ForCES:

FSC is creating incentives for the preservation of valuable ecosystem services in responsibly managed forests

October 2017

FSC

ForCES®
Forest Certification for Ecosystem Services

UN environment

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Credits and acknowledgements

FSC would like to thank the many partners and individuals that made the transformative ForCES project such a success. First, we acknowledge Alan Smith (FSC), Max Zieren (UN Environment), and Bhishma Subedi (ANSAB), who provided the vision behind the project, and thank Alan and Max for their tireless commitment to securing the GEF funding support that made the project possible. The project's success was dependent on strong and continued support from FSC's senior leadership, in particular Kim Carstensen, Hans Achim Droste and André de Freitas.

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Cover photo: Natural forests and water resources managed by communities in Charnawati, Nepal

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Abbreviations and acronyms

ANSAB	Asia Network for Sustainable Agriculture and Bioresources
CBD	Convention on Biological Diversity
CIFOR	Center for International Forestry Research
CONAF	National Forestry Corporation
CPC	Communal People's Committee
DEFRA	Department for Environment, Food & Rural Affairs (UK)
FAO	Food and Agriculture Organization of the United Nations
FECOFUN	Federation of Community Forestry Users, Nepal
ForCES	Forest Certification for Ecosystem Services
FSC	Forest Stewardship Council
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
ha	hectare
HCV	high conservation value
IFL	intact forest landscape
INFOR	Forestry Institute of Chile
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
LEI	Lembaga Ekolabel Indonesia
nd	no date
NGO	nongovernmental organization
NTNC	National Trust for Nature Conservation
RECOFTC	Center for People and Forests
REDD+	Reducing emissions from deforestation and forest degradation, and fostering conservation, sustainable management of forests, and enhancement of forest carbon stocks
SFC	State Forest Company (Viet Nam)
SNV	Netherlands Development Organisation
UN Environment	United Nations Environment Programme
UPM	UPM-Kymmene Corporation
WWF	World Wildlife Fund

Foreword by Kim Carstensen, FSC

Kim Carstensen
FSC Director General

When I joined FSC five years ago, one of the things that attracted me to the organization was the fact that it was seriously working to develop tools for market recognition of the ecosystem services coming from forests around the world. Based on my experience from working on climate change and projects to promote payment for ecosystem services, I was convinced that there was potential for this, and I saw FSC as a very promising actor in delivering on this.

This was due to FSC's track record, developed over more than 20 years of forest certification, of being a highly respected and trusted mechanism for market recognition and the uptake of timber and wood products from responsibly managed forests. I saw this as an ideal background for unfolding the potential for the certification of ecosystem services.

The ForCES project has met my expectations, and inspired FSC to include ecosystem services into our Statutes, which were last revised in 2014. The new FSC Statutes integrate the provision of ecosystem services into the very purpose of the organization. We have also included further work on the certification of ecosystem services centrally into our *Global Strategic Plan 2015–2020*, which talks consistently about forest products and ecosystem services as the scope of FSC's work, and has a specific success criterion:

> "FSC offers new tools for certificate holders to access emerging ecosystem service markets, and forest owners report increased net revenue as a result."

In many ways, this is not new. FSC certification has always been about protecting the full range of services that forests provide: providing timber and wood products, storing carbon, preserving watersheds, conserving biological diversity, protecting areas with high conservation values, and providing non-timber forest products such as mushrooms, medicines, and fruits.

Yet while these products and services beyond timber and wood products have always been part of our international standards, they have seldom been quantified and have often not been immediately relevant in local or global markets. This is the gap that the ForCES project is filling,

with the pilot sites in Chile, Indonesia, Nepal, and Viet Nam helping us to identify potential buyers of ecosystem services, locally and internationally.

We have also created the basis for stakeholders all over the world to integrate ecosystem services into FSC's national forest stewardship standards, thereby making the market tools developed by ForCES accessible to our certificate holders around the world. We're excited to move forward with this exciting new opportunity for certificate holders: being rewarded for the stewardship of the ecosystem services in their forests.

Kim Carstensen, FSC Director General

Foreword by Max Zieren, UN Environment

Max Zieren
GEF Regional Focal Point/Task Manager
Biodiversity and Land Degradation
Ecosystem Services Division.
UN Environment

When Alan Smith, Bhishma Subedi, and I brainstormed on the ForCES project in 2006, ecosystem services were gaining increasing global attention. The Millennium Ecosystems Assessment (2005) had highlighted the degradation of ecosystems due to large-scale overexploitation, and there was a global push for a Green Economy model, led by UN Environment, that advised countries to invest more to protect their natural capital. This included forests and the ecosystem services they provide for sustainable development, such as water supply, flood protection, and recreation for an increasingly urban human population.

At that time, there was great hope for these evolving markets for forest ecosystem services, for example those centred on carbon sequestration and emissions-reductions, such as the REDD mechanism. Carbon markets grew as the global agreements for land- and forest-based emissions-reduction were being put in place. Payments for water services started taking off as well, particularly in the USA, China, and South America from 2008 onwards; transactions reached an astonishing US$8.17 billion for 205 programmes in 2011, and protecting or restoring 117 million hectares of forested land (Bennett et al., 2012).

However, these positive developments faced many challenges, relating mostly to: how to scale up initiatives, the lack of standardized evidence to prove that forest certification does benefit ecosystem services, and weak or unclear links with emerging markets for responsibly managed forests. These challenges, as well as the opportunities with regard to ecosystem services, provided the rationale for the ForCES project as well as UN Environment's support.

Where did the funding for ForCES come from? The Global Environment Facility (GEF), in its fifth replenishment (2010–2014), which highlighted the need for stronger evidence that its investments do indeed benefit the protection of forests, ecosystem services, and biodiversity. This led to a specific, measurable target related to FSC certification: the ForCES project was to develop a new system to measure actual benefits for targeted ecosystem services and biodiversity protection.

During the development of the ForCES concept, UN Environment determined that FSC's global forest certification system was the most comprehensive global standard – and had the potential to be expanded specifically to ecosystem services. At the same time, however, it noted that FSC needed to

transform and position itself better to meet the evolving local and global market opportunities for ecosystem services.

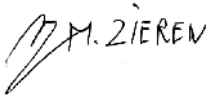
These circumstances – the evolving markets for forest ecosystem services and the need for a sturdy global system to measure impacts and benefits – led to the GEF funding the ForCES project.

It gives me great satisfaction to see the steps already taken by FSC, as an organization and as a global certification system, to adopt new strategies and procedures, and to modify its organizational setup, to sustain the forest certification and business models developed through the ForCES project.

UN Environment was pleased to be involved as the GEF Implementing Agency, helping with the project design, and to secure a GEF grant for its implementation. Six years of work by a highly qualified and motivated team – from FSC, CIFOR and importantly the country lead partners: ANSAB, WWF Indonesia, SNV Vietnam, and FSC Chile – led to the excellent results achieved.

This report not only summarizes the ForCES project, it also outlines the new certification tools and business models being incorporated into the FSC system for replication at a global scale. This will guide forest owners and certification bodies, as well as potential beneficiaries, such as public water supply bodies and ecotourism companies, on how to target, measure, and benefit from the certification of forest ecosystem services.

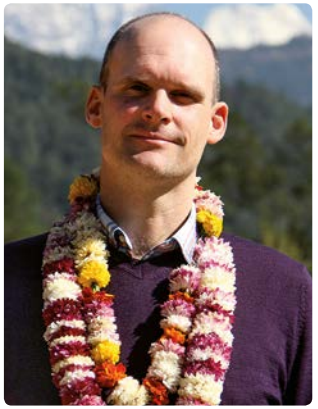
As the project draws to a close, I would like to express my gratitude to the staff and management of the partner agencies for their great dedication and commitment, especially Chris Henschel, Stefan Salvador, Alan Smith, Alison von Ketteler, and Mauro Ciriminna of FSC, and Sini Savilaakso of CIFOR. It was a pleasure to serve with you in this successful endeavour.



Max Zieren, UN Environment

Turning the ForCES vision into reality

A personal reflection by Chris Henschel, FSC Ecosystem Services Programme Manager and ForCES Project Lead



Chris Herschel
FSC Ecosystem Services Programme Manager and ForCES Project Lead

How do you adapt the world's leading forest certification system so that it can be applied to emerging markets for ecosystem services? That was the challenge for, and the purpose of, the ForCES project. I believe its biggest success is that we have found an answer to this question – and that it is going to work.

The first hint of what we needed to do came courtesy of the academic research done by CIFOR's Wanggi Jaung. When I took over as the Project Lead in 2013, Wanggi's analysis of business strategies for ecosystem services certification was my map for understanding the landscape. His work helped me to understand what FSC already did in this regard – guarantee environmental and social safeguards – and what it could do in addition: certify that the quality of specific ecosystem services from forests are maintained (e.g. water quality).

After this, the next step was to add a few further safeguards that we felt were necessary for forest managers wanting to access ecosystem services markets. These included being sensitive to water scarcity and being more explicit about maintaining carbon-rich forests.

Then, we started to build a new tool that forest managers could use to demonstrate the impacts of their certified forest management activities. This became the ecosystem services procedure. Our theory was that businesses, governments, and others would pay for impacts that could be confirmed through third-party certification.

Things started to get really exciting at this point, thanks to the ForCES country partners and the pilot sites they were working at: they were testing our theory by finding models of payment. ANSAB in Nepal provided the first 'eureka' moment: in the foothills of the Himalayas, it facilitated a contract for payments between water users in the city of Charikot and the forest communities that protect their water sources upstream in the Charnawati Landscape.

The prospects of success continue to grow. Every week, I receive new expressions of interest from those looking to get involved, and fresh ideas about how to use the new ecosystem services certification tools. Previously, all these ideas came from forest mangers looking for new revenue models. But over the last year, more and more of the excitement and interest has come from potential buyers – who are essential for the model to work.

During its lifetime, the ForCES project has incubated exciting new tools that create incentives for the protection of ecosystem services and reward the forest managers who protect them. Now, as the project draws to a close, we are faced with fewer questions about how to do this, and more excitement about the potential future impact of what we have created.

Chris Henschel, FSC

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Water spring, Cuenca Río Mechaico, Chile

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Certification of forest ecosystem services: a market-based mechanism that includes activities meant to guarantee the beneficiary that the forest being managed explicitly maintains or enhances the provision of a given ecosystem service.

– Savilaakso and Guariguata (nd)

1. Ecosystem services

1.1 What are forest-based ecosystem services?

Ecosystem services are the contributions that the planet's natural systems – such as forests, wetlands, and coasts – and processes make to people. Across the world, communities and individuals rely on specific ecosystem services for their livelihoods and well-being, while businesses of every size use the raw materials supplied by ecosystems to generate their wealth. And all of us depend on the food, water, and air that ecosystems provide.

This report focuses on the ecosystem services derived from forests. These vary greatly in scale and diversity, but they are often categorized into four groups (Millennium Ecosystem Assessment, 2005), as listed in Table 1.

Table 1. Forest-based ecosystem services

Category	Forest-based ecosystem services
Cultural services	• Aesthetics and landscape beauty • Cultural values and symbolism • Educational opportunities • Recreational activities • Spiritual enrichment • Tourism
Provisioning services	• Fish (e.g. from coastal forests and mangroves) • Medicines • Production of food, fuelwood, and timber • Water supply
Regulating services	• Carbon sequestration • Climate regulation and stabilization (e.g. the moderation of temperature extremes) • Control of pests that affect plants or animals • Decomposition of waste • Disease control • Erosion control • Improvements in air quality • Maintenance of regional precipitation patterns • Mitigation of floods and droughts • Moderation of the force of winds and waves • Protection from the sun's harmful ultraviolet rays • Water purification
Supporting services	• Biodiversity conservation • Dispersal of seeds • Maintenance and renewal of soils and soil fertility • Maintenance of habitats for plants and animals • Pollination of crops and natural vegetation • Translocation of nutrients

Source: Adapted from: Brown et al. (2007);[1] Nasi et al. (2002).[2]

1.2 Threats to ecosystem services

Every day, governments and other actors make decisions that have profound implications for ecosystems and human well-being (IPBES, nd). And, in many places around the world, the economic systems in place provide greater incentives for destroying ecosystems than for managing them sustainably. The result is that global biodiversity is being depleted at an unprecedented rate,

1 Their original table separated some of these out as 'ecosystem goods', which are the tangible outputs of ecosystem services.

