PAYING FORESTERS TO PROVIDE ECOSYSTEM SERVICES?

PRINCIPLES, ANALYSIS OF RESULTS TO DATE IN THE FSC PROCEDURE AND THE WAY FORWARD

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WWF

WWF is one of the world's largest and most experienced independent conservation organizations, with over 5 million supporters and a global Network active in more than 100 countries. WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by: conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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EXECUTIVE SUMMARY

This report is a contribution to the Forest Stewardship Council's (FSC's) work on payments for ecosystem services (PES) by:

- Exploring how payments for the ecosystem services generated by forests could lead to positive field projects that help foresters improve management;
- Reflecting on the experience gathered from implementation of the FSC procedure since 2018;
- Suggesting some ways forward that WWF believes can magnify the impacts of FSC's PES procedure and avoid typical pitfalls of PES.

During its last General Assembly (October 2021), FSC announced a new roadmap to 2024 to complement and further develop the impact of this procedure by introducing better tools for Ecosystem Services marketing, production and to raise engagement. The gaps and ways forward mentioned hereafter are a contribution to the revision of FSC's PES procedure.

A CHALLENGING IDEA IN FORESTRY

Forests generate many ecosystem services, including carbon storage and sequestration, biodiversity conservation, protection of soils and water quality. These services are valued by society, but were traditionally provided for free. A growing interest in valuing and subsequently charging payments for these ecosystem services started in the 1990s. Payments for ecosystem services (PES) are voluntary transactions between buyers and sellers; buyers could be corporates but also governments. Payments cover the opportunity cost of maintaining or changing management practices in favour of a given ecosystem service.

Besides the obvious benefits of PES, some PES have been criticised for a number of reasons, including their anthropocentric nature, their commodification of nature, the mismatch between their value, costs of actions and the price charged, and governance and legal challenges.

FSC PROCEDURE ON ECOSYSTEM SERVICES

In 2018, FSC International published a new procedure 'Ecosystem Services Procedure: Impact Demonstration and Market Tools' (FSC-PRO-30-006 V1-0 EN; FSC 2018) which aims to introduce PES into forest management (FM) certification schemes. The procedure focuses on five ecosystem services: biodiversity conservation, carbon sequestration, water preservation, soil conservation and recreational services, and twenty benefits under those services. The procedure is carried out through seven steps, from identifying the ecosystem service through to results.

STATE OF IMPLEMENTATION

In August 2022, 42 FM certificate holders were certified for their 'Ecosystem Services' (ES) around the world. Italy is the most prolific country in terms of proven ES benefits, followed by France, Spain and Portugal. One third (33%) of certificate owners are public entities: State bodies or local authorities. The remaining two-thirds are mainly private forest managers (26%), consulting companies (14%) and paper companies and industrial plantations (12%).

The most frequent benefits are conservation of forest carbon stocks and biodiversity conservation. The service most frequently highlighted is the conservation of biodiversity with over 36% of benefits certified. It is followed by carbon (31%), and to a smaller extent water (15%), recreational services (12%) and the protection of soils (5%). A majority of certificates targets several benefits (62%). On average, each entity aims for 2.5 benefits. Two Italian entities (Magnifica communita di Fiemme and Waldplus) have demonstrated seven benefits.

In February 2021, preliminary results showed that only 10% of entities certified for ES procedure held contracts (Ollivier and Vallauri, 2021). By August 2022, 11 entities (26%) held contracts for payments for ecosystem services, representing 23 benefits funded (21%). The FSC procedure does not define and rule eligible costs or what can and cannot be traded. There is therefore, no data on project costs or on the actual payments for the ecosystem services.

FIRST ASSESSMENT

Assessing the FSC procedure against 16 principles proposed by WWF France for good PES schemes highlights remaining gaps and challenges in the process. Such an assessment demonstrates that seven principles are fully satisfied, three principles are reasonably well satisfied but their consideration could be slightly improved, three principles are not sufficiently considered given the challenges, and for three principles, the procedure is weak. Among possible improvements:

- The only document used in the scheme is an ecosystem service certification document (ESCD) which is a relatively technocratic document. This technical document is inadequate to clearly communicate to interested parties;
- In ES and above all for PES implementation, national or local governance is a key issue. All targeted services (except – in part - carbon) are entirely public goods. This signifies that they do not belong to the forest owner, the buyer of the project or to FSC. To decide which actions are eligible or best to fund, but also to define adequate rules for payment, the project holder should consider the local context. Actions that could

be eligible, additional or funded are not the same in Brazil, France or Indonesia: level of understanding, importance of a given service or benefit, and laws clearly vary. FSC should understand the importance of subsidiarity and facilitate, like in the establishment of FSC's National Forest Stewardship Standard, discussion and adaptation at national level by local forest ES experts. A specific governance should be set by FSC;

- Furthermore, the economic dimensions of PES are incomplete. The ESCDs do not explain the costs generated by the project, how they are calculated, what is actually offered for sale, or the share of financing sought. The specific amount (shortfall or cost) of a project should be known or framed by FSC, to avoid a project sale devoid of any economic basis (or even opening up to speculation) or avoid any risk of greenwashing linked to an unsuitable sales method;
- For small ecosystem service projects, the cost of audits may be prohibitive; thus, adapting audits to small-scale PES projects or landowners may be useful;
- At this stage, the PES procedure is global and general in nature signifying that it may miss some local applicability and relevance. Similarly, actions proposed by projects risk being too broad and it is unclear whether they will lead to desired benefits. Written methods and guidance are lacking;
- Finally, an assessment of the benefit of the project on the other services would be desirable to remove the risk of accidentally degrading another service. Currently, FSC assumes that this is guaranteed by the FSC Forest Management certification, which may be insufficient.


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INTRODUCTION

Forests generate a number of ecosystem services (ES), most notably carbon storage and sequestration, biodiversity conservation, protection of soils and improved water quality. In the forest sector, these ecosystem services are traditionally taken for granted and provided for free to society. Where funding was needed to conserve these ecosystem services, it was traditionally provided either from public sources or through legal means. Today, however, society is acknowledging a wider range of the non-tradeable values of forests. The urgent need to strengthen the role of forests to tackle climate change has increased the interest for ecosystem services. As a result, some attempts have been made to develop payments for projects to conserve or restore ecosystem services in addition to 'normal' sustainable forest management. Biodiversity conservation and carbon sequestration are two major services that forest managers are being asked to work on and payments are growing. However, not all ecosystem services projects are equally valued by society. For example, there is greater criticism of payments for ecosystem services (PES) schemes that support monoculture tree plantations for carbon sequestration than those associated with carbon storage by transitioning to alternative silviculture that includes biodiversity conservation.

In spring 2018, FSC International published a new procedure 'Ecosystem Services Procedure: Impact Demonstration and Market Tools' (FSC-PRO-30-006 V1-0 EN; FSC, 2018). This procedure pioneered the introduction of ES into forest management (FM) certification schemes. On the one hand, it acknowledged the valuation of ecosystem services generated in FSC FM certified forests, and on the other hand, it provided preliminary ideas and market tools to develop PES projects with the ultimate aim to connect them to new funding sources (carbon markets, social and environmental responsibility policies of companies). During its last General Assembly (October 2021), FSC announced a new roadmap to 2024 to complement and further develop the impact of this procedure by introducing better tools for Ecosystem Services marketing, production and to raise engagement.

This report is a contribution to FSC's work on PES by:

- exploring how payments for the ecosystem services generated by forests could lead to positive field projects that help foresters improve management;
- reflecting on the experience from implementation of the FSC procedure since 2018;
- suggesting some ways forward that WWF believes are able to magnify the impacts of FSC's ES procedure and avoid typical pitfalls of PES.

The gaps and ways forward mentioned hereafter are a contribution by WWF to this revision process.

PAYMENTS FOR ECOSYSTEM SERVICES IN A NUTSHELL

WHAT ARE PAYMENTS FOR ECOSYSTEM SERVICES?

The idea of paying for projects that contribute to the safeguard or production of ecosystem services was widely tested in the 1990s in Costa Rica, the first country to introduce a public system of payments for ecosystem services (Pagiola, 2008; Wallbott *et al.*, 2019). Since then, many other countries or entities have developed PES schemes (WWF, 2006; Wunder *et al.* 2008; WWF, 2021; Aguilar-Amuchastegui *et al.*, 2021; Karsenty, 2021; Karsenty and Dieng, 2021). Today, at a global scale, Salzmann and colleagues (2018) estimate that more than 550 PES schemes exist, with an annual value of about USD 36-42 billion. This compares with current spending on biodiversity, estimated by De la Puente and Mitchell (2021) at USD 143 billion, about 80% of which is from public sources.

A payment for an ecosystem service is a voluntary transaction between a buyer and a seller. It can be for the use of land or for an action that promotes a given service, such as the restoration of soil health for example. It can be purchased by one or more buyers with funds transferred to one or more sellers. A necessary condition for this transaction is that the seller must guarantee conservation of the service in the long term (Wunder, 2005; Engel *et al.*, 2008; Muradian *et al.* 2010; Wunder 2015). Additional conditions for an ecosystem service to qualify for such a transaction include that there must be a definition (of the service), but also a credible evaluation, measurement, standardisation, control and certification guaranteeing the impact.

A specific governance structure made up of legitimate institutions helps to frame the transaction (Figure 1). Payments must be made in a transparent way, but as Karsenty and De Blas (2014) note, there are no real market rules in the strict sense of the term. Payment for the service is based on an alternative concept of costs associated with the PES project:

- It is the opportunity cost of maintaining or changing a given management practice to conserve or restore the ecosystem service that is valued and paid for rather than the service *per se*. The opportunity cost could include lost income for the forest owner caused by a change in management (for example, not exploiting timber) but also any eventual management costs required (active management actions). In this respect, Martin-Ortega and Waylen (2018) differentiate between output and input conditionality whereby in the former it is the delivery of the service that is measured (where feasible) and in the latter (more frequently applied), it is compliance with an agreed intervention that is measured.
- It can be complemented by convenience values, i.e. the owner's willingness to commit and the financer's willingness to pay.

The selected management (or non-management) approach, the contract (simple, lease, long term easement, etc.) and the duration of the commitment, are all key parameters that influence negotiation of the deal.

For a payment to be made, a match must be found between a provider of ES and a financer (Figure 1). Differing methods lead to payments. In some cases, a 'reference value' or a 'political tariff' represents the price to be paid for specific actions. It is applicable to any project and is often negotiated and approved at national level. This cost, paid out of the public purse, is not subject to the same requirements as the PES paid by companies, for example as part of their corporate social responsibility (CSR) policies. However, both need to be transparent enough to satisfy the donor.


