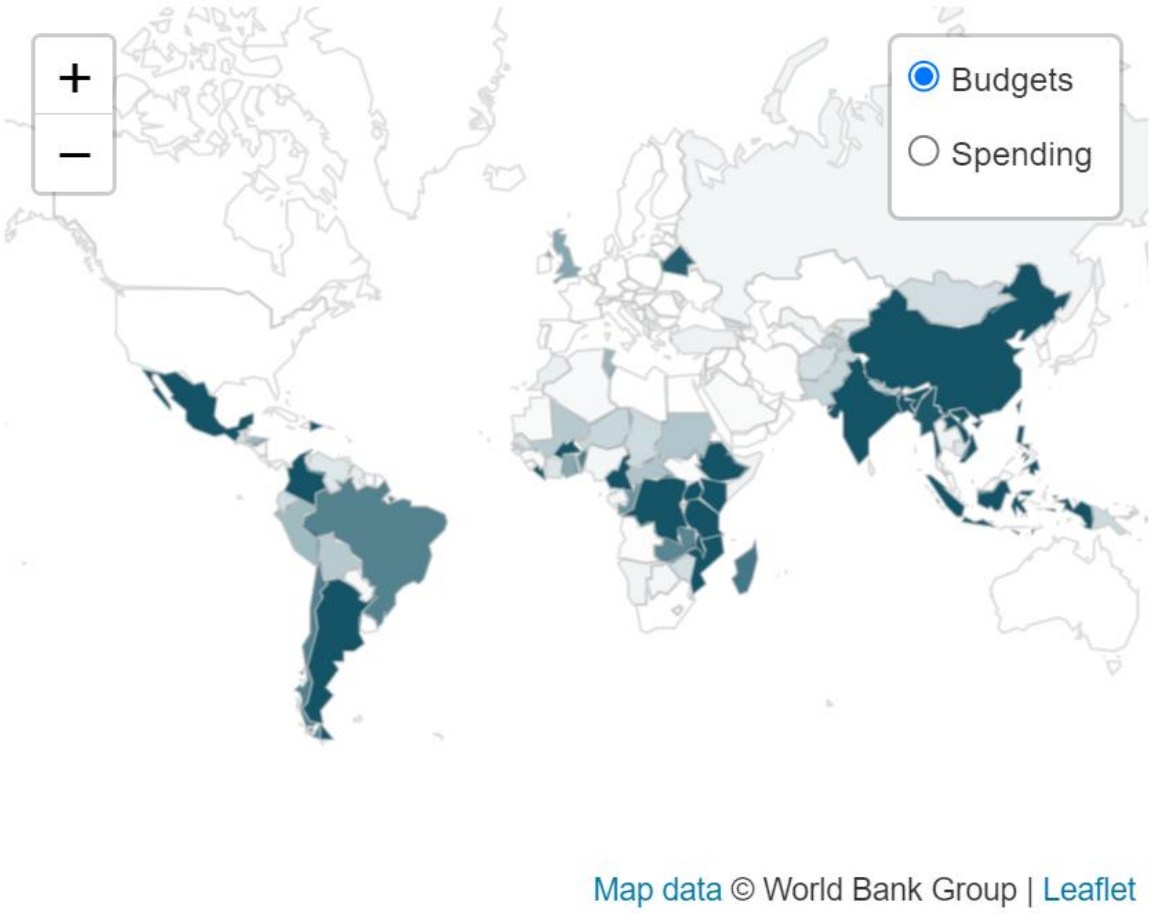

FIGURE 14: AVAILABLE RESOURCES FOR FORESTS REPORTED IN THE IATI DATABASE

Source: IATI (2023)

2.5.4. Regional distribution of land deals

The Land Matrix database was referenced above to inform on the scope of forest land deals. The database also allows to visualise the transnationality of the land deals. As can be seen in **Error! Reference source not found. Error! Reference source not found.**, many of the forest land deals are made across, rather than within continents. Eight African countries have been recipients of inbound forest land investments and two (Nigeria and Gabon) have been providers of outbound investments. In South America, Brazil, Argentina, and Chile are recipients of inbound investments while one land deal was made from the British Virgin Islands to the Russian Federation. The Russian Federation has also received incoming investments from three further countries.

The Western-European countries as well as South-East Asian countries and the USA have mostly seen outbound investments into other countries but little inbound investments.