2 Nasi et al. argue that biological diversity is not an ecosystem service as such, rather an integral factor in sustainable ecosystem functions, and therefore vital for the availability of ecosystem services. However, it is included here because biodiversity markets are one of the principle payment for ecosystem services markets that the ForCES project considered.

and the ecosystem services it provides are therefore also being lost. The Millennium Ecosystem Assessment (2005) stated that 60 per cent of the world's ecosystems are degraded or being used unsustainably; this figure is still widely recognized as relevant (UN Environment, 2016).

Threats to forest ecosystems include deforestation – which results in the loss of around 13 million hectares each year – and fragmentation and degradation (CBD, nd). One of the leading factors behind this is the conversion of forests to agricultural land for food (FAO, 2016), with three commodities – livestock, palm oil, and soy – being the major drivers of this, followed by maize (Climate Focus, 2016). Other causes of deforestation include overgrazing, shifting cultivation, unsustainable forest management practices, the introduction of invasive alien plant and animal species, infrastructure development (e.g. road building, hydroelectric developments, urban sprawl), mining and oil exploitation, anthropogenic forest fires, pollution, and climate change (CBD, nd).

These all share two common features: they are almost all human-made, and are mostly increasing over time. This represents the failure of our economic systems, policies, and investments to recognize our dependence and impacts on ecosystems and ecosystem services. And this in turn leads to these wider values of ecosystems being overlooked in decision-making processes, in favour of short-term financial gains that result in their unsustainable use (GIZ, 2012).

1.3 Instruments for conserving ecosystem services

In light of these varied and increasing threats, there is an urgent need to find ways to conserve and protect forest ecosystems and the services we gain from them. Indeed, many experts (e.g. Stern, 2007) consider protecting forest ecosystems to be a global priority, in part due to the serious contribution that deforestation makes to accelerating climate change through the release of stored carbon. Approaches to conserving forest ecosystem include: establishing protected areas (e.g. national parks); the regulation of land use, forestry laws and regulations; programmes to support community forestry; and the use of voluntary certification schemes, such as those offered by the Forest Stewardship Council (FSC).

Another instrument for protecting ecosystems – forests and others – that has gained prominence in recent years is payments for ecosystem services, also known as payments for environmental

> **Payment for ecosystem services:** a voluntary transaction between at least one buyer and at least one seller, in which payments are conditional on maintaining an ecosystem use that provides well-defined environmental services.
>
> – Wunder (2007)

services. These schemes create strong incentives, financial and otherwise, for preserving ecosystems, and are considered as one way to fund the costs of forest conservation (Meijaard et al., 2011).

Under this approach, farmers, foresters, and landowners receive payments, or alternative non-monetary rewards, in return for taking certain actions to manage the ecosystem(s) on their land in a way that maintains its services. The payments act as an incentive to continue with, or switch to, sustainable management practices, rather than pursuing more damaging systems.

These actions might be restorative, such as planting trees to regenerate a forest, or changing agricultural techniques to enhance the soil or reduce erosion. They can also be preventive, for example excluding livestock from an area or making efforts to reduce the poaching of wild species.

But who is willing to pay for services that, for millennia, humans have enjoyed at no financial cost? In some cases, the buyers are direct beneficiaries, such as businesses that depend directly on a particular ecosystem service. In north-east France, for example, Vittel paid above-market prices to buy the land around the springs from which it sources its bottled water, and paid farmers nearby to use more sustainable dairy farming techniques and improve their facilities. This led to a reduction in groundwater pollution, thus protecting the natural resource on which the company depends (DEFRA, 2013).

In other scenarios, the buyers are national or local governments, which pay for ecosystem services on behalf of their citizens. For example, the New York City Department for Environmental Protection funds a long-term watershed protection programme in the Catskill Mountains to maintain and protect a source of drinking water for 9 million consumers (DEFRA, 2013). Communities and individuals can also be buyers: thousands of people buy credits each year to offset their carbon emissions, for example.

The motivations for supporting these mechanisms vary, from self-interest (e.g. companies such as Vittel wanting to ensure the continuity of the ecosystem services on which they depend) to company commitments to corporate social responsibility. But the net result is that, worldwide, there are now many market and market-like mechanisms that arrange payments to be made between the 'buyers' and 'sellers' of ecosystem services.

Market mechanisms to restore, enhance, or maintain ecosystem services are worth an estimated US$15.9 billion globally each year.

Source: Bennett et al. (2016).

Handicrafts from Parque Pumalín, Chile

1.4 The growth of markets for ecosystem services

Encouragingly, the last decade has seen significant growth in demand from governments, businesses, and communities looking to invest in or finance the development and protection of ecosystem services (Ecosystem Marketplace, 2014). Table 2 lists the historical value of global markets and market-like instruments for three ecosystem services: biodiversity (using 2011 data), forest carbon (2014 data), and water (2013 data).[3]

These market mechanisms share a common framework: one or more parties restore or maintain valuable ecosystems and the services they deliver, in exchange for financial compensation or non-monetary benefits. However, they vary in terms of the sophistication of their infrastructure, the methodologies used to define and certify outcomes, the market participants, and their motivations. This diversity arises from the still-nascent nature of most of these market mechanisms (Bennett et al., 2016).

Table 2. Historic value and scale of ecosystem market segments

Asset type	Market segment	Mechanism(s)	Estimated global value (USD, millions)
Biodiversity	Wetland and stream habitat mitigation	Compliance credit trading and compensation payments	2,400
	Wildlife habitat mitigation	Compliance credit trading and compensation payments	370
	Voluntary offsets	Voluntary offsets and compensation payments	25
Forest carbon	Compliance forest carbon markets	Compliance offsets trading	129
	Voluntary forest carbon markets	REDD+[4]	128
	REDD+	Public finance	705[5]
Water	Public finance for watershed protection	Public finance	10,800
	Local payments for watershed services	Bilateral deals and collective action funds	1,227
	Environmental water markets	Water rights markets	96
	Trading and offsets	Compliance credit trading	22

Source: Adapted from Bennett et al. (2016).

3 Table A1 in Annex I lists some of the leading certification schemes operating within these markets.
4 REDD+ stands for 'reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries'.
5 Around two thirds of this finance (USD476 million) was paid for emissions reductions and one third (USD229 million) for REDD+ readiness.

1.5 Barriers to markets for ecosystem services

The success of markets for ecosystem services has varied considerably, largely due to the barriers that exist to establishing and certifying successful payment for ecosystem services schemes, including forest-based schemes (Meijaard et al., 2011). These include difficulties in quantifying the benefits to ecosystem services through certification mechanisms, and limited awareness of markets among potential buyers and sellers.[6]

1.6 The need for ecosystem services certification

The growing scale of markets for ecosystem services, combined with the complexity of determining the quality and quantity of these services, has led to a need for standards and certification schemes that measure, verify, and regulate the ecosystem services being traded.

Donors such as the Global Environment Facility (GEF) have invested considerable amounts in forest protection, the establishment of new protected areas, and payments for ecosystem services schemes, in order to enhance the amount of financing available for protection. Yet evaluations of these efforts all call for stronger evidence in support of the claims being made about the impacts of these approaches. Standardized certification systems for payments for ecosystem services schemes will support all bodies involved in this, helping them to demonstrate the positive outcomes of their work.

Certifying ecosystem services can help overcome many of the challenges facing payment for ecosystem services markets (Jaung and Putzel, 2013a). For example, it can:

- increase transparency between buyers and sellers, and improve communication through the provision of reliable information (e.g. third party audits, certified claims);
- reduce transaction costs for both buyers and sellers;
- strengthen the capacity of forest managers, for example through improving their ability to measure and record key indicators;
- safeguard the interests of local communities and Indigenous Peoples;
- strengthen the monitoring, reporting, and verification of the outcomes of activities to protect ecosystem services.

> **Certifying ecosystem services** is an opportunity to increase transparency in the ecosystem service markets and strengthen the trust between buyers and sellers
>
> – Savilaakso and Guariguata (nd)

6 Table A2 in Annex I has further details of the barriers to markets for ecosystem services, along with details about how the ForCES project has tried to address these.

Some ecosystem services already have established certification and verification schemes. Carbon, notably, has schemes in place, and this ecosystem service has certain advantages: it is measurable, and the science to measure it is more mature and less complex than for other ecosystem services (Meijaard et al., 2011).

But there were few systems in place for certifying forest-based ecosystem services **other** than carbon, and none that looked at all these services. It was against this backdrop that the Forest Certification for Ecosystem Services (ForCES) project was established, to develop the tools and procedures needed to certify the wealth of services that forests provide.

Mud-puddling *Graphium sarpedon* butterflies in Huong Son, Viet Nam

2. The ForCES project

2.1 The ForCES project's aims and objectives

The ForCES project began in 2011 when the partners (see Box 1) started the long, complex process of exploring how FSC's standards could be adapted to support the emerging markets for biodiversity conservation[7] and other ecosystem services, and how existing and new FSC certificate holders could be supported to access these markets. UN Environment, through a GEF grant, provided the steady source of funding required to realize the project's objectives.

According to the project document (UN Environment, 2011), ForCES was expected to:

> *contribute to the overall GEF goal that forest biodiversity is conserved through a process where voluntary FSC certification incorporates expanded and enhanced global and national forest management standards which are applied to emerging markets for biodiversity conservation and other ecosystems services.*

The project's objective was to:

> *pilot test expanded and enhanced global and national environmental standards applied to emerging markets for biodiversity conservation and ecosystems services as an initial step for upgrading of successful models of FSC certification.*

The expected results of the project were as follows.

- A new impetus for improved and responsible forest management created, by extending the proven FSC system to additional ecosystem services.
- Scientifically tested and auditable ecosystem services indicators developed for assessing compliance with certification criteria.
- A monitoring and evaluation methodology in place for tracking outcomes during the project lifetime, as well as for assessing long-term impacts after project termination (UN Environment, 2011).

> This project was about the big picture and enabling the new systems to be upscaled globally.
>
> – Max Zieren, Regional Focal Point and Task Manager Biodiversity, UN Environment

7 The actual ecosystem services in this regard are genetic resources and diversity, which the process of biodiversity conservation helps to maintain. In this report, however, we refer to biodiversity conservation as an ecosystem service as this is how it was referred to during the ForCES project.

- Concrete private sector interest, demonstrating readiness to pay for ecosystem services certification.
- Initial measures taken to scale up positive results, including international generic standards for ecosystem services, communication outreach, and training in ecosystem services certification procedures.
- Certification for ecosystem services for at least one pilot site in each pilot country,[8] with a further six forest management units certified or nearing certification.
- Verification of viable FSC business models for marketing ecosystem services through certification.
- New sources of income for forest managers and community forest operations identified, through payments for ecosystem services.
- FSC and technical agency personnel (e.g. certification bodies, development agencies) trained to deliver on ecosystem services certification.

Figure 1 demonstrates how the many different components of the ForCES project – the standards development, market research, business models, national pilot sites, and a global methodology for assessing impacts – fit together at the global, national, and site levels. Each component is discussed in greater detail in Chapters 3 to 8.

