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How national forest funds can support small-scale forest businesses to deliver ecosystem services

Wie nationale Forstfonds kleine Forstunternehmen bei der Bereitstellung von Ökosystemdienstleistungen unterstützen können

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Abstract

National Forest Funds (NFFs) represent an increasingly relevant funding source for the forest sector at the global level. With the increasing role of NFFs, their structures and operational procedures are becoming more complex and diversified. While many of these funds are State-driven and often support projects that include public goods with a focus on social and environmental benefits, some also support privately managed small-scale “for profit” businesses related to wood and non-wood forest-based value chains.

This paper describes some the recent developments of NFFs and presents the results of a research effort that analyzed how NFFs’ funding targeting small-scale forest enterprises can contribute to the provision of forest ecosystem services. For this analysis, five case studies from Costa Rica, Guatemala, Luxembourg, Portugal, and Tanzania have been selected. In specific, the Forest Financing Fund (FONAFIFO), the FONABOSQUE, the Forest and Climate Change Fund (FCCF) of Luxembourg, the Flo-

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resta Atlantica Fund, and the Tanzania Forest Fund (TaFF) are reviewed. The research addressed several key research questions, including: How are NFFs operations conceived to support small-scale forest businesses? What type of funding windows are targeting small-scale enterprises? What are the current practices of NFFs supporting ES provision through small-scale forest businesses? How could NFFs further support small-scale enterprises while unleashing contributions to the provision of ES?

Zusammenfassung

Weltweit stellen die nationalen Forstfonds (NFFs) eine immer wichtigere Finanzierungsquelle für den Forstsektor dar. Mit der zunehmenden Rolle dieser Fonds werden auch ihre Struktur- und Betriebsabläufe immer komplexer und diversifizierter. Während viele dieser Fonds staatlich gelenkt sind und häufig Projekte zur besonderen Förderung des sozialen und ökologischen Nutzens öffentlicher Güter unterstützen, finanzieren einige der Fonds auch private "profitorientierte" Kleinunternehmen mit ihren holz- und nichtholzbasierten Wertschöpfungsketten.

Dieses Papier beschreibt einige der jüngsten Entwicklungen der NFFs und stellt die Ergebnisse einer Studie vor, in der analysiert wurde, wie NFFs über finanzielle Zuwendungen an kleine Forstunternehmen deren Bereitstellung von Waldökosystemdienstleistungen unterstützen kann. Für diese Analyse wurden fünf Fallstudien ausgewählt: der Forest Financing Fund (FONAFIFO/Costa Rica), der FONABOSQUE (Guatemala), der Forest and Climate Change Fund (FCCF/Luxemburg), der Floresta Atlantica Fund (Portugal) und der Tanzania Forest Fund (TaFF). Die Forschung befasste sich mit mehreren wichtigen Fragen, u. a.: Wie werden NFFs-Operationen zur Unterstützung kleiner Forstunternehmen konzipiert? Welche Finanzierungsmöglichkeiten gibt es für kleine Unternehmen? Welche Möglichkeiten haben NFF derzeit, die Bereitstellung von Ökosystemdienstleistungen durch kleine Forstbetriebe zu fördern? Wie könnten die NFFs kleine Unternehmen weiter unterstützen und gleichzeitig Beiträge zur Bereitstellung von Ökosystemdienstleistungen leisten?

1. Introduction

National Forest Funds (NFF) are defined by Matta in FAO (2015) as "dedicated financing mechanisms established with the main objective of supporting the conservation and sustainable use of forest resources". Previous to this definition, Rosebaum & Lindsay (2001) refer to the term "national forest funds" as a "constellation of approaches", given the very diversified forms that these financing mechanisms address depending on objectives, capitalization, beneficiaries and spending strategies. From a global perspective, NFFs hold or manage more than USD 12–13 billion worldwide (FAO, 2015) making NFFs a non-negligible source of financing for the forest sector.

While many of the NFFs are State-driven and support public goods types of projects with a focus on social and environmental benefits, some are also supporting privately

managed small-scale “for profit” forestry businesses related to wood and non-wood forest-based value chains. According to FAO & GIZ (2013), NFFs differ from commercial forestry investment funds, which main objective is to provide a financial return to investors. Indeed, a majority of NFFs do not directly support commercially-viable forest activities. Nevertheless, we believe that the difference is not black-and-white and there are many shades of grey among investment funds in the forestry sector. Therefore, we also consider relevant forest investment funds which may provide important lessons learned for the future development of NFFs.

NFFs can be key instruments to mobilize financial resources from a variety of sources (*e.g.* domestic, international, private and public) as needed to achieve the Bonn Challenge and other national, regional and global Forest & Landscape Restoration (FLR) commitments (*i.e.* “at least +40 USD Billion/year needed” according to FAO-GM, 2015). By supporting small-scale forestry businesses and related value chains, NFFs could unleash the creation of green jobs and incomes for rural territories which could make FLR implementation more sustainable. Nevertheless, more private capital is needed to achieve FLR implementation at scale. In recent years, this has materialized by a multiplication of impact funds instruments. Similarly, NFFs may have a role to play if they can catalyze private financing for sustainable value chains, including through small-scale forest businesses. Such funds supporting small scale forest businesses may also be able to catalyse the provision of Ecosystem Services beyond generating profits and financial returns.