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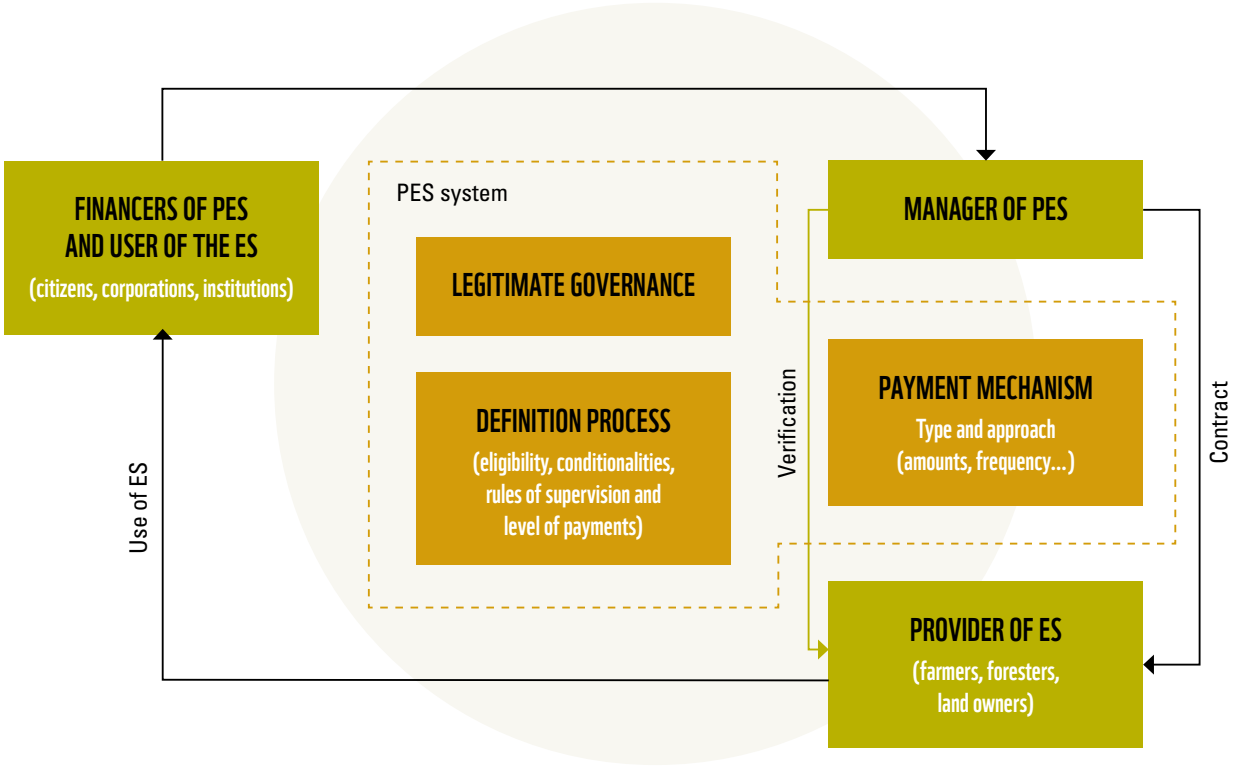


Figure 1. The relationship between actors and processes for payments for ecosystem services (adapted from Vallauri et *al.*, 2021).

RATIONALES VALUING NATURAL CAPITAL IN ECONOMIC TERMS ARE DIFFERENT FROM THOSE OF PES

Since the end of the 1990s, economists have been exploring the values of natural capital (Costanza *et al.*, 1997), introducing the notion of value for an 'ecosystem service'. Costanza *et al.* (1997) defined ecosystem services as "flows of materials, energy, and information from natural capital stocks which combine with manufactured and human capital services to produce human welfare". At the turn of the century, the launch of the Millennium Ecosystem Assessment (2005) provided visibility to the concept, defining in turn 'ecosystem services' as the benefits that humans derive from ecosystems (MEA, 2005). Estimates from 2011 for example, suggest that the services provided by temperate forests amounted to USD 3,137/ha/yr. on average and those from tropical forests amounted to USD 5,382/ha/yr. (Costanza *et al.*, 2014).

Anthropocentric by their very nature, ecosystem services and payments for projects that contribute to their conservation or restoration have given rise to much debate with regard to both their theoretical and political contexts (Sandbrook *et al.*, 2013; Fletcher and Büscher, 2017; Martin-Ortega and Waylen, 2018). Today, there are a growing number of manuals to assess ecosystem services (OECD, 2011; Smith *et al.*, 2013; Neugarten *et al.*, 2018; FAO, 2019) and a few established schemes (Gold Standard, VERRA, REDD+...).

However, to avoid a common pitfall, the reader should be aware of the difference between the values of natural capital and the price paid for a PES project. Although both are expressed in monetary terms, the values of the former do not equate at all to the price to be paid via a PES.

A SNAPSHOT OF PES CRITICISM

Some economic, legal and ethical concerns are often raised around PES. We summarise these briefly below:

- **Limitations of an anthropocentric approach**
  The intrinsic value of nature extends beyond monetary terms and cannot be traded (Martin-Ortega *et al.*, 2019). Reducing nature to a simple provider of goods and services may be ethically questionable with the use value of nature often being over-emphasized by authors working on the economics of nature.

- **Commodification of nature**
  Commodification of nature risks backfiring on conservation and has been criticized by several authors (e.g. McCauley, 2006; Keulartz, 2013; Apostolopoulou and Adams, 2017). Indeed, conserving biodiversity is not always economically viable and deforestation for example, often brings more immediate benefits to society than conservation because it responds to a market that is based on the exchange value of the resource. However, PES may in fact generate new markets for ecosystem services that were previously ignored. The question of who decides the value of a service / a project for society remains open and should be debated at a relevant scale (national, local). For some services (e.g. carbon) it may be led by market dynamics.

- **Valuation does not equal pricing**
  "Recognizing the value of biodiversity [or any other service] tells us nothing about its price (fortunately)" (Delannoy, 2011). "Monetary evaluations are not intended to put a price on nature, (...) but they only highlight its use value" (Maris 2014). While some traditional forest products (wood, hunting permits) belong to and are sold by the forest owner, other components such as air, water or biodiversity are public goods. In this respect, monetization does not relate to the value of species but rather to the actions to manage or restore the species in question. In essence, while the ecosystem services offered by nature are free, the project contributing to ecosystem services conservation is offered by the forester and may come at a cost for which society (or a private entity) might be willing to pay.

- **Governance and legal challenges**
  Who owns non-market or public ecosystem goods and services? Who decides what to pay? Who pays for services of public interest? Is it for the sole user to pay for the benefit? Who receives the money? How much does he/she receive since some public goods or services (e.g., biodiversity, clean air, etc.) do not belong to the owner of the forest? How can the long-term action often necessary to conserve the services of forest ecosystems be guaranteed by contract?

Research on PES has responded to the main criticisms. Without carrying out a full literature review here, it is obvious that research in recent years has updated PES theory (Wunder 2015), started to take stock of existing PES programmes (Wunder *et al.*, 2008) and discussed, for example, the effectiveness of payments for ecosystem services (Börner *et al.*, 2017).

PRINCIPLES FOR GOOD PES SCHEMES

In the framework of an analysis carried out by WWF-France (Vallauri *et al.*, 2021), we identified seven key elements of a good PES scheme: governance, written methods, definition of projects, marketing, financing, implementation and transparency. These elements have been further developed as 16 practical principles that may help to develop future forest-based PES schemes or projects. They aim to guarantee the legitimacy of projects, the efficiency, additionality and sustainability of their benefits, and fairness, accountability and transparency of the transactions put in place.

These principles are based on: i) the analysis of existing PES and their critical review (Laurans *et al.*, 2012), and ii) principles put in place by existing systems at the international level, both on carbon and on biodiversity (Gold Standard, Business and Biodiversity Offsets Programme - BBOP, VERRA-VCS). However, they also aim to be accessible, practical and efficient to be useful for small scale forest PES projects.

Legitimacy – Effective governance

1. The legitimacy of the project and its methods (definition of actions, price of the service, etc.) derive from a governance system that is as close as possible to the landscape (in order to actively engage and consult stakeholders). Alternatively, or additionally, it is based on the consultation of a panel of national or regional ecosystem services experts.

2. The publication and use of tools (including a catalogue of written methods) are defined and approved at the right scale (national or sub-national) and provide a harmonized framework for projects, after consultation with a panel of experts on the ecosystem service in question.

Efficiency - Maximum benefit secured

3. The objective of the project is clear, positive and presents a 'no regrets' option, supporting the implementation of practical interventions to maintain or restore a service of public value.

4. The targeting of actions is precise, and responds to locally defined priorities.

5. The proposed project seeks the best possible financial efficiency of the PES and guarantees full transparency to the funder. The price of the service is not subject to speculation and contributes to a selected benefit.

Additionality - Measured added value

6. The project strengthens responsible management according to a quality management system and clear thresholds.

7. Added value to the service is measured, demonstrated and quantified. It can be compared to a contextualised reference scenario (containing both spatial and temporal data) corresponding to a legal and acceptable 'common practice' or any other more ambitious scenario.

8. Payment for one service must not lead to the degradation of another. An evaluation is carried out, including beyond the service, so as to put in place any immediate corrective actions and respond if necessary, to any undesirable, ecological or social impact.

Sustainability - Benefit guaranteed over an adequate period

9. The participation and consultation of local actors are carried out at the appropriate scale to better integrate benefits in the landscape.

10. Credible and long-term commitments lead to lasting results. A suitable period is set in relation to the action and its benefit (long term is often necessary). The risks (non permanence, leaks, incertainties...) are assessed, minimised and taken into account.

Equity and Social Responsibility - Encourage deserving owners

11. A healthy, balanced and mutually beneficial commercial relationship is established between the funder and the committed forest owner. The project developer, often an essential intermediary, remains a facilitating link in the project but not the main financial beneficiary of the project.

12. Payment covers the established fair cost of intervening to support a given service. To ensure the effectiveness of projects, WWF recommends a few simple rules: i) aim to use more than 50% of the total project budget for the remuneration of concrete actions on the ground and compensation to the landowner (this share excludes engineering and certification costs); ii) keep transaction and communication costs to less than 25% of the total project budget.

13. The project respects social and environmental safeguards. Payment for the service must not violate laws or give rise to social grievances (working conditions, child labour, land grabbing, etc.).

Transparency - Highlight benefits in a transparent way

14. Validation and verification are implemented by external project audits (either fully or through a representative sample).

15. Information about the project is both clear and sufficient, providing the minimum data to assess the quality of each project.

16. Communication is framed by a procedure ensuring that there is no risk of false claims.

FSC ECOSYSTEM SERVICES PROCEDURE

PROCESS TO APPLY THE PROCEDURE

FSC's Ecosystem Services procedure (FSC-PRO-30-006 V1-0 EN; FSC 2018) aims to value the ecosystem services both from an economic and a societal perspective. It applies only to FSC-FM certified forests (Figure 2).

For the purposes of this FSC procedure, ecosystem services are defined as the benefits that people obtain from ecosystems. The procedure focuses on the following five services: biodiversity conservation (SE 1), carbon sequestration and storage (SE 2), watershed services (SE 3), soil conservation (SE 4) and recreational services (SE 5) (Table 1).