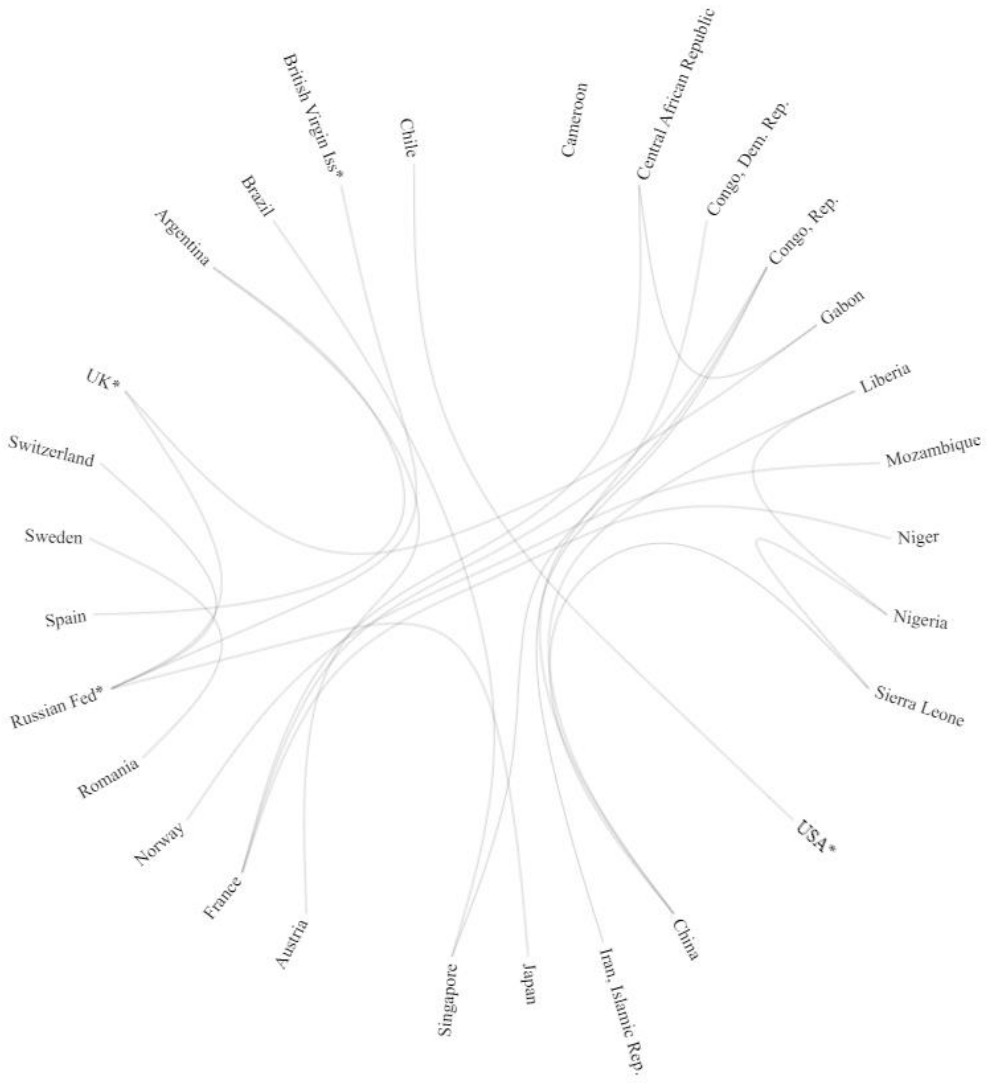

FIGURE 15: TRANSNATIONAL FOREST LAND DEALS

Source: The Land Matrix (2023)

These findings are largely consistent with the analysis by Korhonen et al. (2016) who find that South America has attracted forest land investments from many parts of the world while in Asia there have been few land deals with companies outside of Asia. They also find that Asian forestry companies are more active in the African forest land market than companies from other (non-African) regions.

2.6. Major thematic areas of enabling finance

Within the scope of this consultancy, it is not possible to assess all enabling finance projects and investments into forest assets on their alignment with the SFM thematic areas. Instead, the aims and goals of the major funds described above are cross-checked against the SFM thematic areas.

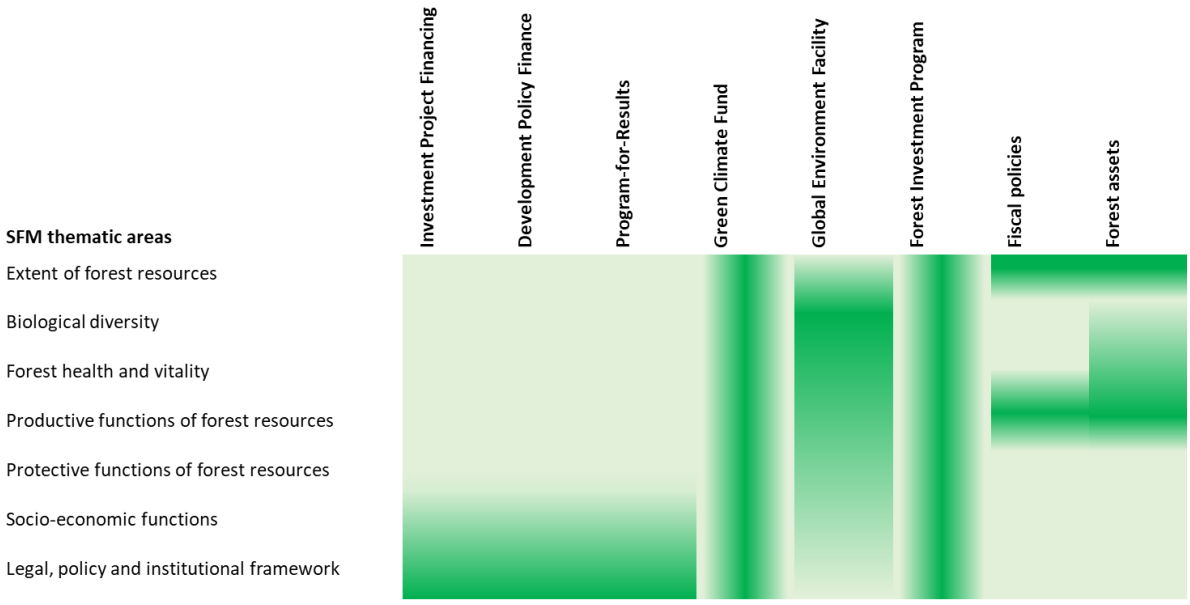

FIGURE 16: REFLECTION OF THE SFM THEMATIC AREAS AMONG VARIOUS FUNDING SOURCES

Source: Author's own interpretation; Note: dark green color stands for weight given to one of the SFM thematic areas.