2.2 FSC and the certification of ecosystem services: a natural fit

FSC's expertise and experience in certifying responsibly managed forests for timber production meant it was ideally placed to adapt its systems for forest-based ecosystem services markets. Therefore, the ultimate aim of the ForCES project was to build upon FSC's globally recognized forest management certification system, in order to improve and promote responsible forest management for a range of ecosystem services.

GEF funded the ForCES project, through UN Environment, because it recognized that FSC was well placed to establish a consistent system for certifying forest ecosystem services at the global

8 Chile, Indonesia, Nepal, and Viet Nam. See Chapter 3 for more details.

A project consultant at Cholchol-Imperial, Chile

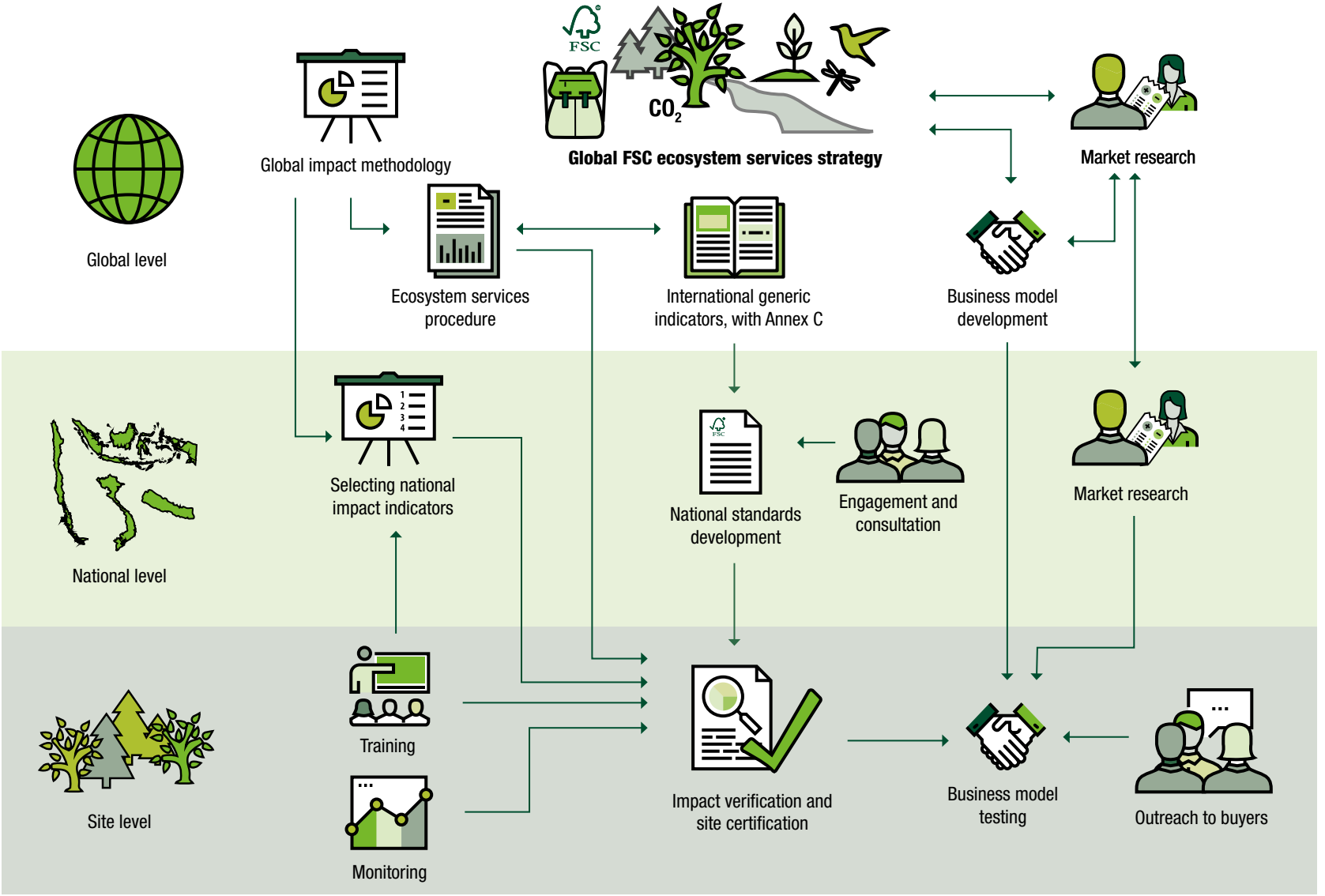
scale, due to its core institutional strengths and principles (UN Environment, 2011). These include the following.

- The FSC forest management standards have been applied successfully to the certification of timber and non-timber forest products, and have achieved social, environmental, and economic impacts.
- The FSC system can be expanded to incorporate ecosystem services, avoiding the need to build a completely new system from scratch.
- FSC certification conceivably offers a way to monetize ecosystem services while conserving biodiversity.
- Forests provide a wide range of services, both commercial and social. Through its holistic approach, the FSC system has a distinct advantage over the other certification systems being developed, which focus exclusively on one service or another.
- FSC offers a global network of partners, regional offices, and certified companies through which to replicate and scale up the tools developed for certifying ecosystem services.
- FSC has a track record in biodiversity conservation through its High Conservation Values approach.[9]
- The FSC standards cover access to benefits for local populations, respect for Indigenous Peoples' rights, and compliance with the International Labour Organization's conventions.

> "FSC had a sturdy system for the certification of forests, with many safeguards in place. This is what payment for ecosystem services schemes need; it made sense to build on this, not start from scratch.
>
> – Max Zieren, Regional Focal Point and Task Manager Biodiversity, UN Environment

9 See: https://ic.fsc.org/en/what-is-fsc/what-we-do/strengthening-standards/high-conservation-values

Figure 1. Putting the pieces together: the various activities of the ForCES project that together aimed to design a certification system to reward the stewardship of ecosystem services



Box 1. The ForCES project partners

The **Forest Stewardship Council (FSC)** was the lead executing agency at the global level, responsible for implementing the project in accordance with its objectives and activities. In addition, FSC: provided strategic leadership; designed the policy and standards innovations; designed business models and market tools for ecosystem services certification; supported the partners in adapting and testing viable business models at the site level; and provided technical support on ecosystem services certification and the design of national standards.

The **Center for International Forestry Research (CIFOR)** provided scientific backstopping and technical guidance. Its researchers: developed a global methodological framework for evaluating social and environmental impacts; supported partners in data collection, analysis, and monitoring; helped to demonstrate the impacts of management activities on ecosystem services at the pilot sites; and conducted global and site-level research on business models and market aspects, such as FSC stakeholder adaptability, the demand for ecosystem services certification, and the capacity of certification bodies to audit forest ecosystem services.

The **United Nations Environment Programme (UN Environment)** was the implementing agency, responsible for project oversight and ensuring consistency with GEF and UN Environment policies and procedures. It provided technical guidance and monitored the quality and implementation of project activities. UN Environment was also responsible for clearing the financial and progress reports to the GEF.

The project's international steering committee provided political and strategic support, and oversaw and approved annual work plans and budgets. This committee included representatives from CIFOR, FSC, GEF, and UN Environment, as well as the **Ministry of Forestry of Indonesia, FSC Chile,** the **Ministry of Agriculture and Rural Development of Viet Nam**, and the **Ministry of Forests and Soil Conservation, Nepal**.

As well as these international partners, ForCES involved several **country-level partners**. The role of the country partners was to deliver the project's expected results at the national and site levels. This included: updating national FSC forest stewardship standards to include ecosystem services indicators; training forest managers and communities; undertaking site certification; and testing business models for ecosystem services certification. Table 3 lists these partners; further details of each partner's role are available on the ForCES website.[10]

Table 3. Country-level partners

ForCES pilot country	Partner organizations
Chile	• **Implementing partner: FSC Chile** • Astorga Consultores • GFA Certification • National Forestry Corporation (CONAF) • Forestry Institute of Chile (INFOR) • Bosques Cautín S.A. • Forestal Mininco S.A. • Pumalín Foundation • Junta de Vecinos de Lajas Blancas
Indonesia	• **Implementing partner: WWF Indonesia** • Ministry of Forestry • Lembaga Ekolabel Indonesia (LEI)
Nepal	• **Implementing partner: Asia Network for Sustainable Agriculture and Bioresources (ANSAB)** • Federation of Community Forestry Users, Nepal (FECOFUN) • National Trust for Nature Conservation (NTNC) • Relief International
Viet Nam	• **Implementing partner: Netherlands Development Organisation (SNV)** • Center for People and Forests (RECOFTC) • Communal People's Committee (CPC) • Department of Agriculture and Rural Development • Ministry of Agriculture and Rural Development • Ministry for Foreign Affairs of Finland • State Forest Company (SFC)

10 See: http://forces.fsc.org/partners.18.htm

Box 2. How did the ForCES project begin?

Interview with Alan Smith, formerly of FSC

While working on FSC projects in Cameroon, Mexico, and Brazil, Alan Smith realized that there was great potential for FSC to engage more deeply with the ecosystem services from forests, and bring itself closer to the emerging payment for ecosystem services markets.

"The FSC Principles and Criteria already covered all the functions of a forest: water supply, erosion control, recreation, tourism, carbon," recalls Alan. "A company working under FSC certification already had to take ecosystem services into account, and certification bodies had to consider ecosystem services." But at that time, FSC's primary focus was on responsible forest products; the potential for ecosystem services had yet to be realized.

With backing from FSC, Alan worked with partners at CIFOR and UN Environment to devise a project to certify ecosystem services from forests. CIFOR's involvement was particularly important in these early stages, bringing technical expertise to the early thinking and conceptualization.

Once the proposal was drafted, the project team needed to identify further partners and pilot sites, and secure funding. Once this had been achieved, the next stage was to launch the project and test if their concept was feasible. "FSC gave me time to work on the project and promote it," says Alan.

And, over the years, he has seen his initial idea develop into a successful multi-partner project. "There is now an Ecosystem Services Programme at FSC and it is a leading subject in the new FSC global strategy. Much of this is thanks to the ForCES project, which has highlighted the role that FSC can play."

3. The ForCES pilot sites

The partner organizations in each pilot country proposed pilot sites, selected from existing projects, where there was the potential to create a system to reward activities that preserve ecosystem services. During the ForCES project, the 10 pilot sites that were eventually selected were expected to undertake activities to maintain or enhance ecosystem services, measure impacts, work towards FSC certification with additional ecosystem services requirements, and test business models for payments for ecosystem services, including payments linked to certification (e.g. timber premiums). Table 4 lists the 10 pilot sites and their key characteristics; each site is described in more detail on the following pages.