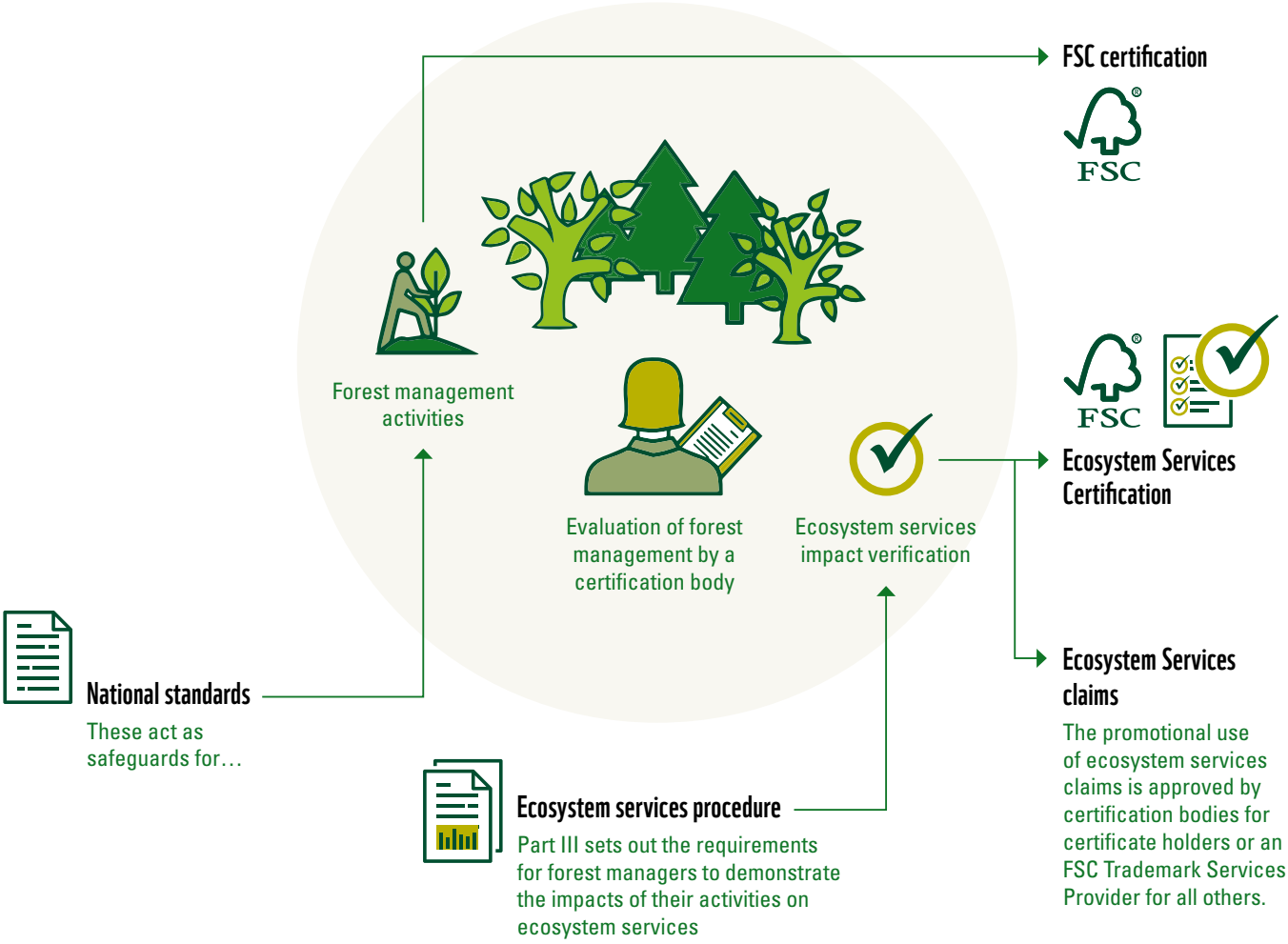


Figure 2. Situating the procedure for Ecosystem Services in the existing FSC normative system. The references to Ecosystem Services verified or validated are recorded in the ecosystem services certification document (ESCD). The verified benefits give rise to the attribution of Ecosystem Services claims, which may be used for promotional purposes (excerpt from FSC, 2018).

Table 1. Categories of benefits recognised by FSC procedure.
The occurrence is the number of projects using this benefit as of August 2022.

SERVICES	CATEGORY OF BENEFIT	OCCURRENCE
Biodiversity conservation	**1.1.** Restoration of natural forest cover	**7**
	1.2. Conservation of intact forest landscapes	**0**
	1.3. Maintenance of an ecologically sufficient conservation area network	**8**
	1.4. Conservation of natural forest characteristics	**3**
	1.5. Restoration of natural forest characteristics	**3**
	1.6. Conservation of species diversity	**15**
	1.7. Restoration of species diversity	**3**
Carbon sequestration and storage	**2.1.** Conservation of forest carbon stocks	**22**
	2.2. Restoration of forest carbon stocks	**12**
Watershed services	**3.1.** Maintenance of water quality	**6**
	3.2. Enhancement of water quality	**1**
	3.3. Maintenance of the capacity of watersheds to purify and regulate water flow	**6**
	3.4. Restoration of the capacity of watersheds to purify and regulate water flow	**3**
Soil conservation	**4.1.** Maintenance of soil condition	**4**
	4.2. Restoration/enhancement of soil condition	**0**
	4.3. Reduction of soil erosion through reforestation/restoration	**2**
Recreational services	**5.1.** Maintenance/conservation of areas of importance for recreation and/or tourism	**10**
	5.2. Restoration or enhancement of areas of importance for recreation and/or tourism	**2**
	5.3. Maintenance/conservation of populations of species of interest for nature-based tourism	**1**
	5.4. Restoration or enhancement of populations of species of interest for nature-based tourism	**0**

To obtain the 'ecosystem service' label, FSC-certified forest managers must verify at least one of the twenty benefits proposed (FSC, 2018). According to FSC definitions, a benefit is the "long-term maintenance, conservation, enhancement, or restoration of ecosystem services, or benefits derived from them, which results, at least in part, from contributing management activities."

The holder of a forest management FSC certificate must complete a document of ecosystem services certification (ESCD) which must be updated and controlled at least every five years. This ESCD is the central document for the procedure and is publicly available.

An external auditor verifies the proposed ecosystem services and the monitoring process and attributes the label "FSC Ecosystem Services". The project can then be financed through a partnership with either public or private actors. For example corporations may decide to fund these projects in the framework of their CSR policy.

The procedure focuses on certifying the service provided by the manager. The holder of the certificate is then responsible for finding a financer. The process of negotiation and payment is not – at this stage – framed by the FSC-PRO-30-006 V1-0 EN procedure.

THE PROCEDURE STEP-BY-STEP

To demonstrate a positive impact on the service, the procedure defines seven steps (Figure 3). These seven steps are all compulsory and must be spelt out in the ESCD. Two key steps are:

- The choice of benefits through the development of a theory of change. This theory of change implies a chain of results over time that demonstrates how an organization assumes that its management activities will contribute to the desired benefit. It enables a link between activities in the forest and the benefit to be demonstrated.
- The selection of outcome indicators and the methods chosen to measure them. An outcome indicator must be specific, measurable, reachable, adapted and defined over time. The FSC procedure proposes a list of results based on the benefit selected. The certificate owner can then put in place the relevant indicator. Once one or more indicators have been selected, their current value must be assessed. Several methods are proposed by the procedure for each of the five ecosystem services. Ecosystem services can be assessed with the methods proposed by FSC or by any other locally-adapted, credible, objective and replicable method. The owner of the Ecosystem Services certificate can choose the method that corresponds to the given local situation and to indicators for which data is already being collected. In this case, the auditor verifies that the procedure is respected and assesses the relevance of the chosen methodology.

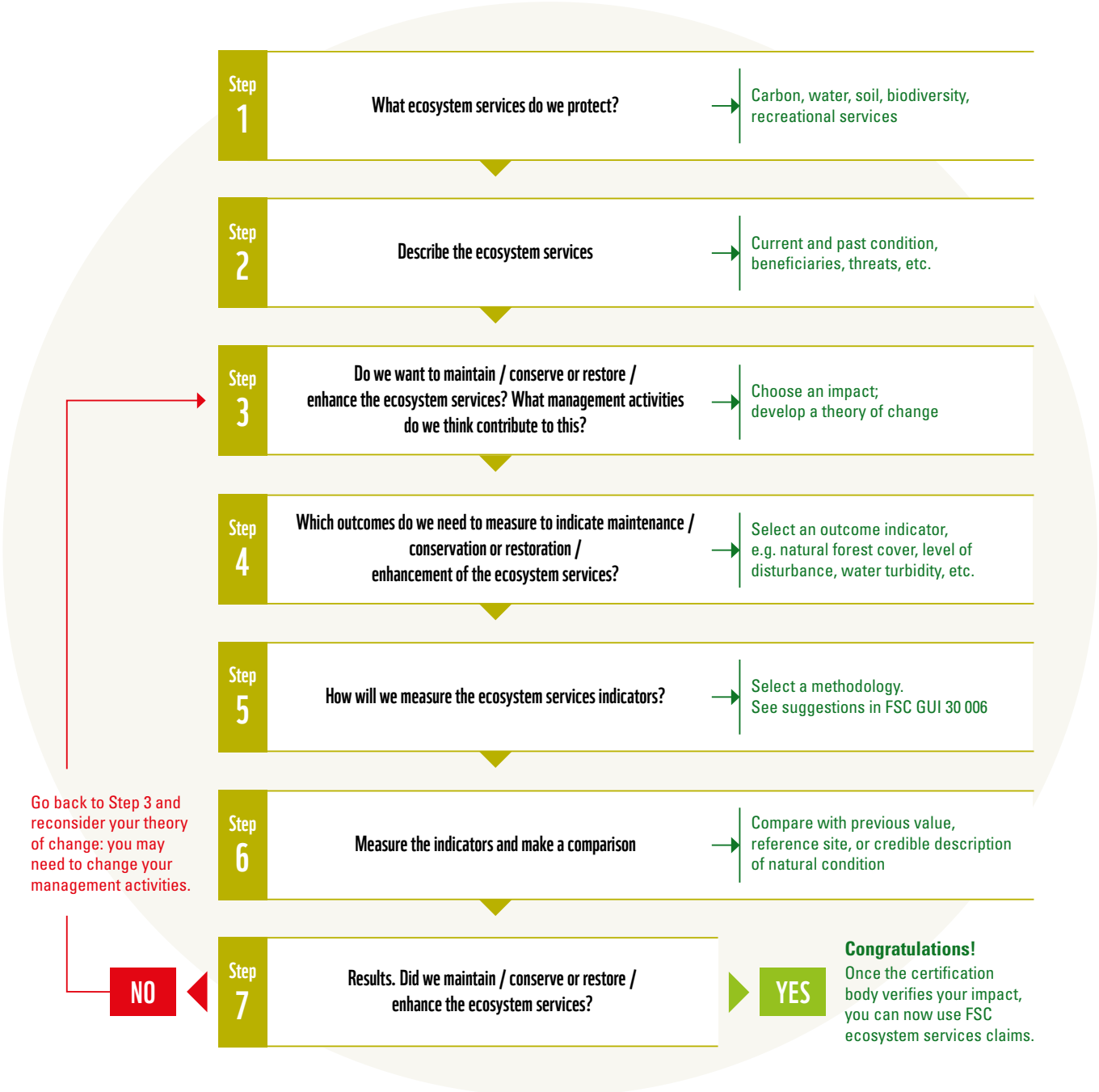


Figure 3. The seven steps of FSC's Ecosystem Services procedure (FSC, 2018).