The World Bank's Investment Project Financing aims to promote poverty reduction and sustainable development of member countries by providing financial and related operational support to specific projects that promote broad-based economic growth, contribute to social and environmental sustainability, and enhance the effectiveness of the public or private sectors (The World Bank 2021). These aims relate mostly to the SFM thematic areas 'Socio-economic functions' and 'Legal, policy and institutional framework', although the other thematic areas are not excluded. As mentioned above, Development Policy Finance (DPF) supports lending countries in conducting policy and institutional actions for achieving sustainable, shared growth and poverty reduction. This relates to the SFM thematic areas 'Socio-economic functions' and 'Legal, policy and institutional framework'. Some DPF may directly target the forest sector and SFM. However, in the fiscal years 2016-2021, less than 20% of the DPF Prior Action was related to environment and natural resource management (The World Bank 2022). Importantly, DPF in other sectors also must consider potential effects on forests. Applying the Environmental, Forests and Natural Resources Aspects of DPF policy, requires assessing whether specific country policy reforms supported by a Development Policy Financing (DPF) are likely to cause significant effects on the Member Country's environmental, forests, and other natural resource effects. If such likely effects are identified, it is necessary to assess the Member Country's systems for managing such effects, including measures to address any identified gaps or shortcomings in such systems (The World Bank 2023a). However, no guidance is provided on which indicators to use so that relating the assessment requirement to the SFM thematic areas is difficult. The World Bank's Program for Results Financing aim at promoting sustainable development and improving the efficiency and effectiveness of expenditures. The program seeks to strengthen institutions, enhance systems and build capacities (The World Bank 2023e). The Bank Policy on program for results financing does not refer explicitly to SFM.

The GCF seeks to contributing to achieving the goals of the Paris Agreement by supporting forest protection, forest restoration and SFM. SFM thus is a central element in the GCF. The GEF SFM portfolio evaluation referred to previously, also investigates the focal areas of the projects for GEF1-

GEF7 (until May 2021). The authors find that while there initially was a strong focus on biodiversity, multifocal area projects were progressively emphasized (GEF IEO 2022). 44% of the portfolio were multifocal projects. Among the single focal areas, biodiversity was the most frequent focal area, with some projects also addressing land degradation, climate change, and international waters. The FIP within the CIF seeks to support developing countries in achieving a reduction in deforestation and forest degradation and in implementing SFM. SFM is thus a main strategy of the FIP.

Many of the fiscal policies related to forests that were identified in the OECD PINE database are timber taxes. Investments in forest assets are typically focused on the productive functions of forests and eventually the extent of forest resources. The importance of the other SFM thematic areas is likely to vary case by case, e.g. depending on the certification status of a forest.

3. Gaps and constraints

Section 2.1 presented estimates on the need for funding to achieve sustainable forest management and eliminate deforestation globally. These estimates ranged between USD70 billion and USD460 billion annually. Section 3.3 and 2.4 presented findings on the volumes of enabling finance and investments into forest assets that have been mobilized since 2015. The former reached a high-score of around USD1.6 billion, in 2021. Due to a lack of data, it is difficult to assess the flows of investments into forest assets. Overall, the diversity (and lack) of data sources precludes any meaningful aggregation and thus computation of a difference between annual funding needs and the mobilized funding. However, the magnitude of the numbers makes it obvious that the sum of mobilized resources for SFM falls short of the estimated resource needs.

Section 2.6 investigated to what extent the thematic areas of SFM are reflected among the goals of various funding sources. Especially the GCF, FIP, and GEF (especially in more recent years) have incorporated SFM into their programs. The scope of the World Bank Financing opportunities is very broad and thus SFM is not explicitly mentioned in the goals. However, this by no means excludes that SFM can also be relevant in individual projects. Overall, the analysis did not reveal any thematic gaps in terms of funding opportunities for the SFM thematic areas. There are funding bodies that address all SFM thematic areas, but the volume of resources remains insufficient.

3.1.1. Gaps and constraints discussed in previous studies

Insufficient funding for forests, especially in developing countries, was already an issue in the 1990ies. Previous studies on forest financing identified several major barriers to mobilizing more funding. These included inadequacy or instability of policies, laws and regulations, preferences of decision-makers toward other sectors than forestry, competition for funds with other sectors, institutional weaknesses, economic and political uncertainty, as well as a need for capacity development among stakeholders at various levels that will allow them to take advantage of existing resources (Chipeta 1997; Advisory Group on Finance Collaborative Partnership on Forests 2012).