Consequently, a key research question that we aimed to address with this paper is: how can NFFs contribute to the provision of Ecosystem Services through the financing of small-scale forest businesses?

The research further seeks to address emerging needs regarding the role NFFs could play for the sustainable provision of Ecosystem Services (ES), in particular on: i) building more effective domestic forest financing mechanisms delivering ES (such as Payments for Ecosystem Services); ii) understanding how the utilization feature of NFFs can be more effective in delivering ES; iii) identifying relevant policy and management recommendations for NFFs supporting small-scale businesses on how to unleash ES provision; and, finally, iv) developing a revised framework for monitoring the role of forest funds on ES. More broadly, as part of this exploratory research effort, the paper aims to describe recent developments of selected NFFs and assess how NFFs’ funding targeting small-scale forest enterprises can actually contribute to the effective provision of ES.

Specific key questions addressed in the present research include:

- How are NFFs operations conceived to support small-scale forest businesses? What type of funding windows are targeting small-scale enterprises?

- What is the typology of beneficiaries under the small-scale enterprises funding windows (incl. in terms of financing instruments used and underlying business models)?
- What are the current practices of NFFs supporting ES provision through small-scale forest businesses?
- How could NFFs further support small-scale enterprises while unleashing contributions to the provision of ES?

2. Material and Methods

2.1 Methodology

The methodological steps used in this research were composed in particular of: i) a broad literature review on NFFs; ii) identification of relevant case studies; iii) data collection through a survey submitted to NFFs case studies representatives and direct semi-structured interviews to integrate the information (full survey is presented in Appendix 1); and iv) a comparative analysis of the survey's responses to cross-compare selected funds, to identify lessons learned and to produce results for the research. Covid-19 situation did not always allow for field visits but authors built on previous field work experience in target countries to add in specific knowledge on funds operations. Surveys were conducted on distance with fund managers, enabling data collection directly from stakeholders involved in the daily management of the funds.

2.2 Case studies

The selection of the case studies was based on three main criteria: i) is the fund operational and has more than three years' experience? ii) does the fund provide financing support to small-scale forestry businesses? iii) does the fund demonstrates interest for the provision of ecosystem services?

Based on these three criteria and the review of NFFs globally, a limited number of relevant NFFs were selected: the Forest Financing Fund (FONAFIFO) in Costa Rica, the FONABOSQUE fund in Guatemala, the Floresta Atlantica Fund in Portugal, and the Tanzania Forest Fund (TaFF). In addition, we decided to include also the Luxembourg Forest and Climate Change Fund (FCCF) because it can be considered as a relevant case study highlighting how a private fund can provide lessons learned to the more traditional public-driven NFFs.

The Forest Financing Fund (FONAFIFO) in Costa Rica is supporting forest conservation, forest restoration, and agroforestry, providing direct incentives to local landowners and community groups. It is a well recognized form of a successful Payment for Ecosystem Services based on a national forest fund (Liagre *et al.*, 2020). FONAFIFO has developed a financing window with return on investments, so called "credito forestal".

The FONABOSQUE fund in Guatemala is a recent financing instrument aiming to increase the financial resources available to implement the national forest incentive program. FONABOSQUE official launch has been announced in 2019. It received support from the Green Development Fund of the Central American Integration System (SICA) countries. The National Forestry Institute of Guatemala (INAB) is managing FONABOSQUE.

The Forest and Climate Change Fund (FCCF) operates as a public-private partnership which provides financing for companies, communities and small farmers to manage secondary and degraded forests in the tropics. By creating the enabling environment for business models that allow the generation of revenues, deforestation is stopped and forest growth leads to a substantial positive climate impact.

Floresta Atlântica Fund (€ 20 Million) was launched in October 2007 being its main purpose to promote sustainable forestry development through the combination of public and private initiative relying on an innovative business model (Wadewitz, 2017). The major shareholders are the Portuguese government (through the Instituto de Financiamento da Agricultura e Pescas with 40.5%) and five private shareholders (59.5%). The Floresta Atlantica Fund (FAF) in Portugal is a real estate investment funds, investing only in its own land properties, with potential for valorization of wood and non-wood forest products and other environmental services.

Tanzania Forest Fund (TaFF) is “a Conservation Trust Fund established by the Forest Act as a mechanism to provide long term, reliable and sustainable financial support to Forest Conservation and Sustainable Forest Management (SFM) in the Country” (TaFF website). The Tanzania Forest Fund is a public fund which was made operational in July 2010 as a not-for-profit organization governed by a Board of Trustees. The main intent of establishing the Tanzania Forest Fund is to mobilize and provide stable and long-term sources of funding for conservation and sustainable management of natural resources in Tanzania.

3. Results

The results of the research are presented in two sections: 1) Fund models and types of support to small-scale businesses; and 2) Integration of Ecosystem Services in funds support to small businesses.