STATE OF IMPLEMENTATION OF FSC'S ECOSYSTEM SERVICES PROCEDURE

In the following paragraphs, we synthesise results from the first four years of implementation of the FSC's Ecosystem Services procedure (from 2018 to August 2022; see a detailed analysis up to February 2021 in Ollivier and Vallauri, 2021).

Table 2 and Figure 4 highlight the current list of owners of Ecosystem Services certificates and the types of services certified. By August 2022, 42 FM certificate holders were certified 'Ecosystem Services' around the world. Italy is the most prolific country in terms of proven benefits with 39 certified benefits (35%), followed by France (11 benefits, 10%), Spain and Portugal (both 10 benefits, 9%); Brazil ranks 5th (8 benefits, 7%) and is the first country outside of Europe.

One third (33%) of certificate owners are public entities: State bodies or local authorities. The remaining two-thirds are mainly private forest managers (26%), consulting companies (14%) and paper & industrial plantations companies (12%). The share of local public entities differs according to the local context, with for example, 44% of Italian entities (4 out of 9) being public.

All users of the Ecosystem Services procedure are FSC certified for forest management, with the oldest being Precious Wood in 1997 and the most recent being Junta de Castilla-La Mancha - Toledo in 2022.

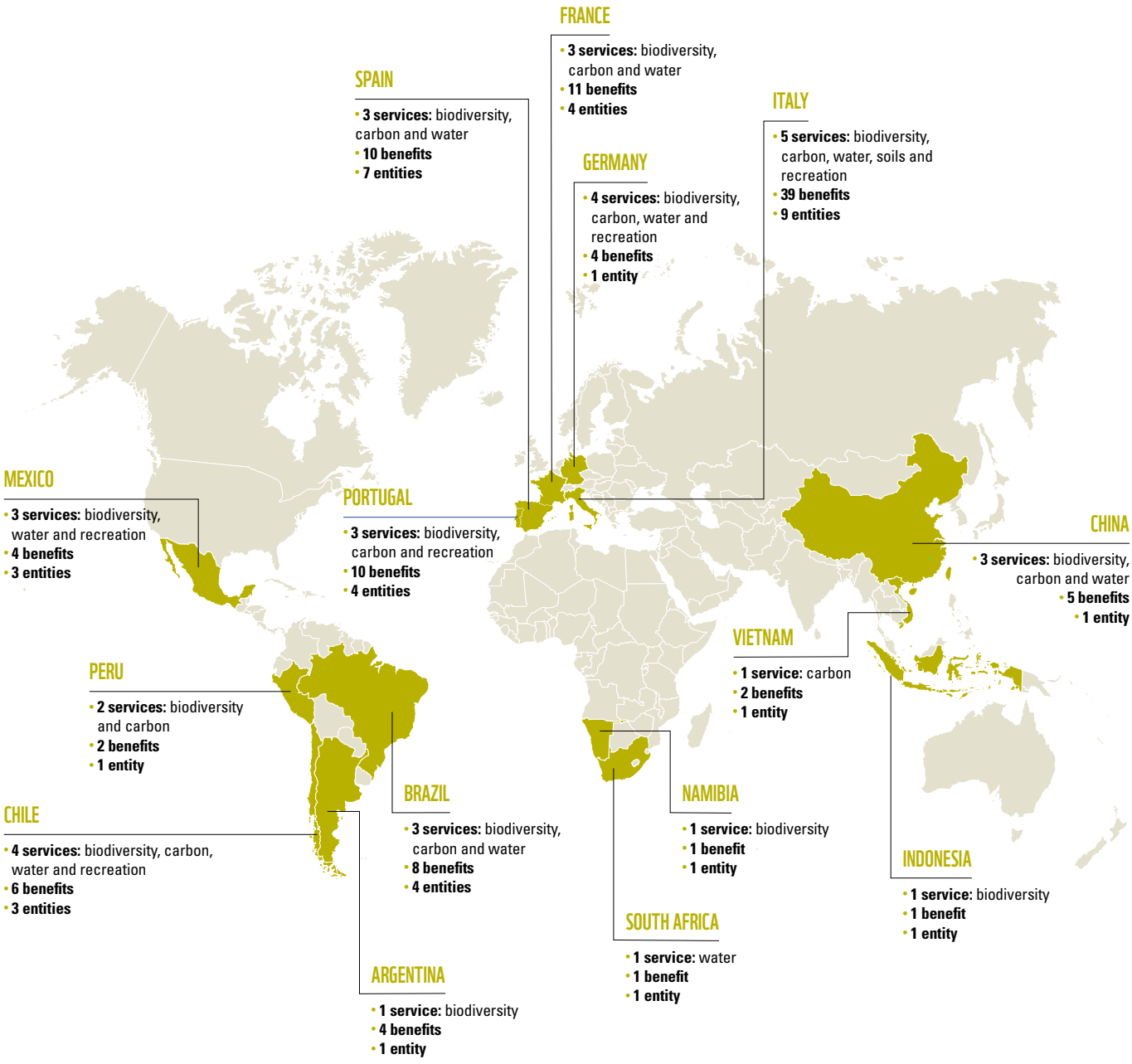


Figure 4. Geographical distribution of projects using the FSC Ecosystem Services procedure worldwide in August 2022.

Table 2. The number of benefits certified by services for 42 FSC ES certificates.

OWNER OF THE PROJECT		LOCATION		BENEFITS BY ECOSYSTEM SERVICE					
Name	Type	Country	Region		CO_2				Total
2BForest Lda.	Consulting company & forest manager	Portugal	Paiva sub-region	1	2	0	0	1	**4**
Agris Sardegna	Public entity	Italy	Sardinia	2	1	1	1	1	**6**
Amazonbai	Producers cooperative	Brazil	Bailique archipelago (Amazon estuary)	1	1	0	0	0	**2**
AFPCertifica Group Scheme	Private forest manager (group)	Portugal	Various	0	1	0	0	0	**1**
Arauco Argentina S.A	Paper company & industrial plantations	Argentina	Misiones, Buenos Aires & Entre Rios Provinces	4	0	0	0	0	**4**
Attractive Cascade Unipessoal LDA	Community forest manager (group)	Portugal	Campo e Sobrado, Valongo, Maia, Valpaços	1	1	0	0	0	**2**
Azienda Agricola Maria Luisa Rosseghini di Giorgio Invernizzi & C. Società Semplice Agricola	Private forest manager (individual)	Italy	Parma - Cremona	2	1	0	1	1	**5**
Azienda agricola Rosa Anna e Rosa Liugia	Private forest manager (individual)	Italy	Sabbioneta	1	1	0	1	1	**4**
Bienes Comunales San Geronimo Zacapexco	Local authority	Mexico	San Jerónimo Zacapexco	0	0	1	0	1	**2**
Biesca Agroforestal y Medioambiente	Consulting company	Spain	Asturias	1	1	1	0	0	**3**
CMO Logistics (Pty) Ltd	Consulting company	South Africa	Western Cape & Eastern Cape Provinces	0	0	1	0	0	**1**
CMO Namibia Pty	Consulting company	Namibia	Windhoek	1	0	0	0	0	**1**
Compañia Agrícola y Forestal El Álamo	Private forest manager (individual)	Chile	Maule Region	0	0	0	0	1	**1**
Consejeria de Desarrollo Sostenible de Castilla-La Mancha	Local authority	Spain	Cuenca	1	0	0	0	0	**1**
DAMBACH Groupe c/o Evrard de Turckheim	Private forest manager (group)	France	Northern Vosges	1	2	0	0	0	**3**
Ejido Nuevo Becal	Local authority	Mexico	Calakmul, Campeche	1	0	0	0	0	**1**
Ejido Topia	Local authority	Mexico	Durango	0	0	1	0	0	**1**
El Servicio Medio-Ambiente del Cabildo de Gran Canaria	Local authority	Spain	Canary Islands	0	0	1	0	0	**1**
Enxeñeria Forestal ASEFOR	Consulting company	Spain	Monte Rogueira, Lugo (Galicia)	1	0	0	0	0	**1**
ERSAF - Ente Regionale per i Servizi all'Agricoltura e alle Foreste	Public entity	Italy	Milan	1	1	1	0	1	**4**
Forestal Arauco S.A.	Paper company & industrial plantations	Chile	Parque Oncol (Valdivia)	1	0	1	0	2	**4**

OWNER OF THE PROJECT		LOCATION		BENEFITS BY ECOSYSTEM SERVICE					
Name	Type	Country	Region		CO_2				Total
Fujian Province Shunchang County National Forest Farm	Local authority	China	Shunchang Province	1	2	2	0	0	**5**
Giana masu	Private forest manager (individual)	Italy	Sardinia	1	0	0	0	0	**1**
Huong Son Forestry Company	State-owned forest concession	Vietnam	Son Hong, Son Tay, Son Kim 1	0	2	0	0	0	**2**
Junta de Castilla-La Mancha - Toledo	Local authority	Spain	Sevilleja de la Jara (Toledo)	1	0	0	0	0	**1**
Klabin S/A Unidade Florestal Santa Catarina	Paper company & industrial plantations	Brazil	Painel, Urupema, Rio Rufino and Bocaina do Sul Municipalities	1	1	1	0	0	**3**
Maderacre	Timber company	Peru	Madre de Dios (Amazon)	1	1	0	0	0	**2**
Magnifica Comunita di Fiemme	Local authority	Italy	Calavese	2	2	1	1	1	**7**
Mil Madeiras Preciosas Ltda.	Timber company	Brazil	Amazonas State	0	1	1	0	0	**2**
Naturland	Private forest manager (group)	Germany	Boppard	1	1	1	0	1	**4**
Partecipanza dei Boschi	Private forest manager (individual)	Italy	Trinon	2	1	0	0	0	**3**
PT Ratah Timber	Timber company	Indonesia	East Kalimantan	1	0	0	0	0	**1**
SARL Alcina Forêts	Consulting company	France	Cévennes, Luberon	2	2	1	0	0	**5**
Selga (Compana Galega de Silvicultores)	Private forest manager (group)	Spain	Galicia (Pico Sacro)	1	1	0	0	0	**2**
Sylvamo Forêt Services	Private forest manager (group) & paper company	France	Limousin and Centre of France regions	1	1	0	0	0	**2**
Syndicat Intercommunal de Gestion Forestière de la Région d'Auberive (SIGFRA)	Public entity	France	Haute-Marne	1	0	0	0	0	**1**
Unimadeiras - Produçao, Comércio e Exploraçao Florestal, S.A. – Grupo UniFloresta	Private forest manager (group)	Portugal	Coimbra District	1	2	0	0	0	**3**
Unione di comuni Valdarno e Valdisieve	Local authority	Italy	Valdarno et Valdisieve	0	1	0	0	1	**2**
Veracel Celulose	Paper company	Brazil	Porto Seguro (Parque nacional do Pau Brasil)	1	0	0	0	0	**1**
Vina Concha y Toro	Winegrower	Chile	Región del Libertador Bernardo O´Higgins	0	1	0	0	0	**1**
Waldplus	Private forest manager (group)	Italy	Trentino-Alto Adige	1	2	1	2	1	**7**
Xunta de Galicia	Local authority	Spain	Coruna, Lugo (Galicia)	0	1	0	0	0	**1**

WHICH SERVICES AND BENEFITS ARE CERTIFIED?