A main recommendation derived from these findings in the previous literature was to increase the volumes of funding for forests and to mobilize private resources. Further recommendations focused on actions that could be taken within the forest sector, e.g. the implementation of the forest instrument, exploring green accounting to reflect forest ecosystem services in GDP, finding consensus on whether to strengthen existing forest financing related mechanisms and/or establish a voluntary global forest fund. Great hopes were also placed in REDD+ as mechanism that could

channel financial resources to forests (Advisory Group on Finance Collaborative Partnership on Forests 2012).

Although overall funding levels have increased in recent years, data availability has improved, and the System of Environmental-Economic Accounting has made great progress, the funding gap remains enormous and many of the barriers identified in previous studies still remain valid today. The initial excitement about REDD+ has become somewhat subdued as progress has been slower than anticipated. Developing country governments are needing more time to initiate the major sectoral reforms necessary for becoming REDD+-ready, while developed country governments are behind in disbursing payments for emission reductions (Forest Declaration Assessment Partners 2022).

However, more recent literature also highlights that grey financing to sectors negatively impacting forests is magnitudes larger than available forest finance. Few private sector actors have implemented forest safeguards, including many of the major financial players that are most exposed to deforestation (Forest Declaration Assessment Partners 2022). Efforts to decrease policies that have indirect negative effects on forests need to be upscaled. Thus rather than only seeking to increase funding for forests, more needs to be done to decrease the incentives for deforestation and unsustainable forest management in other sectors which will entail a decrease in the overall need for funding (Deutz et al. 2020).

Markets for green financial products have seen a surge in the past couple of years. So far only a few emerging market countries apart from China have been able to gain a foothold in these markets, e.g. by issuing green bonds. Apart from the general lack of clear frameworks, regulations and reporting standards, emerging markets struggle with less ESG data availability and high dependence on foreign funding, which may not be seen favourably by private sector actors (NN 2023).

3.1.2. Survey findings on gaps and constraints

To identify gaps and constraints in mobilizing resources for forests, a survey with three questions was sent out by email by the author of the report in February 2023. The three questions were the following:

1. In your view, what are the gaps and constraints with regard to increasing the global availability of resources for sustainable forest management?
2. From your perspective, what are the gaps and constraints for gaining access to existing resources for forests?
3. In your opinion, what needs to be done to remove the gaps and constraints?

These three questions were sent to 30 experts with different affiliations that are relevant to the topic of forest finance: UNFF national focal points (5), large funding organizations (4), accredited entities (4), development banks (3), funds/initiatives (2), think tanks, researchers, and other experts (12). Care was taken to achieve a balanced representation of the different UN regions in the sample of experts.

Five responses were obtained, which corresponds to a response rate of about 17%. Two responses were received from representatives of large funding organizations, two from the group of think tanks, researchers, and other experts, and one from an UNFF national focal point. The respondents' answers to each of the three questions are summarized below.

Gaps and constraints with regard to increasing the global availability of resources for sustainable forest management

Several gaps and constraints were mentioned by the respondents including problems related to risk, different expectations, as well as insufficient coordination, knowledge and data.

- **Risk:** Geographies apart from North America, New Zealand, Australia, and partially Latin America are perceived as too risky by investors. Weak forest governance, poorly developed markets and logistics, as well as uncertainty about land tenure and the potential for conflict among various forest stakeholders, lead to investment risks. Governance factors are framework conditions for investments that are currently constraining a wider geographical distribution of timberland investments.
- **Different expectations:** Fundamentally different perspectives on whether forests should be financed by private finance or with public funds only can be a constraint. Similarly, there can be debates on what sustainability means in relation to enhancing sustainable finance for SFM and whether forests should be included as investment opportunity (e.g. forest green bonds) and/or in terms of managing risks, e.g. risk exposure to deforestation within the financial sector due to investing in agricultural supply chains.
- **Lack of coordination:** The poor sharing of information on available funds between governments, technical and financial partners, and the private sector can be a constraint. Similarly, language, location and education barriers can hamper the exchange between the forest and financial sectors.
- **Lack of knowledge, understanding and insufficient data:** There is a lack of knowledge and understanding of the gaps and constraints of resources for SFM, especially because resource types (e.g. timberland investments) have been investigated in isolation without considering trade-offs between types of resources. For example, heavy multilateral influence in a country is not necessarily perceived positively by private investment, because these institutions don't have a commercial mindset. The expectation that blended finance and impact investments for innovating SFM finance can foster SFM has not yet been substantiated by research. There is missing knowledge on the effectiveness and impacts of these types of finance. This may in part be due to the insufficient availability of data on private financial flows.

However, several respondents put forward that although efforts to increase the financial resources for SFM are important, the deficient availability of resources for SFM implementation is only a part of the problem. The opportunity cost of SFM paired with the constant search by the private sector, including institutional investors, for maximum profit generation is the more serious constraint. In other words, the profits that investors can make by unsustainably using the forest, by removing the forest for agriculture or mining are larger than the short-term profits that SFM can offer. In this sense, one respondent argued that it is necessary to acknowledge that non-green financial flows are magnitudes larger than green finance. From forest owners' perspectives these non-green flows can 'appear more sustainable over the long term, including because there is lasting demand for commodities which will also frequently help unlock public subsidies.' According to another respondent, it can also become 'difficult to convince governments to invest in sustainable forest management when more funds can be generated by mining'. A further respondent argued that the 'challenge lies less in increasing the availability of resources for SFM globally, but rather in bringing the existing available resources to effective use and in increasing globally available resources in forms

and under conditions that are meaningful for forest managers be they public, communal or private enterprises and individuals, large- or small scale'.