Table 4. The ForCES pilot sites

	Site name	Forest type	Area in hectares (ha)	Governance model	Ecosystem services being managed
CHILE	Cholchol-Imperial	Natural forest (evergreen natural forest)	(1) Praderas: the 1,117.7 ha management unit contains 321.14 ha of natural forest (within a larger certified forest of 39,760 ha). (2) San Jorge: the 307.6 ha management unit contains 77.81 ha of natural forest (within a larger certified forest of 25,801 ha).	Private ownership by logging companies: (1) Bosques Cautín S.A. (2) Forestal Mininco S.A.	• Biological diversity conservation
	Cuenca Río Mechaico	Native forest (Roble [*Nothofagus oblicua*]; Rauli [*Nothofagus alpina*]; Coigue [*Nothofagus dombeyi*])	1,669	Owned by a small group of low-income homeowners, whose primary livelihoods are the traditional use of native forests, livestock rearing, and small farms.	• Watershed services
	Parque Pumalín	Temperate rainforest	317,000	Privately owned by the Pumalin Park Foundation (Fundación Pumalín)	• Biological diversity conservation

Table 4. The ForCES pilot sites (continued)

	Site name	Forest type	Area in hectares (ha)	Governance model	Ecosystem services being managed
INDONESIA	Lombok island	Semi-evergreen tropical mountain forest	3,036 (185 FSC certified)	Managed by four community forest groups. The forest management unit is run by the government (known as Kesatuan Pengelolaan Hutan).	• Watershed services
	PT. Ratah Timber	Natural forest (lowland and highland Dipterocarp)	A 93,425 ha tropical natural forest concession in East Kalimantan, of which 84,850 ha is FSC certified and 15,857 ha is a protected area.	Privately owned by logging company PT. Ratah Timber	• Biological diversity conservation • Carbon sequestration and storage
	West Kalimantan	Rainforest and lake forest areas	7,076	The forest management unit is owned by the government and national park, but areas for tourism are managed by local communities in two villages. A collaborative management approach is used to develop ecotourism.	• Biological diversity conservation • Recreational services
NEPAL	Charnawati	Nine forest types (sub-alpine juniper; fir; temperate mountain oak; lower temperate oak; East Himalayan oak–laurel; chir pine; chir pine–broad leaved; Schima-*Castanopsis*; Hill Sal)	7,835	Managed by 73 community forest user groups, which include 12,647 households.	• Biological diversity conservation • Carbon sequestration and storage • Soil conservation • Watershed services
	Gaurishankar	Pine; alpine pasture	7,563	The conservation area is managed by NTNC; the forest management units are managed by 4,474 households.	• Biological diversity conservation • Recreational services • Soil conservation
VIET NAM	Quang Tri	Hill and dune forest	1,752	Government-owned land, managed by an association of smallholders.	• Soil conservation
	Huong Son	Hilly and lowland evergreen forest	38,000 ha, half of which is formally protected and 19,904 ha of which is FSC certified.	Government-owned land, managed by the State Forest Enterprise.	• Biological diversity conservation • Carbon sequestration and storage • Watershed services

3.1 Chile

Only 30 per cent of Chile's native forests are protected, and exotic plantations have replaced these in several places. Many native forests are close to humans, placing them under considerable pressures from urban and suburban populations, such as the collection of firewood and recreational activities (UN Environment, 2011). However, the area of forest cover has increased slightly in recent years, from 20.5 per cent of land area in 1990 to 23.9 per cent in 2015 (World Bank, nd).

Cholchol-Imperial

This site largely consists of plantations owned by the logging companies Bosques Cautín S.A. and Forestal Mininco S.A. Within these, however, there are significant patches of natural forest. These are habitats for the plants used in the traditional medicine practised by the indigenous Mapuche people. These areas of natural forest are threatened, however, by intensive plantation management and the proximity to human settlements.

The focus of this project was to protect these habitats and develop sustainable guidelines for harvesting plants used in Mapuche cultural medicine, which are collected by a nearby hospital and by the Mapuche people. To achieve this, however, it was first necessary to resolve the longstanding conflict between the plantation owners and the Mapuche. The Mapuche did not recognize the company's right to be on the land, believing it was taken from them illegally in the past. In turn, the logging companies believed that they had bought the land legally and were therefore the legitimate owners. Due to this disagreement, the collectors' access to the natural forests was unstructured.

The project aimed to certify this ecosystem service through FSC to formalize access to the natural forest, to establish sustainable collection guidelines, and to promote Mapuche culture. This would create an easy-to-replicate business model for the conservation of biodiversity within commercial timber plantations. The process started by getting both sides – the Mapuche and other local stakeholders, and company representatives – to sit together in a roundtable, alongside observers from the hospital that uses the plants.

For many stakeholders, this was the main achievement of the project: getting people to talk to each other. The logging company increased its awareness and understanding of the value of the

Herb shop, Cholchol-Imperial, Chile

medicinal plants on their lands, while the Mapuche better understood how the company operated.

This process was based on effective communication and knowledge-sharing. Importantly, Bosques Cautín S.A. and Forestal Mininco S.A. see this roundtable approach as a model for other forest concessions[11] where there are similar conflicts of interest.

The project also aimed to ensure the survival of these medicinal plants in the long term, by improving both forest management practices and the collection methods used. Through the ForCES project, the landowners and plant collectors agreed on the rules for collection. Along with the local collectors' traditional knowledge, this led to the development of a guide to sustainable harvesting and management for medicinal plants.

Thanks to the ForCES project, all sides now work together to protect this valuable biodiversity. Management activities introduced include identifying the forest areas containing these plants, protecting these from damage (e.g. by cattle grazing), and harvesting the plants

11 Forest concessions are "legal instruments between two parties … that confer rights … in exchange for a payment or provision of services. … [C]oncessions may refer to simple rights to harvest timber or other forest products or … rights to manage forest resources in the long term" (van Hensbergen, 2016).

sustainably. The new certification tools for the verification of ecosystem services impacts, developed through the ForCES project (see Part II for full descriptions, especially Figure 5), are being used to demonstrate the impact of these activities in maintaining the availability of the medicinal plants, and promoting Mapuche culture.

While neither side receives a monetary payment for the new guidelines for sustainable harvesting, there are still benefits. Certification means that the plantation owners now officially recognize the rights of collectors to operate in their plantations, and the Mapuche have improved access to the plants.

Cuenca Río Mechaico

The Mechaico River basin provides drinking water for 35,000 people in the nearby town of Ancud, and a further 65,000 tourists during the holiday season. But in recent years there have been escalating problems with the water's quality and quantity, largely caused by deforestation and forest degradation.

The forested land in the river basin is owned by low-income farmers, who have traditionally used it for rearing livestock and establishing small farms. The project aimed to establish a 'direct access' model – meaning one with clear buyers and sellers – under which the management activities by the farmers upstream protected the water supply for beneficiaries downstream.

The farmers saw this as an opportunity to increase the income they received for their efforts to protect the watershed. They implemented a range of measures to manage the water quality. These focused on improving cattle management, agricultural management, and restoring riparian areas, rather than forest management – but these are intrinsically linked. For example, by improving the pastures around the forests (e.g. digging drainage ditches), they reduced the need for cattle to go into the forests to feed. Further measures included building fences to stop cattle entering the land around streams, planting trees in degraded areas, and creating new drinking points in cattle enclosures to prevent them from drinking from streams. The farmers even built bridges over streams, so the cattle didn't pollute the water when passing through.

The impacts of these activities on water quality have not yet been directly measured, as the management approaches have not been implemented all across the watershed. The impact

> The project at this site went beyond protecting plant species; it is protecting a whole culture. These practices and indigenous medicines cannot survive unless the plants on which they are based are protected.
>
> – Ana Young, ForCES Project Manager, Chile

A small dam on the Rio Mechaico, Chile

is therefore based on a 'theory of change' approach, whereby the measured outputs of these management activities are linked to the expected impacts on water quality, which will be measured over time.

As well as introducing restorative measures, the project needed to establish a business model to benefit the homeowners. Water is privatized in Chile, so people pay water companies for the amount they use. Initially, the project worked towards a model in which downstream users paid a premium on their water fees to support the farmers upstream. However, due to a reluctance on the part of the water users to pay more, a different model emerged. A water fund has been proposed, through an agreement between the local water company, Empresa de Servicios Sanitarios de Los Lagos, and representatives of the catchment owners, FSC Chile, INFOR, and other nongovernmental organizations (NGOs). This will reward the farmers for the clean water they provide through their management activities. This fund will be based on contributions from the company, plus other potential donors such as NGOs or FSC.

This fund is not yet operational, as certain national laws need to be modified to allow people to pay a premium for ecosystem services. There are also ongoing discussions about exactly how FSC ecosystem services tools will be used in the water fund. However, it is clear that this certification will be required to demonstrate that the measures defined to improve water quality are actually implemented.

There were further benefits from the ForCES project. The activities undertaken raised a lot of awareness locally about the connections between forests and water. The forest-owning farmers also started the process of obtaining FSC certification, expected to be finalized in 2017.

Parque Pumalín

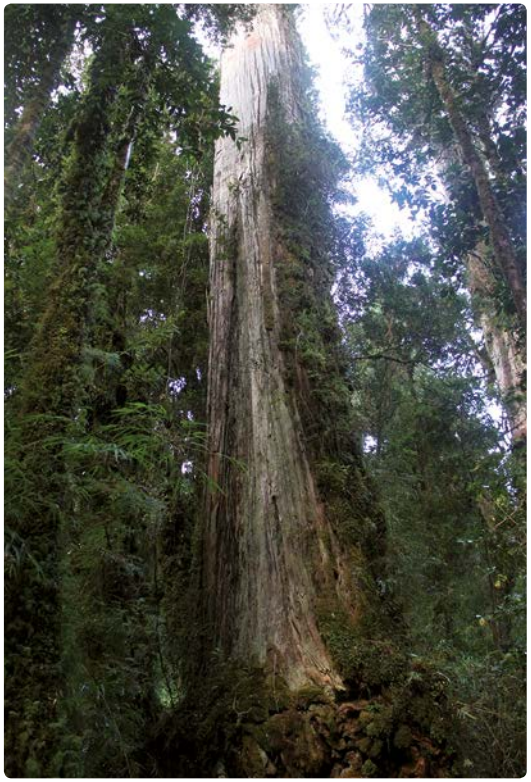
Parque Pumalín contains a rare and pristine southern temperate rainforest ecosystem that is threatened globally. This forest, which extends from the Andes to the fjords of the Pacific coast, is also home to many giant, ancient trees, such as the Alerce or Patagonian Cypress (*Fitzroya cupressoides*); the oldest tree in the park is nearly 3,000 years old. This significant biodiversity and the majestic landscapes are a major tourist attraction, for both Chileans and international visitors.

The Pumalin Park Foundation aims to balance the need to protect the park's wilderness and biodiversity with the needs of the five communities near the park, especially in terms of earning a livelihood. One way to achieve this is ecotourism.

The project aimed to test the FSC certification of this ecosystem service (referred to as recreational services) as well as biodiversity conservation, and thus establish a model for involving local communities in biodiversity conservation through the benefits obtained from being 'qualified tour operators'. No direct payments were expected for the providers of the ecosystem services, but the parties involved would participate in agreeing and implementing measures for the conservation of biodiversity.

Under the ForCES project, forest management approaches that protect and monitor biodiversity were proposed. The ForCES project also introduced a series of ecotourism measures to involve tour operators and local communities in sharing the responsibilities and benefits of biodiversity conservation and promoting recreational services.

In 2016, the Pumalin Park Foundation decided not to pursue FSC certification or the use of its new ecosystem services tools; instead, they donated the park to Chile's national parks system (D'Angelo, 2017). Despite this, the ForCES project had a real impact, establishing a template for ecotourism and biodiversity conservation that follows FSC requirements.



Parque Pumalín, Chile

3.2 Indonesia

Indonesia is one of the biggest timber producers in South-East Asia, despite a growing number of forest certification schemes – more than 2.3 million hectares of forest are FSC certified, for example. Forests are still valued mainly for their timber, though, with little consideration of the other environmental services they provide. And in recent years, palm oil and other agricultural commodities have played a major role in driving deforestation. This has seen forests reduce from 65.4 per cent of land cover in 1990 to 50.2 per cent in 2015 (World Bank, nd).

Lombok island

The forests in the Mount Rinjani ecosystem protect the springs and catchments that provide clean water for the residents of Mataram, the capital of Lombok, and West Lombok district. Yet they are

threatened by plantations, clearance (which leads to soil erosion), illegal logging, forest fires, and encroachment by local communities.

Between 2004 and 2007, WWF Indonesia and other parties initiated a payment for ecosystem services scheme in the Sesaot forest in West Lombok, part of the Rinjani Protected Area. Under this, upstream communities were given incentives to restore forests, thus protecting the water supply. Payments were collected by Lombok's water utility company: 75 per cent of the price customers paid for water was allocated to upstream communities. But while this established a sustainable model for financing the protection of ecosystem services, it lacked proper certification and independent verification (UN Environment, 2011).