In total, projects identified 108 benefits. The most frequent benefits are conservation of forest carbon stocks and biodiversity conservation (Tables 1 and 3). The service most frequently highlighted is the conservation of biodiversity with over 36% of benefits certified. It is closely followed by carbon (31%), and to a smaller extent water (15%), recreational services (12%) and the protection of soils (6%) (Figure 5, Table 3). A majority of certificates targets several benefits (62%). On average, each entity aims for 2.5 benefits. Two Italian entities (Magnifica communita di Fiemme and Waldplus) have demonstrated seven benefits.

WHO FINANCES? AT WHAT COST?

In February 2021, preliminary results showed that only 10% of entities certified for ES held contracts (Ollivier and Vallauri, 2021). By August 2022, 11 entities (26%) held contracts for payments for ecosystem services, representing 23 benefits funded (21%) (Table 4).

The FSC procedure does not define and rule eligible costs or what can and cannot be traded. The ESCD does not show the opportunity costs, management costs or the price of projects. There is therefore, no data on project costs or on the actual payments for the ecosystem services. The latter result from negotiations between buyer and seller. There is a clear lack of transparency in this respect.

Table 3. Number and share of services certified according to the FSC Ecosystem Services procedure in August 2022.

SERVICES	NUMBER OF BENEFITS	SHARE
Biodiversity conservation	39	36%
Carbon sequestration and	34	31%
Watershed services	16	15%
Soil conservation	6	6%
Recreational services	13	12%

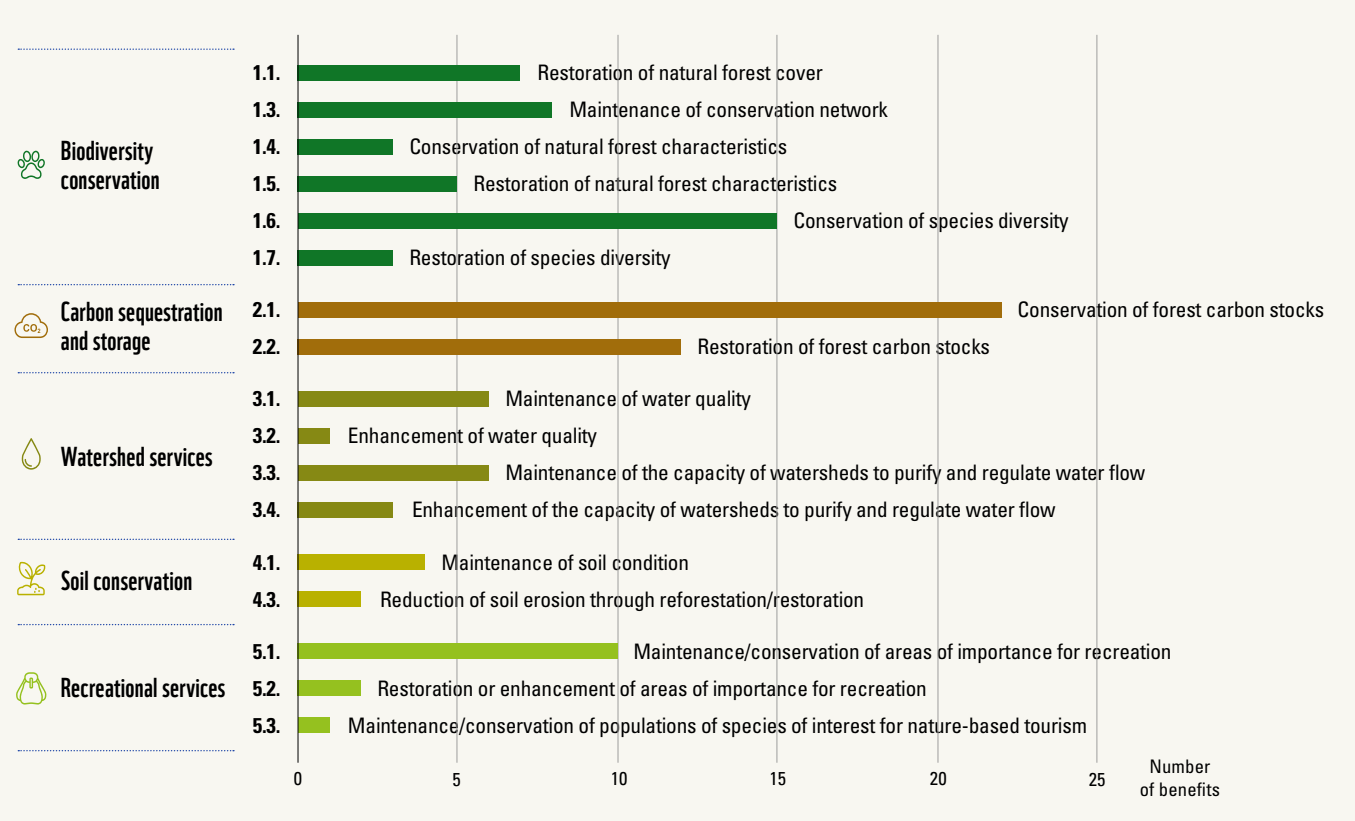


Figure 5. Type and number of benefits certified. Three services have not been used to date: 'ES 1.2 Conservation of intact forest landscapes' 'ES 4.2 Restoration/improvement of soils' and 'ES 5.4 5.4. Restoration or enhancement of populations of species of interest for nature-based tourism'.

Table 4. Funded benefits according to the service and proponent of the project in August 2022.

OWNER OF CERTIFICATE	COUNTRY	BENEFITS BY ECOSYSTEM SERVICE					Total	FUNDERS
2BForest Lda.	Portugal	1	2	0	0	1	**4**	Reflora Initiative Lda ; CONSULAI - CONSULTORIA AGRO-INDUSTRIAL, LDA; Petrogal S.A.; NTT DATA PORTUGAL, S.A; Smart Home SA
Amazonbai	Brazil	0	1	0	0	0	**1**	TTS CLEANING S.R.L
Ejido Topia	Mexico	0	0	1	0	0	**1**	Alimentos del fuerte S.A. de C.V.
Enxeñeria Forestal ASEFOR	Spain	1	0	0	0	0	**1**	AGROAMB PRODALT S.L.
Huong Son Forestry Company	Vietnam	0	1	0	0	0	**1**	Etifor s.r.l
Magifica comunita' di Fiemme	Italy	1	2	0	0	0	**3**	**Biodiversity, benefit 1.1:** FSC Italia (0.13 ha); MAW Men at Work (0.33 ha); Questlab (0.23 ha); Vaia srl (0.67 ha); Logos Technologies (0,07 ha); Sparkasse (0.67 ha); Multiple private citizens and organizations (1.5 ha) **Carbon, benefit 2.1:** Aspiag Service Srl (100 tCO_2); **Benefit 2.2:** Mugo srl (347 tCO_2); CO_2 advisor (1021 tCO_2); Bulgarelli (3.24 tCO_2)
Naturland	Germany	0	1	0	0	0	**1**	Anonymous (1,500 tCO_2)
Sylvamo Forêt Services	France	1	0	0	0	0	**1**	Société Française Des Jeux (FDJ)
Unimadeiras S.A. – Grupo UniFloresta	Portugal	1	2	0	0	0	**3**	Municipio de Vila Nova de Poiares
Unione di comuni Valdarno è Valdisieve	Italy	0	1	0	0	0	**1**	Bulgarelli Production Srl (600 tCO_2); Barilla G. e R. Fratelli SpA (103 tCO_2); Levico SpA (2,962 tCO_2)
Waldplus	Italy	1	2	1	1	1	**6**	**Biodiversity, benefit 1.1:** Ali Spa (5,58 ha), Barilla G. e R. Fratelli SpA (2 ha), Birra Ingross s.r.l. (0.1 ha), Bulgarelli Production S.r.l.(0.4 ha), E.ON ENERGIA S.P.A (11,71 ha), IKEA Italia Retail S.r.l (3 ha), INDUSTRIA CONCIARIA EUROPA S.P.A. (0.1 ha), Latterie Vicentine S.C.A (0.1 ha), Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. (0.66 ha), Molino Rossetto Livio (0.1 ha), Oleodinamica Panni S.r.l. (0.1 ha), Osteria Scaldaferro SRL (0.1 ha), Q8 Kuwait Petroleum Italia S.p.A. (1.5 ha), Risto3 (0.15 ha), Sadesign S.n.c (0.06 ha), Sgambaro SPA (0.1 ha), Stefanplast SPA (0.15 ha), Tino Sport Service (0.18 ha), Tipografia Munari Artegrafica Munari di Munari R. & C. Snc (0.1 ha), Zanandrea Tessuti (0,1 ha), Zannoni Stefania C. S.N.C (0.09 ha), Orion Srl (0.07 ha) **Carbon, benefit 2.1:** Alta Badia Brand (22 tCO_2), Butterfield and Robinson (100 tCO2), DOLOMITE MOUNTAINS S.r.l. / Tour Operator (47 tCO_2), HP Italia SRL (129 tCO_2), Levico SpA (17100 tCO_2), MIKO srl (14412 tCO_2), Sgambaro SPA (2410 tCO_2), Strada del vino Colli Euganei e.t.s. (80 tCO_2), TTS CLEANING S.R.L (500 tCO_2), YAC (3 tCO_2), Luxottica Srl (8500 tCO_2). **Benefit 2.2:** Ali Spa (1125 tCO_2), Barilla G. e R. Fratelli S.p.A (396 tCO_2), Bulgarelli Production S.r.l (79 tCO_2), Prodeco Pharma S.r.l. Unipersonale (106 tCO_2), Sgambaro SPA (19 tCO_2), Stefanplast SPA (29 tCO_2), Orion Srl (13 tCO_2), SDA Fabris Scarpa Mazzuchin (43 tCO_2), Aspiag Service S.r.l (100 tCO_2) **Water, benefit 3.4:** Consorzio di Bonifica Brenta (6,782,387 m^3) **Soils, benefit 4.3:** Ali Spa **Recreation, benefit 5.2:** Comune di Carmignano di Brenta (2.35 ha); E.ON ENERGIA S.P.A (3.08 ha); Pixartprinting S.p.A (4.35 ha)
Total		6	12	2	1	2	**23**	
Share of benefits certified that lead to payments		15%	35%	13%	17%	15%	**21%**	

THE PROCEDURE IN PRACTICE

Arauco Argentina S.A. (Argentina) is a paper company that has certified its concessions (industrial plantations) according to FSC standards.