3.1 Fund models and types of support to small-scale businesses

Table 1 synthetically reports the answers to the survey questions: “(i) What are the types of funds used (public, private, others)? (ii) What are capitalization sources? (iii) How much funds have been spent in the last years (iv) What types of forestry small-scale businesses are supported? (v) What are the main financing instruments used?”

Table 1: Diversity of national forest funds models and types.

Tabelle 1: Unterschiedliche Modelle und Typen von nationalen Forst-Fonds.

Fund characteristics	FONAFIFO (Costa Rica)	PROBOSQUE (Guatemala)	FCCF (Luxembourg based)	Floresta Atlantica (Portugal)	TaFF (Tanzania)
Fund type (i)	Public fund	Public fund	Impact investment fund (SICAV)	Public-private investment fund (real estate fund)	Public fund (Conservation trust fund)
Capitalization sources (ii)	Oil tax, water tariff, CSR sponsoring & offsets, International donors, loan portfolio recoveries	State contribution, international sources	State, CSR sponsoring, Banks	Public and private shareholders	Fees, levies, International & bilateral donors
Funding size (spending) (iii)	~ 25 M USD/year (1.6 M USD/year – Forest credit)	~ 15 M USD/year (through the forest incentive programme)	7.3 M USD (in the last 5 years). Target size: 15 M USD	20 M EUR (initial capitalization)	Not mentioned
Types of small-scale forest businesses supported (iv)	Wood forest businesses, incl. plantations (upstream support)	Wood and non-wood forest businesses, incl. plantations (upstream support)	Wood forest businesses, involved in different value chains steps of forest management wood processing (downstream support mainly)	Wood and non-wood forest businesses, e.g. nut, beekeeping, etc	Wood and Non wood forest businesses, e.g. beekeeping
Financing instruments (v)	Small and medium loans (Credito forestal), Micro credit	Forest incentive programme (grants and PES incentives)	Loans and equity financing	Concessions (fund remuneration with royalties) / land leasing	Grants (small, medium, large)

There is clearly a diversity of forest funds models, and types of financing support used for small-scale forest businesses.

FONAFIFO (Costa Rica)

FONAFIFO is capitalized through a mix of an oil tax, water tariffs, Corporate Social Responsibility (CSR) partnerships and international support. With a total average funding size of 25 Million USD per year it is a major source of forest finance at national level. Individual farmers and land owners can be eligible for the Payments of Ecosystem Services (PES) incentives schemes if they meet certain conditions. A very relevant window for small scale forestry, despite a minority of the FONAFIFO funding engagement, is the so-called "credito forestal" window. Credito forestal, the Forestry Credit Program of FONAFIFO "provides a financing alternative for projects of small and medium producers of forest goods and services, under conditions of interest rates and terms appropriate to the country's forestry reality" (FONAFIFO website). Credito Forestal provides loans to forest businesses, with a diversity of sub-programs described in the table 2. Interestingly the gender approach is fostered through the sub-program "FONAFIFO at your side".

Table 2: Description of the FONAFIFO 'Crédito forestal' sub-programs (derived from FONAFIFO website).

Tabelle 2: Beschreibung der FONAFIFO-Unterprogramme "Crédito Forestal" (Auszug aus der FONAFIFO-Website).

Loan sub-programs	Description	Terms & Conditions
"FONAFIFO at your side"	Financing aimed at economic development and improvement of the quality of life of rural women. Credits of up to €5,000,000.00 (in Costa Rican colón) for productive development, working capital, infrastructure, purchase of equipment and innovative forest-related projects.	-Up to 10 years. -Interest: 4% per year -Warranty: Fiduciary
"Forestry Productive Development"	Financing of the following activities: forest nurseries, forest plantations, establishment, management and use of plantations, wood processing of own forest plantations, establishment and management of agroforestry systems, activities for the protection of forests, forest management (management studies of forests and their execution), recovery of denuded areas, innovative projects that optimize the use of natural resources and other activities that promote the development of the forestry sector, investment in machinery, equipment, infrastructure, purchase of inputs, labor, in activities related to the above or others that by their condition can be assessed under this objective.	-Conventional up to 20 years. -Revolving Line of Credit from 1 to 5 years -Interest: 5 to 7% per year -Warranty: Fiduciary (up to €5 million) or mortgage (more than €5 million)
"Forest industry"	Financing of the following activities: Activities related to the use, transportation, primary and secondary processing of wood and non-timber goods from forest ecosystems and their commercialization. Investment in machinery, equipment, infrastructure, purchase of inputs, raw materials and labor, among others referring to the Forest Industry.	-Conventional up to 10 years. -Revolving Line of Credit from 1 to 5 years -5 to 7% interest rate
"Promoting Development"	Financing of the following activities: Infrastructure, equipment and working capital for small ecotourism ventures and other activities linked to the forest, but not necessarily related to wood.	Conventional up to 15 years. -5 to 7% interest rate
"Organizations"	Financing to those organizations that have a cooperation agreement with FONAFIFO, to act as a second-tier bank. The resources lent to the organizations will be used only to finance projects that fit into the Subprograms of Productive Development and Forest Industry, described in the present regulation.	Conventional up to 10 years. -3 % interest rate
"Micro-Forest Credit"	Microcredits up to a maximum amount of € 1,500,000.00 for the different subprograms.	-Conventional up to 3 years. -5% interest rate

FONABOSQUE (Guatemala)

In the recent years, resources allocated from the forest incentive program amounted approximately 15 Million USD annually. FONABOSQUE is made for a capitalization from a mix of domestic and international sources. No less than one percent of the state budget should support the forest incentive program (PROBOSQUE, 2015). The list of potential beneficiaries types is very broad and small-scale forest businesses only represent a limited proportion of them, such as cooperatives and SMEs.