Gaps and constraints for gaining access to existing resources for forests

Two themes were put forward by many of the respondents: complicated (and cumbersome) administrative processes on the side of donors and need for capacity development on the side of developing countries. As one respondent put it, there is a mismatch between donor and recipient structures. The respondent further explained that 'most funding sources require a complex and costly application and appraisal process which few government partners are able or willing to embark on. However, it is not only a question of accessing funds, but also the challenge of absorbing funds into government systems through budget planning, allocation and spending.' On the side of developing country administrations, there can be gaps in capacities in terms of knowing whom to contact, how to access resources, how to administer funds and safeguards against risks in implementation, and how to translate resources obtained into tangible impacts, such as reducing deforestation rates. Moreover, several respondents explained that often forest projects or businesses are not professional enough to seek commercial investment, e.g. if they operate with very basic forms of accounting and financial transactions. Challenges can also arise when donor mindsets prevail within forest projects.

Respondents' suggestions for removing the gaps and constraints

The respondents provided suggestions for improvements in three areas: improving and creating new financing mechanisms, improving the knowledge base through research, and taking a broader systemic view to address the roots of the problem.

A respondent suggested to significantly increase funding from all sources, while ensuring more effective and efficient use of available resources and existing mechanisms. The respondents further suggested to consider new mechanisms such as debt buybacks for environmental purposes (that can help countries address external debt problems), or an international fund to support the management, conservation and sustainable use of all types of forests, and reach consensus on actions to be taken. Improving cooperation and coordination among donors at the country level was also mentioned.

In terms of research, a respondent suggested that studying risk perception and avoidance among timberland investors would be crucial. This type of research could help gain a better understanding of how climate change together with governance issues impact timberland investors' geographical selection of countries.

Finally, several respondents suggested to look at SFM finance within 'the broader landscape of financial flows that impact forests, both positively and negatively.' While it is important to align public and private finance with SFM objectives, it is at least as important to decouple global supply chains from deforestation. Examples for measures include the elimination of harmful subsidies and the introduction of regulations in support of deforestation free supply chains.

4. Conclusions and recommendations

Funding for forests has increased substantially in the period relevant to this report. At the same time as ODA funding for forests increased, the voluntary carbon market has become more mature and provides opportunities to generate financial resources for forests through REDD+. A market for forest assets, in particular timberland investments, is well-established in North America, New Zealand and Australia. Foreign direct investments in forest assets are happening in some developing countries, but there is little data on these markets. Investment risks that are constraining more foreign direct investments include weak forest governance, poorly developed markets and logistics, as well as uncertainty about land tenure.

The greening of financial markets has been picking up speed in the past couple of years. Although there still are a number of uncertainties concerning the role of forests in sustainable finance, the new developments are also opening doors for forest finance, e.g. through the nascent green bond market in emerging economies.

Despite these positive developments and new opportunities, there still is a huge funding gap. The barriers to forest funding are well-known and have changed little over the last 30 years. The barriers include investment risks due to unsolved governance issues, political and economic instability, different expectations among funding recipients and funding providers, insufficient coordination, as well as knowledge and data gaps.

Apart from these persistent issues, there is an increasing understanding that the amount of funding available to forests is dwarfed by the resources invested into sectors which often harm forests (e.g. agriculture, mining…). These sectors, and the capital backing them, so far have had little incentive to align the effects of their undertakings to SFM.

These conclusions call for enabling finance, investments into forest assets, but also policies disabling unsustainable forest management and deforestation. Different sets of recommendations for the GFFFN, governments, and last but not least, consumers in general are presented below.

GFFFN

The GFFFN is recommended to continue to provide information on forest financing opportunities and to provide trainings and capacity development related to forest financing. This includes continuing to develop and promote the Clearing House as a ‘hotspot’ for information on forest finance.

A further recommendation is to check at intervals whether there is a good balance between the various areas of responsibility of the GFFFN. Given the limited resources available for the GFFFN, there is naturally a certain risk that putting a lot of focus on one task, may entail tradeoffs for other tasks. Yet, sufficient resources should also be available for processes that promote the achievement of the global forest goals. This could include providing information on enabling finance, but also fiscal policies, FDI policies, as well as political processes aiming at disabling unsustainable forest management and deforestation, e.g. in financial sector policies or in trade regulations.

Governments

Governments around the world are recommended to strive for creating the best conditions for the implementation of sustainable forest management in their jurisdictions but also in countries on which their domestic consumption has an ecological footprint. Several strategies can contribute to these ends:

- Maintaining and strengthening efforts to increase the provision of financial resources for SFM.
- Using, promoting, and further developing the Clearing House as a central information source on forest financing.
- Upholding the momentum that has led to the increase in financing for forests in the recent past.
- Providing secure forest tenure rights to smallholders, local communities, and Indigenous Peoples.
- Decreasing the investment risks for foreign capital while ensuring that foreign direct investments foster sustainable forest management and do not impinge on local peoples' rights and needs.
- Contributing actively to shaping the development of regulatory frameworks on 'green' or 'sustainable' investments (e.g. taxonomies) in favor of sustainable forest management.
- Reviewing the effects of current fiscal policies on sustainable forest management and amending and reforming where necessary to create incentives in favor of sustainable forest management along the entire value chain.
- Reviewing the effects of current trade agreements on sustainable forest management and amending and reforming where necessary to minimize ecological footprints and ensure that trade fosters sustainable forest management.