The ForCES project built on this earlier scheme by negotiating with the water company, local communities, the local government, the Ministry of Forestry, and NGOs to create additional incentives for communities to replant degraded forest areas around water springs. The aim was to increase the amounts paid for protecting water sources – once the scheme was fully certified. The project also explored whether further buyers (e.g. from the private sector) could be brought into the scheme.

The impacts of these reforestation efforts are already visible. For example, the main river from the Sesaot watershed used to run dry at certain times of the year, then flood during the rainy season. The community management activities have helped to regulate this water flow.

Under the revised business model – developed through ForCES and based on the earlier scheme – urban residents downstream make payments for water in return for these forest management activities. Each household pays around IDR1,000 (USD0.08) per month – a small amount, but with around 100,000 people contributing, it adds up. The involvement of both the Lombok water company and the regional public water supply company helps to ensure that these payments are actually made.

One of the early challenges with this revised model was that not all stakeholders fully recognized FSC's role, as the payments made were not linked to FSC. To address this, the community established a 185 ha forest management unit which has received FSC certification.

WWF Indonesia intends to use this evidence of the positive impacts of FSC certification on the water supply to extract higher payments for water and attract more participants to the scheme. Unfortunately, the impacts of

Participatory monitoring with community members, Lombok, Indonesia

> We wanted to increase the area under certification in Lombok; this will make it easier to justify the impacts of efforts to protect the water supply, and scientifically prove them at the watershed scale.
>
> – Angga Prathama Putra, Responsible Forest National Coordinator, WWF Indonesia

the restoration efforts are not totally clear. Analysis shows an overall loss of high-density forests between 2009 and 2016, and an increase in medium-density forests. A number of factors, including a strong El Niño year in 2015, may be behind this decline. A final review of the evidence by the FSC auditor is pending (as of June 2017).

There were still benefits from the project, however. Local people learnt about the forest's importance and established a nursery for seedlings to replant degraded areas. The project also highlighted the wider ecosystem services from the forest. For example, local communities collect honey, rattan, rubber, and bamboo, and there are multi-purpose tree species such as durian, mango, and rambutan, which not only help protect the watershed but also provide food. These could all potentially be sold as certified products in the future.

PT. Ratah Timber

These forests in East Kalimantan provide a range of ecosystem services. Of these, the ForCES project team opted to focus on biodiversity conservation and carbon sequestration and storage. The project aimed to develop a methodology for measuring these services, and test the potential for incorporating these into the FSC certification that the company achieved in 2013, to generate additional benefits for the owners, PT. Ratah Timber.

The project demonstrated that the forest's carbon stocks have, on the whole, been maintained, despite logging. This evidence offered the opportunity to 'sell' carbon as an ecosystem service. The project team therefore sought to develop a business model in which payments would be made through Indonesia's subnational REDD+ programme to support the continued maintenance of forest carbon stocks.

This process is still ongoing and the project stakeholders are in discussion with REDD+ agencies to find a buyer through these avenues, and have asked the Government of Indonesia to negotiate with any potential buyers identified. These could include car companies, which have high carbon emissions that they might want to offset.

The project also sought to use the new FSC ecosystem services tools to reward the protection of the forest's rich biodiversity, particularly its fauna. Previous work by Kyoto University in Japan had revealed the high levels of biodiversity compared with other logged forests, due to the management

activities adopted by PT. Ratah Timber. And data generated during the ForCES project show that mammal diversity on the site is being maintained. FSC is now working with WWF Indonesia to find a company interested in sponsoring both the carbon and biodiversity impacts.

Nothing has yet been finalized in terms of payments for these certified ecosystem services, but there are already several indirect benefits. Notably, there has been a marked change in PT. Ratah Timber's thinking about how it manages this site, with a greater appreciation of ecosystem services. The company also believes that using the new FSC ecosystem services tools to demonstrate positive impacts will increase support for its management approach among stakeholders.

West Kalimantan

This area of rainforest in Borneo has a significant population of orangutans. Surveys undertaken by technical experts and WWF Indonesia indicate a density of 4.54 individuals per km^2, due to the high number of habitats suitable for the species, including swamp forests and lowland forests. These surveys also identified around 30 bird species, 120 insect species, and 56 fish species.

The aim of this project was to test if certifying ecosystem services through FSC could raise international recognition of this important conservation area, attracting more tourists in the process and thus increasing revenues to protect the areas with the greatest biodiversity.

Facilitated by WWF Indonesia, the project team worked directly with communities from three nearby villages to expand ecotourism and cultural tourism activities, which include treks and fishing, and to maintain the biodiversity in the forest areas.

A camera trap for monitoring biodiversity in a sampling plot at PT. Ratah Timber, Indonesia

> ForCES was just the first step in certifying ecosystem services in Indonesia. We now need to get better prices [for certified products] for PT. Ratah Timber, and for the communities protecting watersheds in Lombok, so that certification has a real impact.
>
> – Aditya Bayunanda, Director of Policy, Sustainability and Transformation, WWF Indonesia

The project had many positive impacts. Based on the social impact assessments undertaken, the communities became more aware of the need to protect and conserve the forest and opted to expand ecotourism as a way to do this. With assistance from WWF Indonesia and all parties, the Kelompok Pengembang Pariwisata (Tourism Development Group) is now increasing the capacity and knowledge of community members to achieve this. Further, during the ForCES project, the communities established systems to monitor biodiversity and to measure the region's hydrology.

Due to the small-scale nature of tourism in the region, and the infrastructure that would be needed to pursue full FSC certification, the community eventually decided that the potential increase in revenues would not offset the costs. Instead, since 2014 they have been working directly with WWF Indonesia to expand ecotourism. Thanks to the trust generated through the ForCES project, the communities now receive support from the local government, the national park authorities, and the local forest management unit in these efforts.

3.3 Nepal

The two ForCES pilot sites in Nepal, both located in Dolakha district, explored the potential to increase the economic and environmental benefits of forest certification schemes by incorporating additional ecosystem services. These focused on watersheds, ecotourism, biodiversity conservation, and non-timber forest products, which all lacked an agreed certification system before the project.

Charnawati

The biological richness of this area, which contains 10 FSC-certified community forests, provides many ecosystem services. But a range of problems – including deforestation, forest fires, grazing, illegal logging, and landslides – threaten the forest's ability to continue providing these services. To increase the incentives to tackle the problems, the project pursued payments for four ecosystem services: biological diversity conservation,

carbon sequestration and storage, soil conservation, and watershed services.

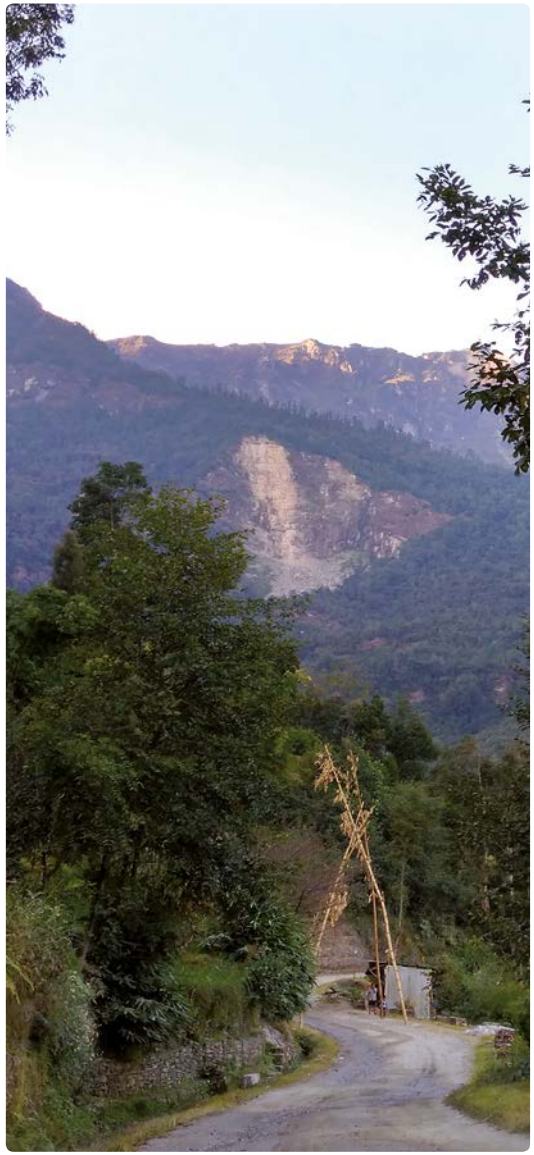
Working with local communities, the project implemented a variety of approaches to protect these ecosystem services, including mapping areas of natural forest and training community forest user groups in sustainable management practices. These helped to protect the forest and established baselines from which to monitor the impacts of management activities.

In terms of carbon, a pilot REDD+ project was already running when work under the ForCES project began; the project aimed to use the new FSC ecosystem services tools to verify increases in the forest's carbon stock. The project team measured carbon stocks in 2010, 2011, 2012, 2013, and 2015[12] to establish the impact of conservation efforts on the carbon stock. The results clearly demonstrated a positive impact and the communities now want to sell this on international markets. However, the Government of Nepal is still finalizing its REDD+ strategy, so no buyer has yet been identified.

To pursue FSC certification for watershed services, the community forest user groups in the area identified water sources and measured

12 Data collection is not required every year; every second year provides sufficient data and the costs involved make it more economical.

Tree carbon measurement, Charnawati, Nepal



Landslides are a major threat in Gaurishankar, Nepal

the outflow from these. The guidelines established for monitoring and managing water are now a part of all their forest management plans. They also implemented measures to reduce erosion and livestock damage to water sources, in order to maintain the water quality.

The business model for watershed services was, in theory, simple: downstream users would pay upstream managers for the continued provision of this ecosystem service. Encouragingly, both the community forest user groups involved in this part of the project identified buyers in Bhimeshwar (formerly Charikot), a city downstream from the forest.

These beneficiaries did not make payments for water in the past, however, and initially there were disagreements between the community forest user groups and the Charikot Drinking Water and Sanitation Users Institution, which represents the beneficiaries, about who owns these water sources. This was resolved during negotiations: the community forest user groups were already FSC certified, and both sides agreed that applying the new FSC tools for ecosystem services, established through ForCES, would be acceptable verification for payments to be made.

The two sides signed an agreement in 2014 and payments began in 2016. Around 4,000 beneficiaries now pay approximately NPR10 (USD0.10) per month; the community groups received around USD1,300 in 2016, for which the beneficiaries received around 1 million litres of water. As the number of users increases, so will these payments.

Payments continued into 2017, even though the site has yet to be FSC certified for ecosystem services. The payments are therefore being made for a fixed two-year period as a trial for the business model. This provides the forest managers with the funds they need to implement the additional management activities required to achieve FSC certification for ecosystem services.

The region's rich biodiversity offered another opportunity to secure additional payments for the community forest user groups. To pursue this, 65 groups identified and assessed 28 non-timber forest products, including paper, medicines, essential oils, and food items, that they could sell as being FSC certified for biodiversity conservation. While buyers have not been identified for all of these, exporters of handmade *lokta* paper have agreed to pay a premium of 1–2 per cent once the impacts of management activities on the forest's biodiversity have been FSC certified.

Lastly, the project explored the potential for establishing a soil-based ecosystem services business model. The region is prone to heavy erosion, and the project team envisaged that, if the impacts of this could be measured, then the local authorities or the government might contribute towards maintaining forest cover that reduces this.

The local government and the owners of the hydropower station downstream (which is affected by the sedimentation caused by erosion) seem supportive of the community forest user groups' efforts to protect the erosion-prone areas in the watershed. Despite this, a business model has not yet been established; stakeholders' priorities shifted towards relief and recovery after the devastating earthquake of 2015.