Several of the national forest incentive program's modalities can be meaningful for small-scale forest businesses. They include (PROBOSQUE, 2015):

- a. Projects for forest plantation establishment and maintenance projects will receive incentives for a defined time period depending on the purpose of the project. Industrial or energy projects will comprise an establishment phase of one year and up to five years of maintenance.
- b. Projects for the establishment and maintenance of agroforestry systems, receive incentives during one year of establishment and up to five years of maintenance.
- c. Natural forest management projects for production purposes, up to ten years support.
- d. Natural forest management projects for protection purposes, up to ten years years support.
- e. Projects for the restoration of degraded forests receive incentives defined according to the specific purpose of the project, with up to ten years support.

FCCF (Luxembourg based)

The FCCF is capitalized through a mix of public and private resources. The Luxembourg government as well as Luxembourgish banks such as BIL and Spuerkess have provided seed capital in the framework of their Corporate Social Responsibility (CSR) strategy. Currently the average ticket per investment is USD 1,275,000. FCCF has a target size of USD 15 Million while 7.3 Million USD have already been invested in the last 5 years. FCCF has different ways to do its investments: i) Equity: direct investments in new entities but without being the owner of the majority of the shares, ii) Loans: for working capital and industrial equipment and machineries. The Fund has businesses operating at various stages of the value chain with differing underlying business models. Those at the earlier stages of the value chain generate revenue through timber, and the Fund hopes to improve revenue streams through the implementation of sustainable and efficient forestry management practices. Other businesses focus on wood transformation and treatment, either into higher end or lower end products. Given that the Fund works with businesses across the value chain, the Fund sees symbiotic relationships being built between the various businesses working at different ends of the value chain.

FAF (Portugal)

The Floresta Atlantica Fund has a legal form of a real estate fund. It was built through a public private partnership approach, major shareholders being the government (Instituto de Financiamento da Agricultura e Pescas with 40.5% of shares) and five private shareholders (59.5%). More than 50% of the Fund's asset value is invested in the acquisition of property rights. FAF generates revenues through a diversity of activities (figure 1), leasing lands for multiple purposes. Through concessions contracts, FAF gets returns with royalty payments, while it enables small-forestry businesses to operate and make profits from sustainable use of the land and/or wood and non-wood products and services.



Figure 1: Floresta Atlantica Fund investment policy: diversifying revenues from forest lands (Wadewitz, 2017).

Abbildung 1: Investitionspolitik des Floresta Atlantica Fund zur Förderung verschiedener Einnahmen aus Waldgebieten (Wadewitz, 2017).

TaFF (Tanzania)

The the Tanzania Forest Fund was made operational in July 2010 through Treasury Circular No. 4 of 2009. Section 79 (1) of the Forest Act identifies sources of funds to the Tanzania Forest Fund as a levy of two per cent of every prescribed fee payable under the Forest Act; a levy of three per cent of any royalty payable under the Act; grants, donations, bequests or such sums contributed by any private individuals, corporate bodies, foundations, or international organizations or funds within or outside

the country; any sums realized by the sale of any forest produce confiscated under any of the provisions of the act; any income generated by any project financed by the Fund, due allowance being made for any necessary expenses which must be met by any such project; and any such funds acquired from various sources" (TFF, 2012). As illustrated in table 3, TaFF provides three sorts of grants, depending on the project ambition and the type of applicant, as well as an assistance offer (monetary, material and technical assistance).

Support provided to small forestry enterprises falls under the TaFF priority on "Improvement of community livelihood projects", with the following eligible activities: marketing of forest products; promotion of non-wood forest products; sustainable utilization of forest resources; forestry related interventions; beekeeping related activities; education on management of forest resources". In the TaFF call for proposals in 2020 (TaFF, 2020) beekeeping and honey processing was one of the priority themes of eligible support, highlighting how valorization of non-wood forest products is key for the TaFF.

Table 3: TaFF utilization through grants and a diversified assistance offer (TaFF, 2012).

Tabelle 3: TaFF zur Förderung von Stipendien und verschiedener anderer Unterstützungformen (TaFF, 2012).