Consumers of forest products and services

Consumers at governmental, corporate and private levels are recommended to signal their demand for products and services produced in sustainably managed forests by making conscious consumption decisions which can help strengthen the market for these products. For example,

- Governmental authorities can restrict their procurement of forest products and services to products and services sourced from sustainable forest management.
- Corporate and private consumers can put effort into selecting forest products and services originating from sustainably managed forests, e.g. by selecting certified products. When certified products are not available, pro-actively asking sellers about products' origins can still signal that sustainable forest management matters to consumers and that they are not indifferent.

Annex

Country	Type Tax	Fee/ Charge	Name of Instrument	Tax base	Exep-tion for forestry	Earmarking related to forest
Australia	x		Excise taxes on petroleum products	Various fuels	x	
Austria	x		Vienna -- Charge for tree protection	Trees with more than 40 cm circumference that is cut down, if no new plantings are carried out instead, 1090€ per tree.		100% - Earmarked for the planting of new trees.
Belgium	x		Kilometre tax	Transport - Registration or use of motor vehicles, recurrent taxes	x	
Bosnia and Herzegovina		x	Forestry charge	Cantonal Forestry Companies (FB&H), 3% of income from wood and other forest products		- Revenues earmarked for reforestation of karst and bare mountainous terrains, forest protection measures, production of seedlings and research.
Bosnia and Herzegovina		x	Forestry charge	Companies managing forests and forestland (FB&H), 15% of profits from wood sales		- Revenues earmarked for reforestation of karst and bare mountainous terrains, forest protection measures, production of seedlings and research.
Bosnia and Herzegovina		x	Forestry charge	Companies that perform economic activities in FB&H (except forestry companies), 0.1% of total income		- Revenues earmarked for reforestation of karst and bare mountainous terrains, forest protection measures, production of seedlings and research.
Bulgaria		x	Forest resources charge	Excluding afforested areas from forestry reserves 2553 - 5821 € per 1,000 m²		

Bulgaria		x	Forest resources charge	Excluding non-afforested areas from forestry reserves 127.6 - 382.9 € per 1,000 m²		
Bulgaria		x	Forest resources charge	Tree cutting, 1.02 - 51.1 € per tree		
Bulgaria		x	Forest resources charge	Use of forests for 10 years period, 25% of the charge paid by surface of the area		
Canada	x		Alberta -- Motive Fuel Taxes	Diesel and other energy products for transport purposes	x	
Canada	x		British Columbia -- Logging tax	Logging operations in British Columbia, The lesser of 10% of the taxpayer's income derived from logging operations in British Columbia or 150% of the credit that would have been allowable under section 127 (1) of the Income Tax Act (Canada).		In some cases
Canada	x		Saskatchewan -- Scrap tire program	Tires 20.5"-25" (Off road, mining, forestry, earthmoving), 23.8730€ per tyre.		Tires 7" in diameter or smaller
Canada		x	# -- Quebec -- Charge for forest management & research	Cubic metre of wood 0.7025€ per m³.		100% - To finance the Forest Fund, for forest management and research
Canada		x	Alberta -- Charge for overcutting	Volume of timber overcut – coniferous, 20.4626€ per m³; deciduous 6.8209€ per m³.		100% - General Revenue Fund, to manage forest resources at sustainable harvest volume levels and to ensure that harvest levels do not exceed the authorised quadrant allowable cut calculated for a quota certificate.
Colombia	x		Tax on forestry products			

Colombia		x	Compensatory Fee for the Permanent Use of the Bosque Oriental de Bogotá Protected Forest Reserve.			
Colombia		x	Compensatory Fee for Timber Harvesting in Natural Forests			
Costa Rica	x		Excise tax on motor fuels	Various fuel types, gases, asphalt	various	3.50% to National Forest Financing Fund exclusively to environmental services
Costa Rica	x		Tax on timber	Timber Tax, 3% of the market value		
Costa Rica	x		Water Use Levy	Consumptive water, groundwater or surface water for agricultural, agroindustrial, aquaculture purposes, human consumption, industrial, tourist consumption, Hydraulic press force Irrigation (range depending on use purpose)	various	25% to finance the Payment for Environmental Services Program (PSA in Spanish) of the National Forest Financing Fund (FONAFIFO in Spanish)
Croatia		x	Charge for multiple non-wood forest functions	Revenue of a commercial company, 0.07% of the total revenue	x	Revenues earmarked for forest management programmes, especially in karst areas, forest protection and scientific and research work.
Croatia		x	Forest contribution charge	Forest wood products, 2.5% of the sale price		The revenues are used for financing municipal infrastructure.
Czech Republic	x		Fee for the withdrawal of forest land	Permanent withdrawal of land from forestry - Economic forests, (1.4 * yearly wood production [in m^3]*price per m^3)/0.02;	x	100% - 60% State Environmental Fund - environmental protection; 40% Local authority - environmental protection in the area of this particular municipality.