Gaurishankar

This forest region, which is divided into 17 forest management units, has a rich biodiversity, including 34 mammal species, 16 fish species, 10 types of amphibian, and 235 bird species (NTNC, 2013), including rare and endangered species such as the snow leopard, red panda, musk deer, and ibisbill. This offers great potential for the certification of ecosystem services, notably ecotourism (recreational services) and biodiversity.

Another advantage was that many nearby communities had a good understanding of forest certification – there were two existing FSC-certified forests – and much of the region was already under some form of protection. However, threats persisted, notably poaching, forest fires, illegal logging, landslides, and overgrazing.

One major initiative conducted during the ForCES project was a 'willingness to pay' survey of international tourists, to test the potential for FSC certification of tourism, biodiversity, and soil protection. This survey showed that visitors were willing to contribute towards maintaining these services: around three quarters of the 25 respondents were willing to pay up to USD5, with some willing to pay more. Payments from tourists are not yet being collected, but the evidence is there of a willingness to contribute – once the forest is FSC certified. The new FSC ecosystem services tools could also be used to attract more tourists.

Other activities undertaken to pursue FSC certification for recreational services included mapping the forest to identify biodiversity hotspots, popular tourist sites, and areas prone to erosion, as

> We are excited to have FSC forest certification for ecosystem services and will use it as a tool to promote ecotourism in the Gaurishankar Conservation Area.
>
> – Govinda Gajurel, Member Secretary, NTNC

well as marking hiking routes. Beyond tourism, the communities identified soil protection as a significant ecosystem service, as this reduces erosion and helps to minimize the damage caused by landslides. During the project, they mapped the areas prone to soil erosion and landslides and discussed different options to mitigate the threats. Those selected include preventing the harvesting of trees, reducing illegal logging, controlling grazing, and enhancing vegetation cover by planting trees, shrubs, and ground plants. Many of these are already underway, with others planned for when funds are available, and they are all included in forest management plans.

Potential sponsors for soil conservation measures include the government and hydropower sites downstream (which benefit from increased efficiency when the sediment load of water is reduced). The project has engaged these groups, but negotiations have been delayed, not least by the devastating earthquake that hit Nepal in 2015. Despite this, the potential is there to establish a viable business model, as all stakeholders see the need to preserve this ecosystem service.

3.4 Viet Nam

Viet Nam is a global centre for mega biodiversity and has a rich diversity of ecosystems (UN Environment, 2011). But its forests have experienced large-scale destruction in the last century: in 1943, forests covered 14.3 million hectares, but this had dropped to 9.6 million hectares by 1999. This decline was caused by a complex set of factors, notably the America–Viet Nam war,[13] but also forest fires, excessive logging, and farming (UN Environment, 2011). Much of the forest cover today is acacia plantations for wood production, which cover around 1.1 million hectares (Sadanandan Nambiar et al., 2014).

Since 2000, the government has introduced sustainable and participatory management strategies and investment programmes to protect the remaining forests, including testing various mechanisms of payments for ecosystem services. Combined, these have helped to increase forest cover from 37.7 per cent in 2000 to 47.6 per cent in 2015 (World Bank, nd). The ForCES project contributed to these efforts by establishing FSC certification as a market tool for ecosystem services.

13 This is known as the Resistance War Against America, or the American War, in Viet Nam.

Quang Tri

This coastal area, which contains a mix of natural forest and acacia plantations, was heavily bombed and defoliated during the America–Viet Nam war. Since then, parts of this site have become FSC certified under a scheme involving 136 households, which have rights to use parcels of land for small-scale activities, such as low-level wood harvesting.

As well as being a source of timber, the acacia plantations act as a barrier against erosion from coastal winds. This a major problem: the winds blow sand towards crops, which threatens agricultural livelihoods in this poor region. The plantations also regulate water in the Ben Hai River. There was therefore an urgent need to protect these from illegal logging, agricultural encroachment, the overexploitation of non-timber forest products, and infrastructure developments. Tree planting began in 1990 in response to this concern.

SNV observed the stakeholders' awareness and interest in extending the forests' FSC certification to include ecosystem services, particularly for soil conservation. Through the ForCES project, they set about achieving this through the continued protection of the natural forest, the sustainable management of the acacia plantations, and further activities including replanting degraded areas and training household members in how to protect the soil.

The impacts of these management activities were monitored during the ForCES project using several different indicators. Areas of open sand and forest were measured using satellite images; this demonstrated a significant rise in the forest area by 2011. Further analysis gauged local farmers' perceptions of the environmental changes brought about by tree planting, and the impacts this had on their livelihoods and crops; these were also positive.

One-year old *Acacia Hybrid* in Quang Tri, Viet Nam

> Improving incomes means that local people can spend time doing exercises and other social activities.
>
> – Farmer, Quang Tri

These efforts may soon be rewarded: the site is working with several local timber companies, which already buy FSC-certified timber, to assess their willingness to pay a premium for timber certified as protecting the soil as well.

In the meantime, the households involved realized some non-financial benefits. They are seeing their agricultural activities enhanced due to reduced sand blowing into their fields, and in the future – if the project successfully applies the new FSC ecosystem services tools – there may be employment opportunities, for example in monitoring activities.

Huong Son

The pilot site in Ha Tinh Province offers a range of ecosystem services, but threats to the forest include deforestation and forest degradation, wildlife poaching, and flooding. Yet there is also considerable local awareness of these pressures, of efforts to protect the forest, and of the benefits of FSC certification. Half of this area is already under formal protection by the Viet Nam Government, and half is a forest management area. The Ha Tinh region is also proposed as an area for a UN-REDD+ programme. Combined, these indicate the potential for protecting the region's high conservation value forests through private sector sponsorship.

Working with SNV and FSC, the state-owned forestry company that manages the site sought to establish payments for FSC-verified ecosystem services impacts as a new source of revenue for protecting the forest. This became especially important when the government declared a moratorium on logging in natural forests.

After discussing the different options, they decided to focus on carbon, biodiversity conservation (linked to the forest's high conservation value status), and watershed services. The next step was to identify which areas best protect water and biodiversity, and measure the region's carbon stock. During the project, the site also became FSC certified – a prerequisite for verifying ecosystem services impacts.

In pursuit of these, Huong Song claimed a major achievement: it was the first site to have an ecosystem services impact verified, for maintaining forest carbon (see Box 6, page 62). Impacts for the other two ecosystem services were not verified during the ForCES project, but work is continuing towards this. FSC is also working with SNV to find a company interested in sponsoring the impacts at this site, in order to establish a viable business model.

4. Market research into the certification of ecosystem services

4.1 The need for market research

One of the ForCES project's major objectives was to adapt the existing FSC certification system so that it could be applied to the emerging markets for biodiversity conservation and ecosystem services. To achieve this, the project partners needed to determine the market supply and demand for certified ecosystem services, and to design business models for domestic and international markets that were achievable. The project therefore needed to build an evidence base to guide the process of adapting the FSC system.

The ForCES partners wanted to understand the demand for ecosystem services certification in general, and the demand for the verification of ecosystem services through FSC certification in particular. They also wanted to design a system that would meet the expectations and needs of buyers and sellers of ecosystem services, and could respond to the potential challenges ahead. A further aim was to establish where FSC could best play a role in what remains a complex, fragmented, and diverse marketplace.

In particular, the market research sought to answer the following questions.

Demand

- Is there demand for the certification of ecosystem services among FSC forest management certificate holders?
- Is there demand for the certification of ecosystem services among potential buyers?
- Is there demand for the specific ecosystem services tools that the ForCES project is developing?
- What are the 'best bets' in terms of markets for forest-based ecosystem services? Where is demand greatest?

Needs and expectations

- What are the expectations, from forest managers and potential buyers, for a verification and certification system?
- What claims about ecosystem services management in forests do different actors want to make, and how should they be measured?

> We learnt a lot about each stage of a payment for ecosystem services scheme, and how all the components fit together. This was hugely valuable, and it should be easier to set up future projects.
>
> – Thi Que Anh Vu, FSC consultant, SNV

An ecosystem service map of Huong Son, Viet Nam

- How should a verification and certification system be structured?
- What form should the new market tools take?

Challenges

- What are the key challenges to such a system, as perceived by potential buyers and sellers?
- Is there a willingness among potential buyers to pay for verified ecosystem services claims?

Fitting into the existing FSC certification system

- What is the current level of knowledge of certification, ecosystem services, and ecosystem services certification among stakeholders?
- Which 'bundles' or groupings of ecosystem services would it be most feasible to certify?
- Are FSC stakeholders (e.g. certified forest managers, certification bodies, enabling partners) sufficiently adaptable, i.e. can they incorporate the certification of ecosystem services into the existing FSC system?
- What are FSC certification bodies' preferences and audit capacity for the certification of forest ecosystem services?
- What are the potential business strategies for FSC to expand its organizational scope to include the certification of ecosystem services?

4.2 Scope of the market research

Between 2011 and 2016, the ForCES project undertook and commissioned 14 research studies and surveys to assess the demand for the certification of forest ecosystem services among potential buyers, sellers, and other key FSC stakeholders. These included international-level research and national-level surveys in the four pilot countries, and some pilot site-specific surveys. Table A3 in Annex II lists these in full, while Table A4 shows the market segments covered by this research.

Over 1,000 organizations and individuals took part, including FSC certificate holders (667 participants), FSC supporters (132), certification bodies (127), potential buyers (86), and regional policy-makers (7), representing countries from across the world.[14]

14 These numbers represent total participants; participants in different studies may have been counted more than once.

The key findings were those from **FSC certificate holders and stakeholders** – including the private sector, public sector, and not-for profit organizations, which are likely to be the primary sellers in a market for forest-based ecosystem services – and the **potential buyers** of ecosystem services, which were assessed through the market research studies and, later, by the FSC Business Advisory Group on Ecosystem Services.

Market research among stakeholders, Gaurishankar, Nepal

4.3 Major findings from FSC certificate holders and stakeholders

Interest and adaptability to certify ecosystem services

The global market survey commissioned by FSC revealed that FSC certificate holders (103 respondents) are most interested in systems that verify **biodiversity conservation, carbon sequestration and storage**, and **watershed services** (Bennett et al., 2016). Further, in a study of the adaptability of forest management certificate holders (to manage and sell ecosystem services), certification bodies (to audit ecosystem services), and enabling partners (to promote certification and provide training), Jaung et al. (2016a) found that adaptability was highest for biodiversity conservation and carbon storage, with medium adaptability for watershed protection services, and low adaptability for ecotourism (recreational services).

FSC certificate holders have less experience in carbon storage[15] and ecotourism than in biodiversity conservation, watershed protection, and soil conservation. However, they perceived carbon storage and ecotourism, along with biodiversity conservation, as having the **highest sale potential** (Jaung and Putzel, 2013b; Bennett et al., 2016).

Current management and monitoring of ecosystem services

Most FSC certificate holders currently **monitor, report on**, and/or **verify biodiversity** and the **social and economic benefits** that sustainable management brings to communities living in or near forests. Monitoring, reporting, and verification is less common for soil conservation, carbon, water, and the recreational and cultural values of forest areas (Bennett et al., 2016).

15 Jaung et al. (2016a) state that carbon is not explicitly covered in FSC national standards, but some FSC-accredited certification bodies already audit both forest carbon projects and carbon credits in voluntary carbon markets.