Types of grants			Assistance types		
(i) Small Grants	(ii) Medium Grants	(iii) Large Grants	(i) Monetary assistance	(ii) Material assistance	(iii) Technical assistance
Amounts not exceeding TZS 5 million (in Tanzanian shilling)	Amounts exceeding TZS 5 million up to TZS 20 million	Amounts exceeding TZS 20 million up to TZS 50 million per year	Grantees will be assisted with funds to support implementation of approved intervention	The Fund could provide required materials, tools, technology, facilities and equipment. TaFF will request the grantees to submit quotations from at least three service providers. Using the procurement procedures, service provider will be selected and hence provide the requested materials to the Grantee.	Tanzania Forest Fund could provide technical assistance to grantees by hiring professionals to offer the requested services

3.2 Integration of Ecosystem Services in funds support to small businesses

The answers to the following survey questions are reported in Table 4: “(i) What are the types of small-scale business supported by the fund (e.g., individuals, SMEs, cooperatives)? (ii) what Ecosystem Services are monitored? (iii) What social benefits are taken into account? (iv) How ES are being valorized? (v) what are ES monitoring approaches used by the Fund?”

Table 4: Funds' support to small businesses and ES.

Tabelle 4: Unterstützung kleiner Unternehmen und ihrer Ökosystemdienstleistungen durch NFFs.

Fund characteristics	FONAFIFO (Costa Rica)	FONABOSQUE (Guatemala)	FCCF (Luxembourg based)	Floresta Atlantica (Portugal)	TaFF (Tanzania)
Small scale business types (i)	Private landowners, Individuals, SMEs	Cooperatives, Companies, SMEs, Individuals, Associations, NGOs	Companies, SMEs	SMEs	Individuals, SMEs, Cooperatives
Types of ES monitored (environmental) (ii)	Carbon, Water, Biodiversity	Carbon, Water, Biodiversity	Carbon	Carbon, Biodiversity	Biodiversity
Social impacts (iii)	Indigenous groups support, Community benefits	Indigenous groups support, community benefits, jobs	Employment	Employment	Community benefits
ES valorization (iv)	Carbon, Water, Biodiversity (incl. local carbon market); PES scheme	Carbon, Water, Biodiversity; PES scheme; Compensation for ES	Carbon (in development); FSC certification	Carbon (in development); FSC certification	Not mentioned
ES monitoring approaches (v)	FSC framework	FSC framework	Environmental & Social Management System (ESMS); IFC PS, FSC	FSC framework	Not mentioned

FONAFIFO (Costa Rica)

FONAFIFO has developed a well elaborated PES approach, anchored in the forestry law, through the recognition of four ecosystem services (carbon, biodiversity, water, landscape beauty). The Credito Forestal loans programmes directly contribute to sustain effectiveness of the PES scheme by providing additional support to productive activities, including for sustainable forestry and for ecotouristic activities. With the Crédito forestal window, FONAFIFO does not only provide incentives in the form of grants to smallholders, cooperatives and community groups, but it also secures long-term market-based solutions to forest protection and restoration.

FONABOSQUE (Guatemala)

FONABOSQUE through the national forest incentive programme provides support to a diversity of stakeholders and for diverse land use management options, including sustainable forest management and forest landscape restoration (FLR). Indeed, the integration of key elements from the National Forest Landscape Restoration Strategy (ENRPF) in the PROBOSQUE law makes FONABOSQUE a strong instrument to support FLR efforts at national level (IUCN, 2017). Besides the national forest incentive programme form part of the national REDD+ strategy, hence enabling valorisation of forest-related climate mitigation efforts.

FCCF (Luxembourg)

FCCF provides support to different types of forest businesses as described in table 5. In the FCCF there is an Environmental and Social Management System (ESMS), a set of processes and practices that allows the FCCF to incorporate environmental and social considerations into its decision-making and operations. The ESMS is underpinned by an overarching environmental and social policy that describes how the FCCF will implement the ESMS and achieve its objective to identify, develop and scale business models which create economic value for secondary and degraded forests while addressing the potential adverse impacts in FCCF-financed activities.

Table 5: Typology of FCCF beneficiaries (source : interview with FCCF).

Tabelle 5: Typologie der FCCF-Begünstigten (Quelle : Interview mit FCCF).

Profile	Profile 1	Profile 2	Profile 3	Profile 4
Investment approach	Investments in small and medium landowners through a company or pre-commercial entity	Investments in cooperatives and/or associations through a company or pre-commercial entity.	Direct investments in cooperatives and/or associations.	Direct investments in large companies
More in details	An organization with the capacity to organize forest management and/or value chain activities among a number of forests owners.	An organization with the capacity to organize forest management and/or value chain activities among a number of cooperatives and associations, representing communities and/or small forest owners	Direct investments into cooperatives and/or associations representing communities and/or small forest owners. These associations should have the level of professionalization required to administer the resources, organize the work and share the benefits among its associates.	Larger companies with the capacity to professionally conduct forest management and/or processing according to FCCF's requirements.

The ESMS also includes supporting tools such as environmental and social risk categorization, checklists, templates and guidance notes to assist the Fund to assess and manage environmental and social risks and enhance related positive impacts.

FCCF monitors environmental, social and financial returns. The Fund recognizes its responsibility to preserve the environment and acts in accordance with internationally recognized social standards. The ESMS is established and managed in alignment with the processes defined by the IFC Performance Standards, specifically IFC Performance Standard 1. The Fund also focuses on consistently reporting on certain impact metrics for its investors, notably: hectares of secondary and degraded forests (SDF) under management, carbon sequestered, employment generated, timber produced from SDF, value of timber produced from SDF.