				Permanent withdrawal of land from forestry - Forests in protected areas, in spa and urban surroundings or with intensive environmental functions, ((2 to 5) * yearly wood production [in m^3]*price per m^3)/0.02; Permanent withdrawal of land from forestry - Protected forests in national parks, natural reserves, in high mountains, etc., ((2 to 5) * yearly wood production [in m^3]*price per m^3)/0.02		
Czech Republic	x		Road tax	Various vehicle specifications	x	
Czech Republic		x	Fees to cover watercourse and river basin administration and to cover public interest expenses	The amount of surface water withdrawn	x	
Denmark	x		Fee on hunting licence	Hunting licenses, 67.1474€ per year.		100% - The revenue goes to the National Forest and Nature Agency, to cover costs of hunting and game management.
Estonia	x		Environmental damage compensation tax	Timber		
Finland		x	Forest management fee	Forest area owned Price of standing timber		98 % for forest management (by forest management associations); 2 % for tax administration (2014)

France	x		Tax on vehicles axles (taxe à l'essieu)	Heavy vehicles	x	
Hungary	x		Forestry fund tax	The felling of trees 1.59 - 5.16€ per gross m^3; depending on tree species and region.		100% - Forest maintenance.
Japan	x		Diesel oil, petroleum, coal tax		x	
Korea		x	Reforestation charge			
Lithuania	x		Forest felling charges	Income for round-wood and stumpage sales, 5% of income		- Revenues earmarked for forest inventory and scientific works, organization and maintenance of state forest fire-fighting system, consultancy and training of private forest owners, and other forest management activities.
Lithuania	x		Forestry law tax	Compulsory deductions from income from the sale of raw timber and standing timber paid by private forest owners and State forest enterprise		- 5 % of revenues goes to the Programme for Financing General Forestry Needs. Environmental management measures in forests (forest inventory and accounting, development of forest management projects for state forests, organisation and maintenance of the common national forest fire prevention system regardless of the form of ownership, response to natural disasters and elimination of mass disease and pest outbreaks, forest research and design work, consultations and training of private forest owners, establishment of organisational structures of private forest owners, maintenance and repair of forest roads and

						related facilities of forest land drainage systems, publication of information on forests, funding of programmes carried out by institutions subordinate to the Ministry of Environment in the fields of forestry and environmental management measures, and financing of other general forestry needs and environmental management measures in forests).
Lithuania	x		Tax on timber sales	Timber sold by private forest managers, 5% of turnover. Timber sold by state forest managers, 15% of turnover		5% of the turnover from state forest managers is paid in order to meet general forestry needs and nature management measures and are used to fund general forestry needs and nature management measures in forests via the special Programme for the Financing General Forestry Needs.
Lithuania		x	Tree cutting non-compliance fees	Illegal tree cutting, 3 to 10 times the stumpage fee		100% - Revenues earmarked for the Special Programme to meet general forestry needs .
Luxembourg	x		Excise duty on mineral oils	Various fuels	x	
Luxembourg	x		Tax on coal and coke		x	
Montenegro		x	Forest charges	Use of forests - sold timber, 5% of market value; Useful forest functions, sectors that benefit from forests, 0.5% of the profit;		yes - Revenues earmarked for projects aiming to improve management and condition of forests.

				Useful forest functions, sectors that have a negative impact on forests , 0.7% of the profit		
Netherlands	x		Motor vehicles tax (Motorrijtuigenbelasting)	Vehicles	x	
Poland	x		Excise tax on motor fuels	Various fuels	x	
Poland	x		Forest tax - local			
Poland		x	Charge for land use changes	Changes in usage of forested land *10% of expected yearly market value of timber, from the land subjected to the changes. *Protected forest, 15% of expected yearly market value of timber, from the land subjected to the changes *Changes in usage of land – General, 10% of expected yearly market value of crops or timber from the land being subjected to the changes. For permanent changes, the fee should be paid for period of ten years.		100% - Fees for changes in usage of agriculture production land constitute revenue of State Fund for Protection of Agriculture Function of Land; fees for changes in usage of forest land constitute revenue of State Fund for Forest Protection.
Poland	x		Charge for bush and tree removals	Tree removal Upper rate 119.6 € per each cm of tree trunk circumference		100% - Objectives related to environmental protection and water management at the municipal level.
Portugal	x		Tax on petroleum and energy products	Various petroleum and energy products		Small share - The Permanent Forestry Fund is the recipient of an additional to ISP rate in the amount of € 0.005 per litre for petrol, and in the amount of € 0.0025 per litre for road transport gas oil, and colour marked gas oil. This is a financing fund of a permanent nature

						as provided for under DL nº 63/2004, of 22nd March (Permanent Forestry Fund) up to a maximum threshold of 30 million euro per year.
Serbia	x		Fees for forest protection			
Serbia		x	Charge for extraction of materials from watercourses	Materials extracted from watercourses and river banks and degraded soils, 0.44 - 0.88 € per m^3		
Serbia		x	Tree cutting charge	Tree cutting, 3% of the market value of the cut tree		yes - Revenues are earmarked for forest management purposes.
Slovak Republic	x		Motor vehicle tax	Vehicles	x	
Slovenia	x		Fuel excise tax	Diesel		
South Africa		x	Water Resource Management Charge	Various forestry areas		
Spain	x		Balearic Islands -- Tax on water treatment	Fixed rates by sector	x	
Spain	x		Cantabria -- Tax on waste water treatment	various	x	
Spain	x		Extremadura -- Tax on waste water treatment	various	x	
Spain	x		Galicia -- Tax on water	Specific uses: agriculture, forestry and livestock		yes - the revenues are destined for the prevention of the pollution in origin and the recovery and maintenance of the ecological flows, as well as for the achievement of the legal environmental targets and for giving