It has verified the benefit 'conservation of species diversity' by developing a theory of change to support the conservation of jaguar habitat (Figure 6).

The conservation of natural areas favourable to the jaguar, the design of ecological corridors in between these zones, the restoration of degraded zones and protective actions (patrolling and environmental education) are a logical series of actions that can maintain jaguar habitat in the certified concessions.

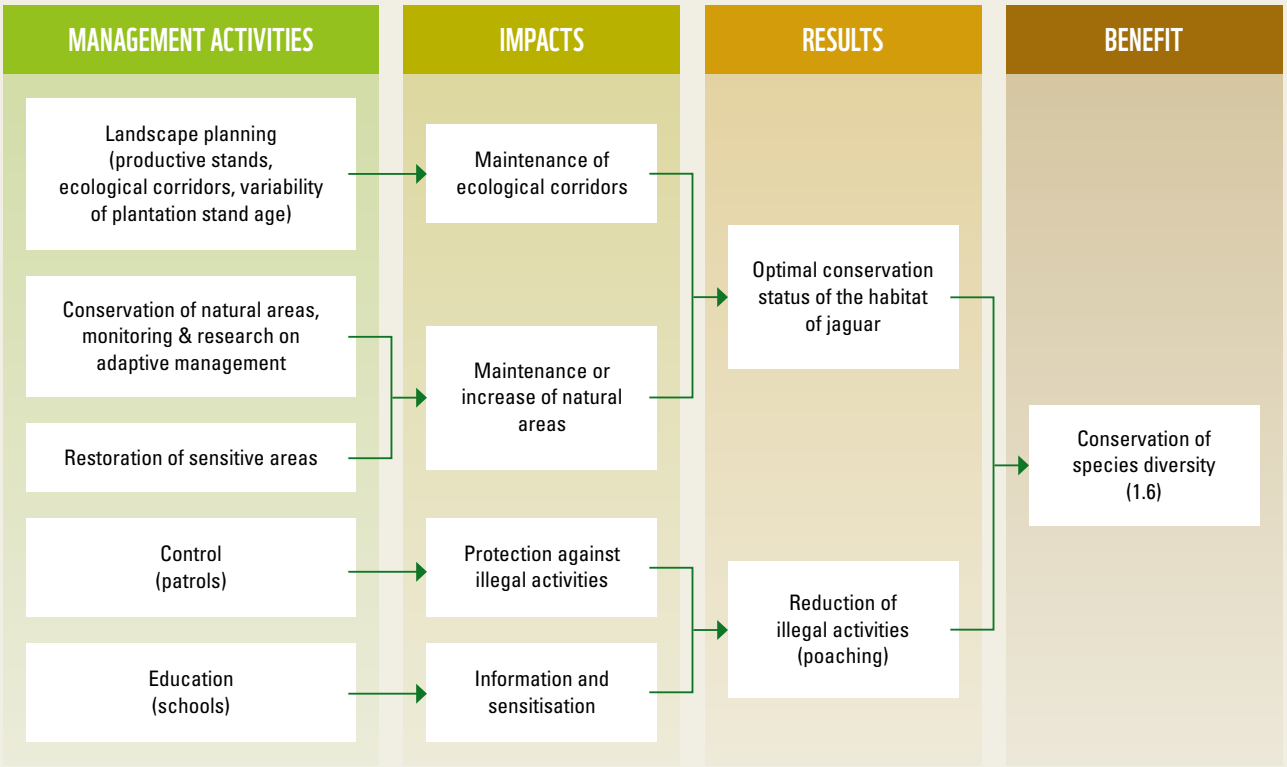


Figure 6. Theory of change of the project by Arauco Argentina S.A. for the benefit 'Conservation of the diversity of species'. It lists the benefits of management activities on the availability of habitat for the jaguar (according to the ECSD Jaguar, Arauco Argentina S.A., 2019).

THE PROCEDURE IN PRACTICE

In Peru's Madre de Dios region, the Maderacre company manages a forest concession of about 220,000 hectares of FSC certified natural tropical forests. It exploits tropical timber and sells carbon credits.

It received the Ecosystem Services mention for the benefit 'Conservation of the diversity of species'. The actions of the theory of change (identification of High Conservation Value areas, delimitation of conservation areas, establishment of low impact silvicultural operations, patrols, hunting ban) aim to maintain natural tropical forests and associated forest fauna. These actions are evaluated and monitored through indicators (Table 5).

The document presents a large number of indicators, and the link between indicator and species is not obvious (for example, which species are concerned by poaching?). A local naturalist monitors the 'species' indicators.

The first indicator (number of species registered) dropped between 2011 and 2017. Maderacre justified this drop since the surveys were not carried out on the same sites, therefore, this reduction is not significant and the indicator is considered stable. One of the compulsory indicators 'availability of habitat within the management unit for priority, rare or threatened species' is not clearly defined (is it indicator 6?).

Table 5. Results indicators for the Maderacre project for the benefit 'Conservation of the diversity of species' (ESCD Maderacre, 2020)

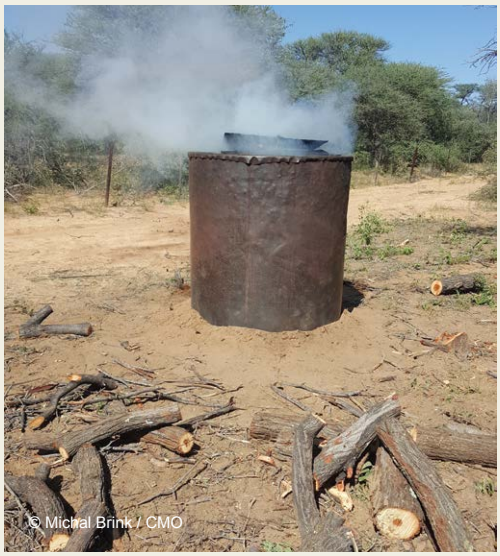
	INDICATORS	TARGET	REFERENCE	CURRENT VALUE
State	**1.** Number of faunal species recorded in studies	Stable	2011: 150 (34 mammals, 98 birds, 18 reptiles and amphibians)	2017: 135 (25 mammals, 75 birds, 10 reptiles, 25 amphibians)
	2. Abundance of priority species	Stable	2011: 23 species	2017: 17 species
Pressure	**3.** Poaching evidence per year	Very low	2018: 0	2019: 0
	4. Evidence of illegal wood harvesting per year	Very low		
	8. Share (%) of the area degraded by wood harvesting	Stable	2017: 0.35%	2018: 0.31%
Response	**5.** Area protected, free from poaching and illegal wood harvesting	Monitoring in place	2018: 220 844 ha	2019: 220 844 ha
	6. Area of natural forest in conservation areas	Stable	2014: 7,014 ha	2019: 10,995 ha
	7. Time for restoration after intervention	Stable	2019: 1 year	

THE PROCEDURE IN PRACTICE

CMO is a consulting, training and auditing company specialised in the forest industry. In Namibia, more specifically, CMO has created an FSC group certification for charcoal producers, which currently represents the most important FSC certificate on the African continent, with 1.5 million ha certified.

CMO is also certified for ecosystem services, for the benefit 'Restoration of the natural forest characteristics'. Due to desertification, parts of Namibia are experiencing an expansion of the 'bush', characterised by the invasion of unwanted aggressive woody species, resulting in an imbalance of the native grass / invasive shrub ratio and therefore loss of biodiversity. To combat the expansion of this 'bush', the project consists of clearing and maintaining these areas to prevent it from growing back in order to allow the natural forest to regenerate.

The mention FSC ecosystem services was added to the scope of CMO's certificate in 2020. The full report is available on the FSC certification portal (https://info.fsc.org). The independent auditor (SGS) validated the theory of change and methodology evaluation and verified the results after 12 months.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FIRST ASSESSMENT

ASSESSMENT AGAINST PES PRINCIPLES

Assessing the FSC Ecosystem Services procedure against the sixteen principles for good PES as developed by WWF-France (Vallauri *et al.*, 2021) shows that (Table 6):

- Seven principles are fully satisfied (legitimacy of the project, no-regrets objective, targeting, strengthening responsible management, consultation with local actors, social and environmental safeguards, external audit);
- Three principles are reasonably well satisfied but their consideration could be slightly improved (demonstration and measurement of added value, non-degradation of other services, communication);
- Three principles are not sufficiently considered given the scale of the challenges (clear information, validation of tools and methods, long-term engagement);
- For the last three principles (financial efficiency, framing of commercial relationship, payment of a fair price), the procedure for ecosystem services is weak or does not tackle these subjects at all. Nevertheless, these topics are key to ensuring a credible PES scheme and should be remedied urgently.

ESCDs UNDER SCRUTINY

The ESCD is the central document for ecosystem services certification. It is used by auditors to assess PES projects and is the only publicly available document, published on the FSC International website (https://connect.fsc.org/document-centre). Therefore, although it has never been designed for communication, it is the main tool to ensure project transparency.

Shortcomings of the ESCD include that it is a fairly technocratic document that is inadequate to communicate to interested parties. The template proposed by FSC makes the document relatively inaccessible. Furthermore, the ESCD form is not always clearly completed by project proponents. For example, background information on the project - such as the name of the forest management organisation, the location, the type of certification – is requested at the end of the document, while it would be more appropriate upfront.

Overall, based on the analysis of the 30 first documents, the quality of the ESCDs varies greatly depending on the holder of the ecosystem service certificate. The distinction between some clauses is not always clear. There is also confusion between the verifiable targets to be achieved (clause 7.4) and the required results (from step 7) with both being identical in many ESCDs. Some sections are sometimes not completed. For example, for a large Italian Ecosystem Services certificate holder, Waldplus, which demonstrates seven benefits, the theories of change - the primary focus of ESCDs - are unintelligible. The ESCD of Bienes Comunales San Geronimo Zacapexco (Mexico) does not provide any information on the auditor, the validation date of the ESCD, the type of certificate, etc.

Some ESCDs (Dambach group, ASEFOR) present a detailed mapping of the forest and the actions, which is very useful in order to better understand the issues. This mapping of ecosystem services and management actions should be made compulsory.

The cause, whether anthropogenic or not, of the degradation of the service is not always specified. However, it is important to ensure that, in the case of an anthropogenic origin (for example, clear cutting, deforestation), the entity causing the degradation is not the one asking for payment for its restoration (question partly covered by FSC FM certification). Finally, the information provided by ESCDs and those given on the FSC site (https://connect.fsc.org/fsc-public-certificate-search) are not always identical: the certified surfaces may be different, the link to the funders' page does not always work, some types of ESCDs are different (Biesca Agroforestal y Medioambiente, Asturias). These inconsistencies undermine FSC's desire for exemplarity and transparency.