FAF (Portugal)

FAF is committed to apply sustainability standards, including FSC for wood forest products, and organic certifications for non-wood forest products. Selection of FAF partners and outsourcers also integrates sustainability standards and criteria. Trainings can be offered to facilitate capacity-building of FAF partners and outsourcers on sustainability standards. FAF business partners capacities to certify products is key

as well as the ability to work on carbon standards. Climate change mitigation opportunities with certification possibilities through carbon standards like VCS or Gold Standard, indeed represent an important potential future capitalization opportunity for FAF.

TaFF (Tanzania)

TaFF recognizes two categories of private sector stakeholders' beneficiaries, as mentioned in TaFF guidelines (TaFF, 2020):

- i) Individuals: Individuals undertaking interventions that can lead to sustainable management of forest resources as well as environmental conservation are eligible beneficiaries. However, availability of two respected grantors shall be a prerequisite for individuals to access the funds from Tanzania Forest Fund.
- ii) Local community groups, registered Civil Society Organizations and private sectors: Local community groups recognized by the grassroots government such as village/mtaa government were suggested as eligible beneficiaries. Other eligible organizations under this category include Non-Governmental Organizations, Community Based Organizations, Faith Based Organizations and private sectors which are working with local community in the target areas and have legal registration.

Biodiversity and community benefits are key focus of the TaFF even though it is not clearly defined how such benefits will be measured and monitored.

4. Discussion

As highlighted in table 1, there is a diversity of forest funds models, and types of financing support used for small-scale forest businesses. For example, the FONAFIFO is a public fund hosted under the ministry of environment and its staff are recognized as civil servants. Similarly, the TaFF is a public organization, but registered as a conservation trust fund. This form is quite common for biodiversity funds and more than sixty conservation trust funds are currently operational (CFA, 2020). Differently the FCCF and the FAF have more private funds characteristics. The FCCF is an investment fund registered under Luxembourgish law as a SICAV, and the Floresta Atlantica Fund is a Real Estate Fund. This diversity is also reflected in the capitalization structures of the funds, some already following a blended approach. While the FCCF and FAF, as public-private structures, are well advanced to blend public and private sources, other public funds like FONAFIFO also mobilize the private sector through CSR partnerships. TaFF mostly depends on public sources (fees, levies) and international funding. FONABOSQUE is mainly capitalized through a secured state contribution of at least one percent of the annual Guatemala's state budget.

Funding amounts vary by fund and depend partly on the funding instruments used. For example, loan financing (FCCF and *Crédito forestal*) requires strict due diligence

and bankability assessments which make it sometimes more difficult to spend resources than with grant financing mostly. Crédito Forestal though allows access to financing for small producers who do not have access to commercial banks, under favorable conditions, simple requirements and without administrative expenses.

Types of supported small-scale forest businesses also vary significantly from a fund to another. While the FONAFIFO and FONABOSQUE can finance the upstream part of forestry activities (plantations, natural regeneration, conservation), the FCCF can work on both ends, with significant positive impacts on the downstream part of forest activities (e.g. wood processing and transformation). From the analyzed case studies, only the TaFF and the FAF explicitly support both wood and non-wood forest products. The FAF models enables a diversity of local companies to manage and valorize local resources including NWFPs such as mushrooms and aromatic plants. TaFF also support NWFPs business activities, for example with beekeeping.

Financing instruments used are also very different. While the FAF mostly operates with a concession approach (enabling concessions holders to conduct certain wood and non-wood related business activities), other funds mostly provide loans and equity (FCCF) or grants (TaFF). Funding instruments used by the funds have a very important role on the types of projects and beneficiaries that can be mobilized and supported. Funding instruments used also have a direct impact on the delivery of ecosystem services. For example, equity financing is very much needed to match with the long termism of sustainable forestry projects. As stated by a FCCF representative: *“Ecosystem services are most pertinent at the forest management end of the value chain – even though a good understanding is required at each step of the process. Although working capital loans may be a necessity, equity investments allow for a longer-term development of forestry ecosystems”* (FCCF quote).

These cases highlight that none of the funds has a strategy and the ability to finance all aspects of the forestry activities for SFM and forest restoration. Comprehensive financing approaches for the forest sector thus may require more agile and flexible financing instruments, potentially structured as a combination of several financing vehicles. For example, one fund could host under one umbrella several funding windows such as a conservation trust fund, an investment fund, a technical assistance facility, a small-medium loan facility, a PES window, etc. as illustrated in figure 2. This could allow financing and investment in several parts of the value chains, thus building in the necessary flexibility required to support SMEs with diverse realities (Boscolo *et al.*, 2010). Such a “all-in-one” fund structuration approach, despite interesting as a concept, is not necessarily easy to operate and a relevant approach may also rely on more coordination and cooperation between existing funds at landscape level. For example, in Latin American and Caribbean countries, one could imagine cooperation between the FCCF and national public forest funds, such as FONAFIFO, FONABOSQUE and other existing funds.