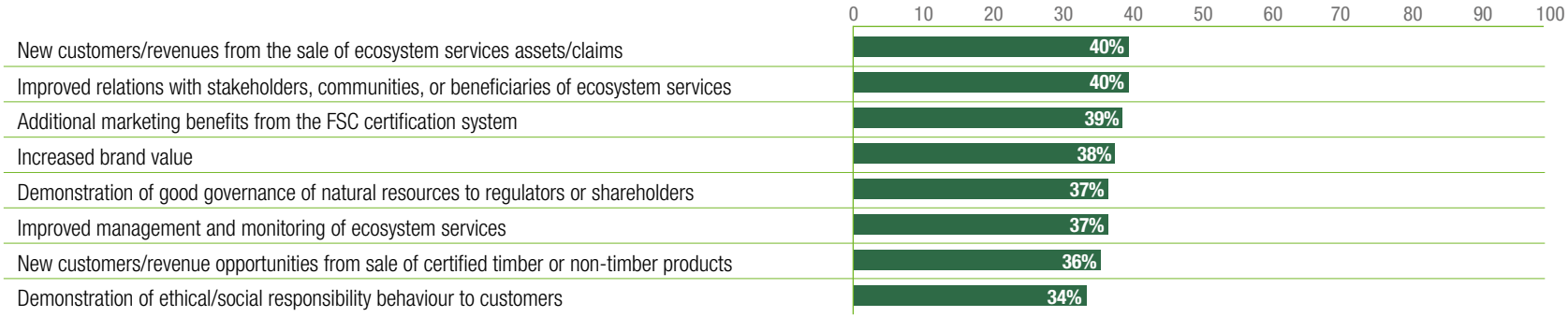
Opportunities and perceived benefits

Figure 2 shows the leading opportunities and potential benefits from the certification of ecosystem services, as identified by over 100 FSC certificate holders in a global survey (Bennett et al., 2016). These results demonstrate some wide-ranging reasons for involvement, including **commercial possibilities** (i.e. increasing revenue), **improving relations** (e.g. with clients and communities), and a desire to have **tangible evidence** of the environmental impacts of their work. Delivering on all these fronts is challenging, but these results indicate a broad interest and set of motivations among certificate holders.

In a choice experiment with 188 FSC certificate holders, Jaung et al. (2016b) found preferences for: ecosystem services certification that could deliver a 50 per cent price premium; technical training for forest owners; and greater access to global markets. However, in a study of the perspectives of sellers, buyers, and intermediaries involved in the payment for watershed services in Lombok, Indonesia, Jaung et al. (2016a) found that interest in the certification of ecosystem services arose from its capacity-building benefits; price premiums were not important.

Together, all these studies present a mixed set of expected opportunities and perceived benefits among stakeholders.

Figure 2. Opportunities and potential benefits for certificate holders from the certification of ecosystem services



Source: Adapted from Bennett et al. (2016).

Challenges, perceived risks, and enabling conditions

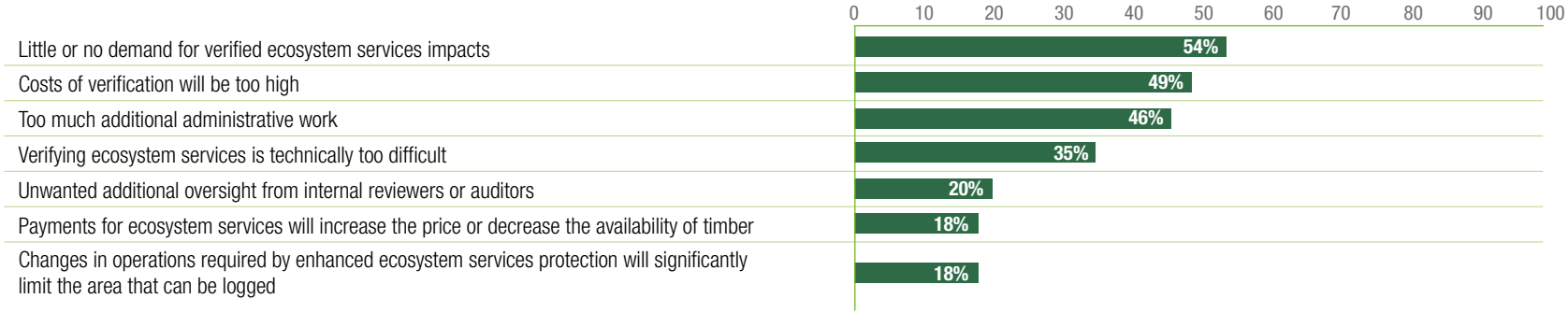
Certificate holders identified several potential risks from a certification scheme for forest-based ecosystem services. These may affect their decision to be part of an FSC scheme. Figure 3 shows the leading responses.

Supporting these findings, a study in Viet Nam (Thuy, 2012) found that 61 per cent of respondents saw the **costs of verification** as the most important constraint. High costs are a particular challenge for the owners of small businesses and land plots. Similarly, certification bodies identified low costs as an important enabling condition for ecosystem services certification, together with **secure ownership** of the ecosystem services and **high credibility** of the certification scheme (Jaung and Putzel, 2013b).

Concerns about the **additional work** involved are also pertinent, because many certificate holders have insufficient capacity to implement verification on the ground (Thuy, 2012; Jaung et al., 2016c) and may not have the resources to interpret and implement technically difficult procedures (Jaung et al., 2016c). These concerns are interlinked: the more complex the verification requirements, the costlier they are likely to be, and the greater the need for additional capacity.

Preferred form of ecosystem services product

Figure 3. Perceived risks among certificate holders from the certification of ecosystem services



Source: Adapted from Bennett et al. (2016).

Table 5 summarizes some the potential market products – widely referred to during the ForCES project (and in this report) as 'tools' – identified for verified ecosystem services claims.

By a narrow margin, certificate holders prefer **forest products with associated verified ecosystem services benefits**[16] over standardized assets or add-ons and prefer to communicate the benefits of ecosystem services through **product logos** (Bennett et al., 2016). This could be through an adapted version of the existing FSC logo with a **promotional statement** describing the benefits, or specific logos or labels for one or more ecosystem services.

Certificate holders also showed a strong preference for receiving **a higher price** (i.e. a premium) for timber products that carry an ecosystem services claim, followed by a modest preference for **direct payments** for FSC-verified impacts, either through the sale of FSC ecosystem services assets or in response to promotional statements. There was also some interest in buyers paying for an add-on to an existing ecosystem services asset, if it had an associated FSC-verified ecosystem services impact.

Table 5. Potential market tools for verified impacts of ecosystem services

Market tool	Description and use
Assets	The positive impacts of management activities on ecosystem services are verified to generate a standardized claim. This can be purchased and the impacts 'owned' or 'assigned' to an entity.
Add-ons	Verified impacts are used to generate a claim that pairs with, or 'adds on' to, an existing ecosystem services asset (or assets).
Products with associated verified ecosystem services benefits	Impacts on ecosystem services are verified for FSC-certified timber and pulp products, or non-timber forest products that already meet existing FSC certification requirements. The additional impacts are communicated along with the certified products.
Promotional statements	Impacts are verified and used to make promotional, non-monetary statements regarding the protection of ecosystem services.

Source: Adapted from Bennett et al. (2016).

16 This is also referred to as product-based verification.

4.4 Major findings from potential buyers

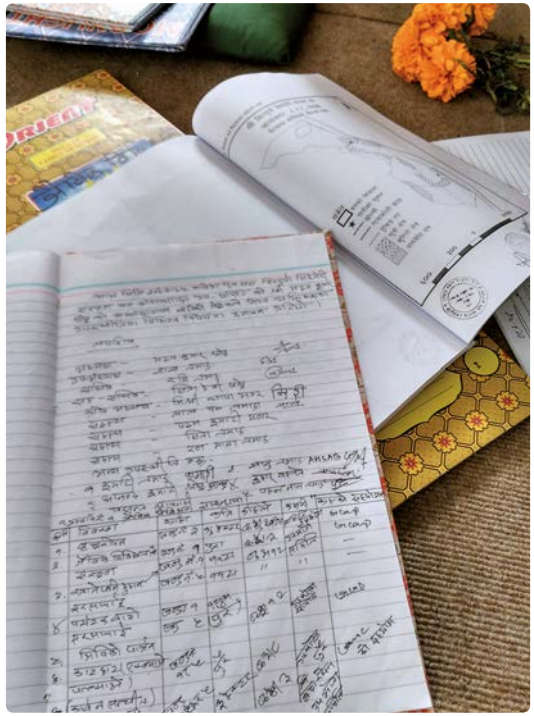
Interest in certification for ecosystem services

The FSC Business Advisory Group on Ecosystem Services was established in 2016 to provide feedback on the new market tools developed under the ForCES project (see Part II for descriptions of these). This group comprises: representatives from retailers; members of all three FSC chambers;[17] representatives of the global investment and finance community; a representative of an existing payment for ecosystem services scheme; market intermediaries that connect the buyers and sellers of ecosystem services; and other relevant stakeholders.

Encouragingly, all participants of this group felt that there was value for their sector in the proposed FSC certification system for ecosystem services. A global market survey of 33 market buyers and potential buyers found that just under half of potential buyers (45 per cent) are **interested in FSC-verified ecosystem services**, with 42% either neutral or unsure of their interest. However, these prospective buyers were not active in ecosystem services markets (Bennett et al., 2016).

In their global study of 25 market actors, including project developers, buyers, and intermediaries – but not forest management certificate holders – Peters-Stanley et al. (2015) found that 38 per cent of respondents were **unconditionally interested** in a system to verify ecosystem services, and an additional 29 per cent were interested depending on certain conditions, including marginal transaction costs and market development. The remaining 33 per cent were uninterested, citing concerns about market demand and competition with existing schemes. Interest was highest among buyers where land affects their business (e.g. food and beverages, consumer product market, agribusiness) (Peters-Stanley et al., 2015).

In terms of the type of ecosystem service, buyers are most interested in the verification of **biodiversity**, **carbon**, and **water** (Peters-Stanley et al., 2015; Bennett et al., 2016). This largely matches the leading sectors identified by certificate holders and thus identified clear focus areas for the ForCES project. However, these categories are broad and the nature of the specific values of interest varied. For example, water-related values include issues around water quality, water quantity, and universal access to water.



Parque Purmalin, Chile

17 Environmental, social, and economic. See: https://ic.fsc.org/en/what-is-fsc/governance

Water–forest conservation along water course, Gaurishankar, Nepal

These broad findings were more nuanced at the country level. For example, provincial policy-makers, potential buyers, and potential sellers in Viet Nam had the greatest interest in certification being applied to watershed services, biodiversity conservation, and carbon sequestration (Thuy, 2012). In Nepal, buyers were most interested in localized payments for ecosystem services that allow for relationship benefits with communities, such as ecotourism (recreational services) and watershed services; they were less interested in payments for carbon sequestration (ANSAB, 2014).

Buyer motivations

Figure 4 shows the ranking of more than 30 buyers' motivations for entering markets for ecosystem services.[18] A mix of mission-driven and 'good citizenship' considerations accounted for four of the top five motives. Interestingly, these were all voluntary, rather than due to the need to comply with regulations.

Responses from the participants in the FSC Business Advisory Group largely aligned with the top scores from this survey; one participant also highlighted the relevance of emerging laws requiring the protection of ecosystem services.