NO DATA ON COSTS AND NO MARKETING RULES

The economic dimensions of PES are incomplete. No market mechanism is identified by services in the ES procedure. Furthermore, the ESCDs do not explain the costs generated by the project, how they are calculated, what is actually offered for sale, or the share of financing sought. Even if the amount of a PES is negotiated between a buyer and a seller, the eligibility of cost, their types (shortfall or cost) should be known or framed by FSC, to avoid a project sale devoid of any economic basis (or even opening up to speculation). This information would allow FSC to display a list of fundable actions, guide the choice of Ecosystem Services certificate holders towards financially legitimate actions and avoid any risk of greenwashing associated with an unsuitable sales method.

• Guaranteeing the permanence of the impact

In some cases, ecosystem services projects concern actions whose benefits will be valid only in the long term. For example:

- The establishment of a network of set aside areas by the Groupe Dambach in the Northern Vosges (France);

- Restoration projects such as that of tree species' diversity preferred by the brown bear by Biesca Agroforestal y Medioambiente in Asturias (Spain).

Time is an issue with the certificate for ecosystem services being valid only for 5 years, the one for forest management for 5-10 years, and the benefits usually requiring longer time periods. It is important to better guarantee the alignment between the project, the payment and the long-term results of the projects to prevent the risk of overselling results that neither FSC, nor the auditor, nor even the owner is able to guarantee.

• Audits: a guarantee that may hamper financial efficiency

One of the values of FSC certification is regular third party auditing of forest management and ecosystem services. Audits of the Ecosystem Services procedure have a cost for example:
- Of € 1,000-1,500 per day for an auditor and require half a day every 5 years;
- Added to this cost is the time spent by the certificate holder preparing for the audit (changes to the management plan, implementing methodologies, verification).

These amounts can be prohibitive if the ecosystem services project is small. However, it is crucial to maintain and demonstrate the financial efficiency of the project, by maximizing the share of concrete actions financed.
It seems justified to consider simplifying audits for small landowners by relying on recognised methods (for example, those existing nationally) and also by finding synergies with FSC Forest Management audits.

• A system that is often too theoretical

FSC provides a global procedure for ES and limited tools. For example, it provides a generic list of mandatory indicators to demonstrate impacts of projects which may be too theoretical to respond to local project realities. Instead, it may make sense to develop locally-relevant indicators that would be more appropriate to discuss the variation of ecosystem services. This would require introducing a principle of subsidiarity in the procedure.

Current theoretical nature of the indicator system results in:
- less relevance of the demonstration of the results;
- for some ESCDs, these mandatory 'results indicators' are not used and yet the benefit is certified.

• Lack of focus: actions are sometimes too broad

FSC's Ecosystem Services procedure juggles between two very different objectives:
- help certify projects to demonstrate the impact of forest management certification on ecosystem services (inventory, assessment) and
- provide certified projects with the necessary tools to enable them to access payments for helping to maintain or restore these services.

While both goals are timely and commendable, the tools needed to meet them are of a different nature. As a result, many project proponents end up providing a long list of potential impacts and management actions for their ESCDs. For example, Ejido Nuevo Becal (Mexico) proposes in its theory of change 26 different actions concerning logging of timber, non-timber products, hunting and High Conservation Value areas. In this list of actions, it is sometimes difficult to distinguish the impact on the service and the actions that really deserve to be funded.

• A need for written methods

It may be helpful to learn from the experience of first projects. A mix of national or sub-national methods to frame projects combined with local level stakeholder consultation to define projects may be needed for two main reasons:
- to facilitate the work of project leaders, instead of each having to reinvent similar projects and approaches;
- to avoid criticism. Effectiveness and the link between actions and benefits is not always well documented, as it is a difficult exercise.

For example, the establishment, in Galicia (Spain), of a network of nine fragments of 0.35 ha is of dubious ecological effectiveness. Scientific knowledge and requirements in Europe (including in certain FSC forest management standards) call for conservation fragments with an area greater than 0.5-1 ha to be considered ecologically effective. To remedy this, it would have been easy to frame at the national level (or even in this case, the European level) good practices for this type of project. To better monitor the proposed projects, it would seem useful at a minimum, for FSC to control or supervise - at the national or sub-national level - the relevance of the actions and methods in the form of non-normative notes or guides.

• Governance may be improved

The governance process associated with the FSC Ecosystem Services procedure is essentially based on:
- An international procedure 'Ecosystem Services Procedure: Impact Demonstration and Market Tools' (FSC-PRO-30-006 V1-0 EN; FSC 2018);
- An administrative and technical audit carried out by an independent third party but not necessarily trained in PES;
- Local consultation requested by the Ecosystem Services procedure and also in synergy with local consultations on forest management certification. The latter provides a legitimate process for PES, however, it is not well framed by the FSC procedure.

Clause 5.1.6 of the ESCD requests inclusion of "The summary of culturally appropriate consultation with indigenous populations and local communities, relating to the declared ecosystem services", including the "access and use of ecosystem services, and benefit sharing". But information such as the name of the stakeholders consulted, on what occasion, what was the role of each, are not requested and it is not easy to have a good overview of the governance process.

Table 6. Assessment of the FSC ecosystem services procedure against the 16 principles proposed by Vallauri *et al.* (2021).

■ Fulfilled even if it could be improved; ■ Small improvement necessary;
■ Important improvement necessary; ■ Important shortcoming.

	PRINCIPLES FOR A GOOD PES	SCORE	AREAS FOR IMPROVEMENT
Legitimacy Effective governance	**1.** The legitimacy of the project and its specifics (definition of actions, price of service…) depend on a governance adapted to the landscape (consultation of local stakeholders).		Double consultation of stakeholders, firstly at the time of certification of forest management and secondly on the project document (ESCD).
	2. The publication and use of tools (including a catalogue of written methods) defined and approved at the right scale (national or sub-national), after consultation with a panel of experts in the ecosystem service in question, enables a common framework for projects.		Monitoring of ecosystem services illustrated by indicators but they are insufficient to frame the diversity of payment projects. Need for a better technical framing of PES projects (process to validate projects or methods) at the national or sub-national scale.
Efficiency Maximum benefits secured	**3.** Clear, positive and no-regrets objectives, help to put in place practical interventions to conserve or restore a service for its public values.		Limited to a written theory of change, but practice seems aligned to date. Improvements could relate to better support of project proponent (need for tools).
	4. Targeting actions according to local priorities.		
	5. The proposed project seeks the best financial efficiency for the PES and a transparent guarantee for the funder.		Establishment of principles guiding the structure of the payment, particularly in relation to the opportunity cost, and of a national framework to increase the legitimacy and transparency of payments.
Additionnality Measured added value	**6.** The project strengthens responsible management according to a quality management system with clear thresholds.		Nothing to add: forest management certification by FSC according to national standards.
	7. Added value on the service is measured, demonstrated and quantified. It can be compared to a reference scenario.		List of indicators, theory of change and reference scenario are often too theoretical.
	8. The payment for one service should not lead to the degradation of another. An evaluation is carried out beyond the service.		Framed by the forest management scheme but an evaluation of the benefit of the project on all services would be desirable.
Sustainability Benefit guaranteed over an adequate term	**9.** Participation and consultation of local actors at the right scale for a better integration of the benefits in the landscape.		Compulsory consultation of local stakeholders *via* forest certification and on the written project document (ESCD).
	10. Credible commitments related to the action, but also for the long term where relevant, to achieve sustainable investments. The risk of non permanence is assessed, discussed and minimised.		If necessary for the project's credibility, specify the engagement beyond the first five years of the certificate by using contractual tools (e.g. long term lease).
Equity & social responsibility Encourage deserving owners	**11.** Organise a healthy, balanced and mutually beneficial commercial partnership between the funder and the forest owner.		Urgent need to move from a procedure seeking to value ecosystem services to one that frames the technical, political, financial and communication elements of PES projects.
	12. Remunerate the right cost of the action in support of a service, without any speculation or windfall effect.		Develop necessary tools for framing projects and for transparency of payments. Share lessons learnt from first payments. Absence of windfall effect not guaranteed.
	13. Respect social and environmental safeguards.		Nothing to add. Strengthened by FSC forest certification.
Transparency Highlight impacts	**14.** A validation and verification through an external audit, either for all project or by sampling when justified.		Train auditors on the complexity of ecosystem services.
	15. The notification of the project is both clear and sufficient, transmitting the minimum data to judge the quality of each project.		Improve the only notification made, *via* written project document (ESCD), which is particularly complex.
	16. Communication is framed by procedure that guarantees the lack of false claims.		Framed for FSC certified bodies. Need to be framed for companies that would only finance PES projects without being certified or holding FSC communication licence.


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CONCLUSIONS AND PERSPECTIVES

A CHALLENGING IDEA IN FORESTRY

There is growing recognition of the value of forests to society. In turn, this may lead to tensions as wood increases in value as a source of renewable material and energy, and at the same time, growing demand leads to a better understanding of the value of ecosystem services. By funding foresters for their role in sustaining these services, any PES system contributes to incentivizing a better management of forests, beyond the minimum legal requirements or traditional practices.

FSC has positioned itself as a pioneer in the evolving forest ecosystem services' market. The FSC Ecosystem Services procedure is the first, at this scale, to allow forest managers to define a diversity of services that they are conserving or restoring (biodiversity, water, soil, carbon and recreational services). FSC's international reputation has also provided assurances to companies that feel secure in committing to an FSC-rubber-stamped PES.

More generally, ecosystem services represent a topic of growing interest to companies, not only through a carbon lens but also through a biodiversity lens. Increasingly, companies are becoming aware however, that simple tree planting is insufficient to claim effective restoration of forest ecosystems, recognizing that forestry projects must go beyond planting (Mansourian and Vallauri, 2020) to secure all the co-benefits that only a qualitative project can provide.

However, PES remain, for various reasons (see Vallauri *et al.*, 2021), a subject that can be both complex to develop (for financial as well as technical reasons) and can lead to controversial projects or considered greenwashing, ultimately alienating potential financers. Like the FSC Ecosystem Services procedure, all systems promoting PES must be based on sound principles, while remaining efficient and practical to help project developers. This requires time for the development of appropriate tools and training for both foresters and companies. Developing a PES scheme requires a mix of economics, radical ecology (to avoid greenwashing) and practice. It is important to learn through practical cases.

The FSC PES scheme is recent, and still lacks the necessary tools and experiences to support its effective implementation and provide necessary safeguards. Further investment and experiences are necessary to build a climate of trust between potential financers, project developers, forest owners and society.

Having identified several gaps, FSC decided to launch in 2022 a revision of the procedure. The gaps and ways forward mentioned hereafter are a contribution by WWF to this revision process.