A diversity of Ecosystem Services is monitored in the analyzed fund cases. But only FONAFIFO and FONABOSQUE monitor and incentivize more than two ES, namely carbon, biodiversity, and water. In total, FONAFIFO recognizes four ecosystem services as included in the Costa Rican forestry law: carbon, biodiversity, water, landscape beauty. TaFF explicitly integrates biodiversity benefits as an important impact, while FAF recognizes both carbon and biodiversity (figure 2).

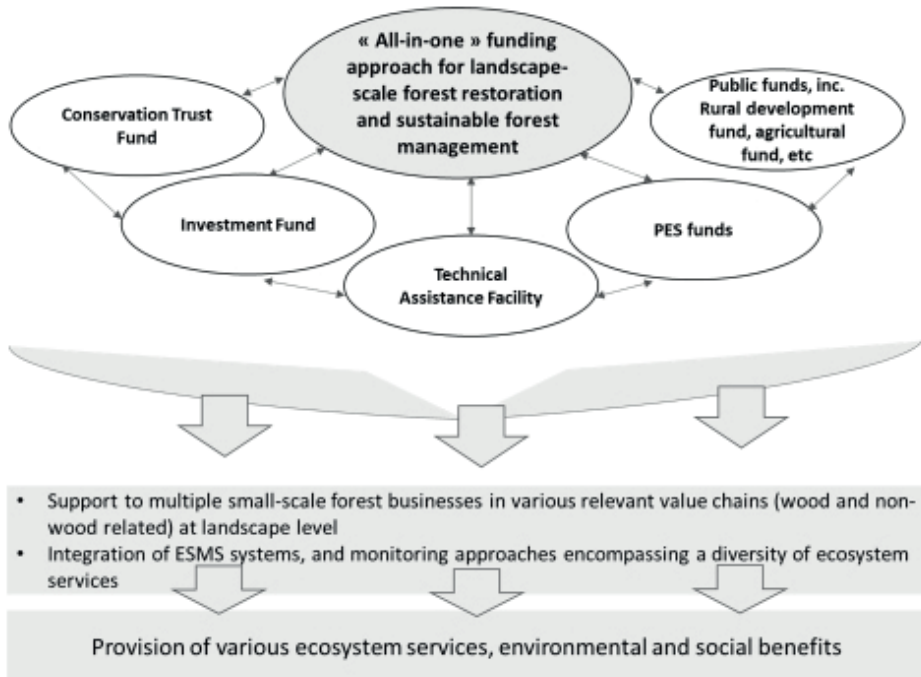


Figure 2: Importance of landscape-scale coordination between funds.

Abbildung 2: Bedeutung des koordinierten Einsatzes verschiedener Fonds.

As an investment fund, FCCF mostly has a risk-based approach vis-à-vis ES provision, and it applies the IFC performance standards. In this context only FCCF and FAF have an Environmental and Social Management System in place, which is a good practice that could be replicated by more forest funds, in particular public forest funds.

In the present situation though only FONAFIFO and FONABOSQUE have a PES approach in place (among the analyzed case studies). As pointed out by Liagre *et al.* (2020), national forest funds can operate as PES-like schemes, sometimes requiring adaptations in

their ways to utilize resources. Private forestry funds may thus benefit from developing more proactive PES-like approaches which may in turn help in developing alternative revenue streams for example through water payments, CSR partnerships, carbon revenues, REDD+ financing, etc (Fig. 3).

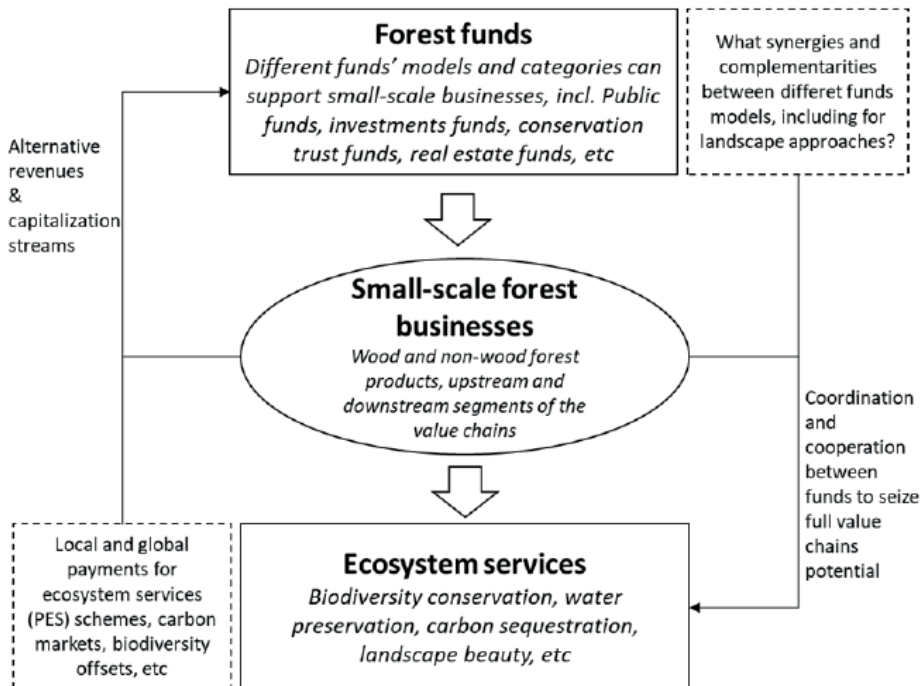


Figure 3: Forest funds & small-scale businesses: the ecosystem services rationale.