						economic support to the regional public administrations involved in the urban water cycle
Spain	x		Tax on hydrocarbons	various	x	
Sweden	x		Forestry levy			
Ukraine		x	Tax on Timber			
United States	x		Alabama -- Severance tax	Various based on forest product		
United States	x		Arkansas -- Severance tax	All other timber, 0.1130€ per tonne.		
United States	x		Oregon -- Forest products harvest tax	Timber harvested € per 1,000 board feet.		
United States	x		Oregon -- Small tract forestland severance tax	Eastern/Western Oregon -- Timber harvested, € per 1,000 board feet.		100% - The tax receipts in excess of DOR expenses incurred in the collection of taxes are distributed to the State School Fund, the Community College Support Fund, and the county general fund.

TABLE 10: FOREST AND TREE RELATED FISCAL MECHANISMS RECORDED IN THE OECD PINE DATABASE

Source: (OECD 2023b)

Donor's country of origin	Fund name	Target region	Forest related topics and themes eligible for funding
Belgium	Flemish Fund for Tropical Forests	Americas	Conserving forest and/or paramo; Fostering sustainable management of forest and/or paramo; fostering recovery of forest and/or páramo
	Enabel	Africa, Asia	Forest landscape restoration; forest conservation and management; climate change
	Belgian Investment Company for Developing Countries	Global	Agroforestry; Renewable energy
Canada	FinDev Canada	Global	Agroforestry; climate change; private sector and industry
	Global Affairs Canada	Global	Climate change
Denmark	Investment Fund for Developing Countries	Global	Climate change; sustainable land use; rural development
Finland	Finnish Fund for Industrial Cooperation Ltd. (Finnfund)	Global	Sustainable land use; climate change
France	Fondation Nature & Découvertes	France, Belgium and Luxembourg	Biodiversity and active pedagogy in contact with nature.
	Agence Française de Développement (AfD)	Global	Biodiversity conservation; climate change; forest conservation and management; sustainable land use
	Proparco	Global	Agroforestry; climate change
	Fonds français pour l'environnement mondial - FFEM	Africa, Europe	Concertedly managing rural territories; enhancing the envrionmental performance of forest value chains ; fighting against deforestation
Germany	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	Global	Climate, environment, and management of natural resources
	International Climate Initiative (IKI)	Global	Biodiversity conservation; climate change; REDD+; forest conservation and management; sustainable land use; forest landscape restoration
	KfW Development Bank	Global	Biodiversity conservation; climate change; REDD+; Forest conservation and management; Sustainable land use

Japan	Japan International Cooperation Agency (JICA)	Global	Climate change; community forestry; biodiversity conservation; REDD+; forest conservation and management
Korea	Korea International Cooperation Agency (KOICA)	24 core countries	Conservation of fishery and forestry resources; Agro-biodiversity conservation; Consulting for a national strategy of forestry development; Sustainable forestry management
	Korea Green Growth Trust Fund	Global	Agroforestry; climate change; forest conservation and management; biodiversity conservation; forest landscape restoration; sustainable land use; rural development; REDD+
Netherlands	Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden (FMO)	Emerging Markets	funding for forestry projects in emerging markets
	Dutch Fund for Climate and Development	Global	Climate change; sustainable land use; agroforestry; forest landscape restoration
Norway	Norway's International Climate and Forest Initiative	Global	REDD+, climate change
Spain	Compañía Española de Financiación del Desarrollo (COFIDES)	Global	Climate change
Sweden	Swedish International Development Cooperation Agency (Sida)	Global	Reducing poverty and promoting long-term sustainable use of forests
Switzerland	Swiss Investment Fund for Emerging Markets (SIFEM)	Global	Private sector and industry; sustainable land use; renewable energy
	Swiss Agency for Development and Cooperation	Africa, Americas, Asia, Europe	Climate change; sustainable land use; rural development
UK	Partnerships for Forests	Africa, Asia, Americas	Sustainable land use; climate change
	British International Investment (formerly CDC)	Africa, Asia	Climate change
	Darwin Initiative	Global	Biodiversity conservation; climate change; forest conservation and management
	Mobilising Finance for Forests	Africa, Asia and Latin America	Unlocking private sector investment in projects that protect and restore tropical forests

USA	Millennium Challenge Corporation	Global	Securing and protecting land and property rights, enabling land to be more productive and better managed, and making land markets and other land-dependent markets function better
	USAID	Global	Biodiversity conservation; climate change; forest landscape restoration; forest conservation and management
	U.S. International Development Finance Corporation	Global	Private sector and industry
	Inter-American Foundation	Americas	Forest conservation and management; private sector and industry; community forestry
	The U.S. Fish and Wildlife Service's International Affairs	Global	Protecting, restoring, and enhancing the world's diverse wildlife and their habitats with a focus on species of international concern

TABLE 11: BILATERAL FUNDS

Source: UNFF Clearing House

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