OUTSTANDING GAPS IN FSC PROCEDURE

Outstanding gaps remain in many PES schemes. It is also a concern in the FSC Ecosystem Services procedure, and solutions need to be found, especially concerning the following:

- **Fostering new funding opportunities.** Today the PES market is mainly proposing 'ready to plant' projects. Funding from the private sector may increase if the PES market demonstrates more innovative and qualitative projects that generate more benefits, particularly for biodiversity and carbon services. A better connection between the supply of payments and the supply of multi-service projects, like those possible with FSC's Ecosystem Services procedure, can be envisaged in different forms, such as a call for projects, the creation of a dedicated fund or market mechanism, accreditation of intermediary actors whose job it is to sell projects, etc.;

- **Education on the role of PES projects.** PES is far different from traditional source of public subsidies. For forest PES projects to be credible and risk-free, training must be provided to foresters, financers and auditors. There is genuine interest in the subject of carbon and biodiversity among companies, but it is most often realised through ready-made and simplistic tree planting schemes. An ecosystem of actors for attractive PES must rely on financers who understand the political, technical and financial benefits of the tool and forestry actors who understand the requirements of this new source of financing. Many FSC certificate owners have shown an interest in the Ecosystem Services procedure; some of them are already engaged and are acquiring experience. This created a positive environment and opportunity for them to mobilise to improve the procedure;

- **Lack of subsidiarity in FSC's ES procedure.** It is a good starting point that FSC International set the first global ES procedure on such an innovative subject. Like for Forest Management, the FSC ES procedure set a comprehensive global framework that identifies key issues that must be tackled. However, for FM standard, it is possible – and essential – to adapt the global framework at the national level. This is not possible for ES procedure so far. However, in ES, and above all for PES implementation, national or local governance is a key issue. All targeted services are public goods. This signifies that they do not belong to the forest owner, the buyer of the project or to FSC. To decide which actions are eligible or best to fund, but also to define adequate rules for payment, the project holder should take into account the local context. Actions that could be eligible, additional or funded are not the same in Brazil, France or Indonesia: the level of understanding and

urgency to conserve a given benefit, its importance, and laws clearly vary. FSC should understand the importance of subsidiarity and facilitate, like in the FSC National Forest Stewardship Standard, national (or local) discussion and adaptation by local forest ES experts. A specific governance structure should be established by FSC;

- **Lack of a practical PES toolbox.** Helping foresters to set up projects that guarantee a benefit to the funder, to market projects, to calculate a payment on solid bases (assured eligibility, validated formulas), to monitor and evaluate the benefits in a credible way requires discussions and the development of practical tools. This issue is important for FSC whose Ecosystem Services procedure was established based on limited experience and tools;

- **A transparent and accountable framework** is necessary to ensure that projects are not only risk-free for the funder (particularly the risk of greenwashing), but also attractive, particularly from a financial point of view. The FSC Ecosystem Services procedure lacks financial/marketing rules - an urgent gap to address. FSC has identified this gap. Thus, during the ongoing revision process, terms and conditions for labelling, branding and promotion - including trademark use, communication, and storytelling - are prioritized, together with developing a system to register, control and monitor the negotiation and transactional process of claims.

- **Smart supervised communication.** A procedure must be in place to ensure that there is no risk of false claims and to enable funders to promote their voluntary contribution in their CSR strategies. In the FSC scheme, this is in place for FSC FM certificate owners and for communication licence owners. However, clarifications may be necessary for financers who only pay for Ecosystem Services projects (an adapted price may be necessary for small projects, to keep them financially efficient).

The credibility and future attractiveness of ES provided by foresters, and above all projects provided by FSC certificate holders, will depend on such improvements.

REFERENCES

Aguilar-Amuchastegui N., Funk J.M., Sanz-Sánchez M.J. 2021. Forest carbon credits: separating the “good” from the merely “good enough”. WWF short note, 9 pages. https://wwfint.awsassets.panda.org/downloads/wwf_us_impact_criterion_v3.pdf

Apostolopoulou, E. and Adams, W.M. 2017. Biodiversity offsetting and conservation: reframing nature to save it. Oryx 51(1): 23-31.

Börner J., Baylis K., Corbera E., Ezzine-de-Blas D., Honey-Rosés J., Persson M.U., Wunder S. 2017. The effectiveness of payments for environmental services. World development 96, 359-374.

Costanza R., d’Arge R., de Groot R., Farber S., Grasso M., Hannon B., Limburg K., Naeem S., O’Neill R.V., Paruelo J., Raskin R.G., Sutton P., van den Belt M. 1997. The value of the world’s ecosystem services and natural capital. Nature 387: 253–260.

Delannoy E. 2011. *L’économie expliquée aux humains*. Editions Wildproject, Marseille, 142 pages.

De la Puente, T.J. and Mitchell, A.W. (eds.) 2021. T*he Little Book of Investing in Nature*. Global Canopy: Oxford, 226 pages.

Engel S., Pagiola S., Wunder S. 2008. Designing payments for environmental services in theory and practice; an overview of the issues. Ecological Economics 65(4): 663-674.

FAO 2019. *Valuing forest ecosystem services. A training manual for planners and project developers. Forestry Working Paper 11*, 199 pages.

Fletcher, R. and Büscher, B., 2017. The PES concept: revisiting the relationship between payments for environmental services and neoliberal conservation. *Ecological Economics* 132: 224-231.

FSC 2018. *Procédure pour les Services Écosystémiques : Démonstration des bénéfices et outils de marché*. FSC-PRO-30-006 V1-0 FR.

Karsenty A. 2021. Incitations fiscales et non fiscales à la gestion durable des forêts. *Synthèse des enseignements tirés d’études de cas menées au Brésil, au Cambodge, au Congo, en Côte d’Ivoire, au Myanmar, au Pérou, en Thaïlande et au Viet Nam*. Série technique OIBT n°48, 34 pages.

Karsenty A. and Dieng N.S ; 2021. *État de l’art, concepts et terminologie des Paiements pour Services Environnementaux - Mise en contexte au regard de la problématique des concessions forestières en Afrique Centrale*. Cirad, Montpellier, 133 pages.

Karsenty A., De Blas D.E. 2014. Du mésusage des métaphores. Les paiements pour services environnementaux sont-ils des instruments de marchandisation de la nature ? In Halpern C., Lascosmes P., Le Galès P. (eds) 2014. L’instrumentation de l’action publique. « L’instrumentation de l’action publique - Controverses, résistances, effets », Presses de Sciences Po, pp. 161-189.

Keulartz. J. 2013. Conservation through Commodification? *Ethics, Policy & Environment* 16(3): 297-307.

Laurans Y., Leménager T., Aoubid S. 2012. Les paiements pour services environnementaux. De la théorie à la mise en œuvre, quelles perspectives dans les pays en développement ? Paris, AFD, 215 pages.

Lecocq J-F, Méral P., Froger G., Chevrier C. 2016. Les paiements pour services environnementaux ou écosystémiques. *In* Meral et Pesche (coord.) 2016. *Les services écosystémiques. Repenser les relations Nature et société*. Editions Quae, pp. 183-200.

Mansourian S., Vallauri D. 2020. *Tree Planting by Businesses in France, Switzerland and the UK. A study to inspire corporate commitments*. Paris: WWF France, 64 pages.

Muradian, R., Corbera, E., Pascual, U., Kosoy, N., May, P.H. 2010. Reconciling theory and practice: an alternative conceptual framework for understanding payments for environmental services. Ecol. Econ. 69 (6), 1202–1208.

Maris V. 2014. *Nature à vendre. Les limites des services écosystémiques*. Editions Quae, Versailles, 91 pages.

Martin-Ortega, J. and Waylen, K.A. 2018. PES what a mess? An analysis of the position of environmental professionals in the conceptual debate on payments for ecosystem services. Ecological Economics 154: 218-237.

Martin-Ortega, J., Mesa-Jurado, M.A., Pineda-Vazquez, M. and Novo, P. 2019. Nature commodification: ‘a necessary evil’? An analysis of the views of environmental professionals on ecosystem services-based approaches. Ecosystem Services 37: 100926.

McCauley, D.J. 2006. Selling out on nature. *Nature 443*(7107): 27-28.

MEA - Millennium Ecosystem Assessment 2005. *Ecosystems and human well-being: Synthesis*. Washington, DC: Island Press.

Neugarten R.A., Langhammer P.F., Osipova E., Bagstad K.J., Bhagabati N., Butchart S.H.M., Dudley N., Elliott V., Gerber L.R., Gutierrez Arrellano C., Ivanić K.Z., Kettunen M., Mandle L., Merriman J.C., Mulligan M., Peh K.S-H., Raudsepp-Hearne C., Semmens D.J., Stolton S., Willcock S. 2018. *Tools for measuring, modelling, and valuing ecosystem services. Guidance for Key Biodiversity Areas, natural World Heritage sites, and protected areas*. IUCN Best Practice Protected Area Guidelines Series No. 28, 70 pages.

OECD 2011. *Paying for Biodiversity Enhancing the Cost-Effectiveness of Payments for Ecosystem Services*. Paris: OECD.

Ollivier L. Vallauri D. 2021. La procédure Services Ecosystémiques de FSC. Analyse factuelle et voies d'amélioration. Paris, WWF France, 42 pages.

Pagiola, S. 2008. Payments for environmental services in Costa Rica. *Ecological economics* 65(4): 712-724.

Salzman J, Bennett G., Carroll N., Goldstein A., Jenkins M. 2018. The global status and trends of Payments for Ecosystem Services. *Nature Sustainability* 1:136–144.

Sandbrook, C.G., Fisher, J.A. and Vira, B. 2013. What do conservationists think about markets? *Geoforum* 50: 232-240.

Smith S., Rowcroft P., Everard M., Couldrick L., Reed M., Rogers H., Quick T., Eves C., White, C. 2013. Payments for Ecosystem Services: *A Best Practice Guide*. Defra, London, 85 pages.

Vallauri D., Ollivier L., Laurans Y. 2021. *Paiement de services écosystémiques rendus par les forestiers. Principes pour des projets crédibles, efficients et attractifs*. Rapport WWF, 44 pages.

Wallbott, L., Siciliano, G. and Lederer, M. 2019. Beyond PES and REDD+: Costa Rica on the way to climate-smart landscape management? *Ecology & Society 24*(1): 24.

Wunder, S. 2005. Payments for environmental services: Some nuts and bolts. Center for International Forestry Research Occasional Paper No. 42 [online] available at: www.cifor.org/publications/pdf_files/OccPapers/OP-42.pdf

Wunder, S., Engel, S., Pagiola, S. 2008. Taking stock: a comparative analysis of payments for environmental services programs in developed and developing countries. Ecol. Econ. 65, 834–852.

Wunder, S. 2015. Revisiting the concept of payments for environmental services. Ecological economics, 117, 234-243.

WWF 2006. *Payments for Environmental Services. An equitable approach for reducing poverty and conserving nature*. WWF-The Netherland, 18 pages.

WWF 2021. *Forest-based (P)ES projects: An overview of the tropical, sub-tropical, temperate and boreal biomes*. Internal report for WWF Netherlands, carried out by Petra Westerlaan & Hernán Zaldívar-Schrader, 46 pages.

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THE FSC MUST ALLOW SUBSIDIARITY IN ITS ECOSYSTEM SERVICES PROCEDURE, CLARIFY MARKET RULES AND OFFER TOOLS TO IMROVE CREDIBILITY.