Abbildung 3: Forstfonds & Kleinunternehmen: Basis für Ökosystemdienstleistungen.

Based on this analysis, a number of policy recommendations could be developed to support forest funds managers in working more effectively with small-scale forest businesses, while supporting the provision of ecosystem services. These may include, among others:

- Integrating systematically ESMS systems, thus building better E&S risks management approaches;
- Proactively supporting the provision of ES through the development of PES or PES-like mechanisms;

- Designing support to the upstream and downstream segments of value chains, including for wood and non-wood forest products;
- Advancing on the valorization of ES, including with carbon markets, payments for water services, sustainability certification such as FSC and organic certifications;
- Fostering adoption of a diversity of financing instruments such as grants, loans, equity and guarantees, in order to adapt to the diversity of small business types;
- Innovating to foster landscape-scale funding solutions, thus increasing the level of coordination with landscape stakeholders, and seeking for synergies with the diverse funding sources available.

5. Concluding remarks

This exploratory research uncovers some of the key linkages between forest funds, small-scale forest businesses and the provision of ecosystem services. While the rationale for forest funds to operate through their windows for forestry SMEs to deliver ecosystem services is demonstrated, there are still a number of remaining knowledge gaps and pending questions. Further research could seek for example to analyze additional NFFs and to develop a comprehensive framework for assessing how NFFs support small-scale enterprises in delivering ecosystem services. Also risk mitigation approaches could be further assessed as important drivers for increased financing in forest SMEs and the provision of ecosystem services (IIED, 2018; FAO, 2016).

As pointed out in this paper, landscape-scale funding solutions are critical, notably to achieve some of the ambitious ecosystem restoration targets, including in the context of the United Nations Decade on Ecosystem Restoration. Further research will thus also investigate governance models within funds and between funds, in particular at landscape levels, enabling increased outcomes in terms of ecosystem services. Additional external drivers will also have to be considered carefully so that NFFs can unleash their potential to multiple global challenges such as climate change, post Covid-19 recovery and the necessary development of a bioeconomy.

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Appendix 1

Survey on “How national forest funds can support small-scale forest businesses to deliver ecosystem services?”

The present survey targets forest funds’ managers who could share knowledge and information about how the fund they are managing is supporting small-scale forest businesses to deliver forest ecosystem services. This questionnaire will help gather important data that will be used in a research project on National Forest Funds.

General fund information

- Contact person, contact details
- Website
- Headquarters address
- Legal form
- Funding volume in the last 5 years
- Operational scale (e.g. how much is invested per year)
- Sectors/areas of interest or type of projects supported
- Fund capitalization: volume, sources (public, private, domestic international)

Inclusion of small-scale forest businesses in the fund strategy and operations

- Are small-scale forest businesses included in your funding strategy? If yes, why?
- Is the fund mostly supporting wood forest businesses? non wood forest businesses? Or both? Please specify

Funding windows and instruments for small-scale forest businesses

- What type of funding windows are targeting small-scale forest enterprises?
- What funding volume does it represent and in proportion of the total funding volume?
- What are the financing instruments provided by the funds (grants, loans, equity, etc.) to small-scale enterprises? in what proportions?

Typology of beneficiaries among small-scale forest businesses

- Could you specify who are the beneficiaries of the funding windows targeting small-scale businesses? What is their legal form in general?
- How do these businesses generate revenues? On what segment of the value chain are they operating? In short what are their underlying business models? Please specify (if possible)
- How is the project bankability of small-scale forest business evaluated by the fund? Does it differ from larger businesses?
- Do they have access to a local and/or national and/or international market for their products and services?
- What types of risks do these businesses face? How do they overcome them?
- What size do they have in terms of turn over? (an estimation would suffice)

Monitoring on funds' impacts on ecosystem services

- Is there a Monitoring & Evaluation (M&E) system in place at the fund level? to monitor impacts of the projects supported by the fund?
- Which impacts does the fund monitor in priority? Environmental and/or social and/or financial returns (for example)?
- Are forest ecosystem services part of this M&E system? If yes, please specify
- If not, could you please explain what are the underlying reasons? (lack of data, of technical expertise, etc)
- More specifically how are you monitoring the impact on forest ecosystem services of the support provided to small-scale forest businesses?
- In your point of view, is there a correlation between the beneficiary type and the delivery of forest ecosystem services? Is there an impact of the funding instrument on the delivery of forest ecosystem services?
- What recommendations would you have for a M&E system addressing how small-scale forest businesses actually support the delivery of forest ecosystem services?
- What forms of ES valorization are implemented by the Fund? Please specify