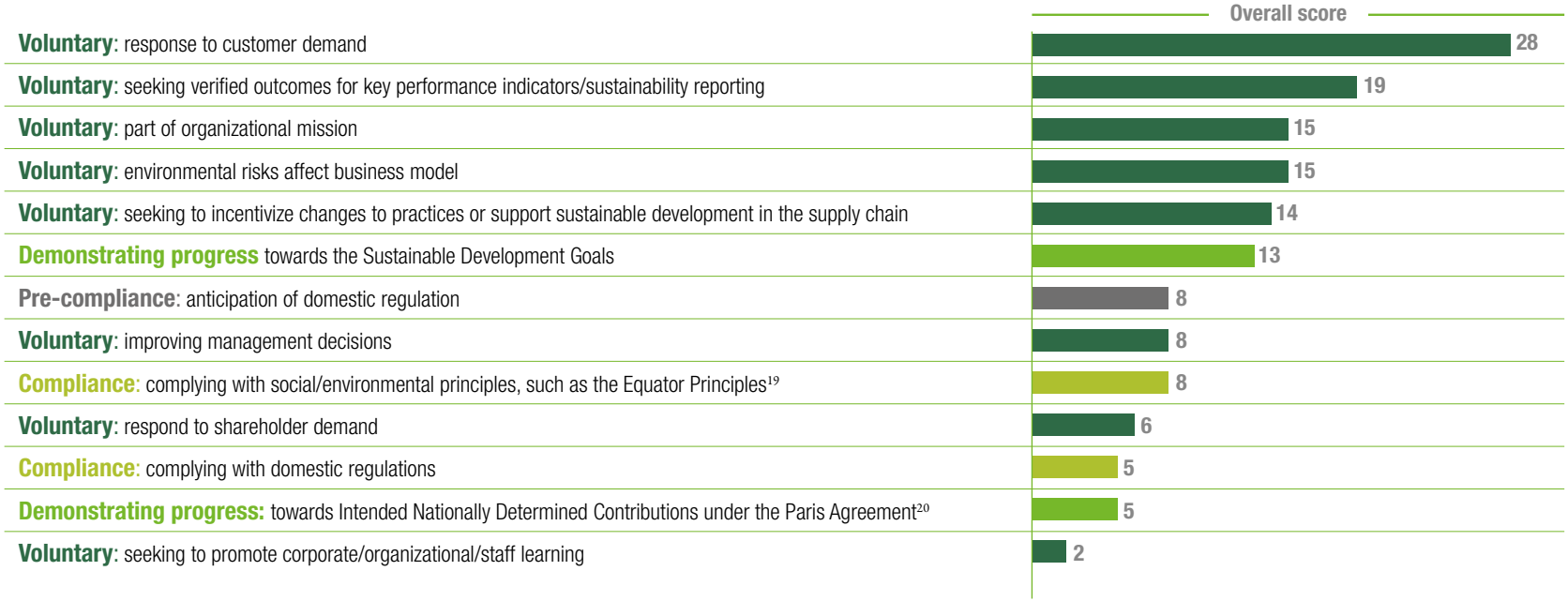
Respondents repeatedly noted the opportunity that certification offers to **demonstrate and monetize** a project's impacts on ecosystem services; conversely, the current lack of data on project impacts is seen as a limitation to the growth of ecosystem markets. Several respondents mentioned that, from a financing perspective, certification could provide clearer information on outcomes for decision-making, and that certified projects might be more attractive to investors.

For project developers and buyers, a mechanism for verifying the impacts of ecosystem services could **establish minimum standards** for a project and a guaranteed level of service delivery, increasing the willingness of buyers to pay for certified impacts.

Ecosystem services certification also offers an appealing **branding opportunity** for companies wanting to communicate their commitment to environmental sustainability. This is in line with common thinking within the business community – that the risks related to their investments

18 Scores for buyers' motives were calculated based on the number of respondents selecting the respective motive, multiplied by the rank (1–3) assigned by the respondent. Thus, the most important motive scored three points, followed by two points for the second-most important motive, and one point for the third-most important motive. Points were collated to generate the scores.

Figure 4. Motives for paying for verified ecosystem services



Source: Adapted from Bennett et al. (2016).

need to be minimized not just in terms of finance, but also in terms of maintaining the ecosystem services they depend on, as well as their reputation (Bishop, 2011).

A further potential motivation for buyers – one that was not investigated in the market research, but came to FSC directly from project developers – is the need to meet the requirements that exist in some certification schemes to **compensate** for the past destruction of high conservation value forests, or for forest conversion. FSC-certified ecosystem services could make FSC-certified forests an attractive recipient of compensatory conservation funding, if they meet the requirements of those systems.

19 See: www.equator-principles.com

20 These are the national-level commitments to tackling climate change that each country has outlined under the Paris Agreement. See: http://unfccc.int/focus/indc_portal/items/8766.php

Cholchol-Imperial, Chile

Willingness to pay for ecosystem services

According to Peters-Stanley et al. (2015), 39 per cent of respondents indicated a **willingness to pay** for verified ecosystem services, with an additional 28 per cent expressing support conditional upon the certification scheme being able to demonstrate how they (the buyers) could monetize the measurements and environmental benefits. When asked specifically about **FSC-verified claims for ecosystem services**, 45 per cent were willing to pay for these, and a further 23 per cent would be willing dependent on certain conditions (Bennett et al., 2016).

The amount that buyers are willing to pay varies according to the ecosystem service in question. Buyers were willing to pay an average premium of **8 per cent for biodiversity services**, and **6.8 per cent for carbon-related services**. However, the willingness to pay a premium for claims about verified social and economic benefits for communities was much lower, ranging from 0.5 to 2 per cent (Bennett et al., 2016).

Participants in the Business Advisory Group urged FSC to find creative solutions to increase buyers' willingness to pay. Participants from the investment community – where there is contention about who should pay for the demonstration of impacts – suggested that using an existing certification scheme, and thus avoiding additional costs, could be compelling. Consumer goods companies advised FSC that downstream companies would not have a great willingness to make additional payments through traditional supply chains.

Willingness to pay for ecosystem services: country level

In Nepal, consultations with potential buyers showed that the willingness to pay was greatest for watershed protection and ecotourism, although there was uncertainty among buyers due to a lack of knowledge about the full system (ANSAB, 2014).

In Viet Nam, research suggested that potential buyers are unlikely to pay for ecosystem services or the certification of ecosystem services without government regulations being applied (Thuy, 2012). Although a national market survey showed limited opportunities for payments motivated by corporate social responsibility, SNV has identified companies potentially willing to make payments at the two pilot sites in Viet Nam, based on FSC certification of the impacts on ecosystem services. The best opportunity for payments in Viet Nam is to present FSC certification as a service that fills gaps, in terms of monitoring and quality control, within the government-regulated payment for ecosystem services market (Thuy, 2012).

In Chile, 54 per cent of respondents reported a willingness to pay for ecosystem services, but this increased to 64 per cent if those ecosystem services are certified.

Preferred form of ecosystem services verification

The preferred form of ecosystem services market tool (see Table 5, page 38) depends partly on who you ask. Current buyers of voluntary carbon credits generally preferred market tools that are an **'add-on' to existing assets** (e.g. carbon credits) (Bennett et al., 2016). Other studies support this finding. For example, EcoSecurities (2009) found that 30 per cent of buyers of carbon credits would be willing to pay a premium of USD4 or more per offset if it was linked to Climate, Community, and Biodiversity Standards.[21] By contrast, few retailers generally have offsetting programmes, making add-ons a more challenging proposition to introduce to this sector (FSC, 2016).

The market research indicated that stand-alone **FSC ecosystem services assets** were a close second choice, tied with **products with associated verified ecosystem services benefits**; these were preferred by buyers with a track record of purchasing sustainable commodities (Peters-Stanley et al., 2015; Bennett et al., 2016).

The FSC Business Advisory Group generally favoured market tools that allowed for the **greatest specificity** and were **directly linked to forests**. By contrast, consumer goods companies highlighted the importance of communicating directly with their customers through **labels** and **high-level messaging**.

One market intermediary emphasized the growing movement away from tradeable carbon credits and towards **results-based financing**. While strategic investors will see more value in a 'liquid' asset (such as a carbon credit), impact investors and companies driven by corporate social responsibility will be more attracted to results-based financing. One investor observed that while the carbon credits market can be confusing, adding **stories of impact** might make it easier to relate the benefits to buyers. Another market intermediary said that there is a market for all the product forms that FSC is considering.

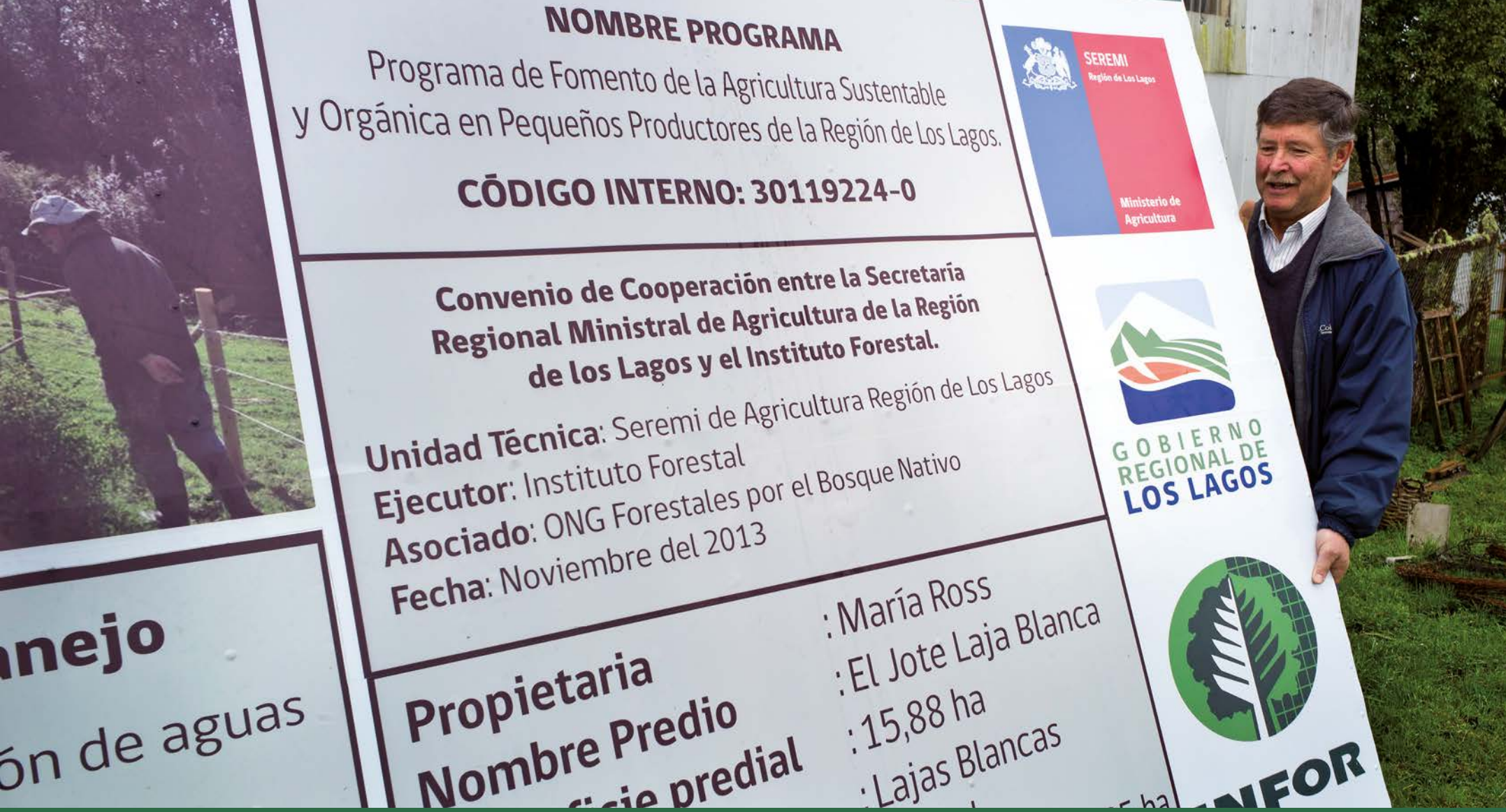
Lokta paper enterprise, Charnawati, Nepal

21 See: www.climate-standards.org

4.5 Major findings on the role of FSC

Some of the research investigated the overall desires and concerns of stakeholders across the sector – buyers, sellers, and others – notably the two studies conducted by Ecosystems Marketplace (Peters-Stanley et al., 2015; Bennett et al., 2016). This identified many useful findings regarding the suitability of FSC to design and deliver a certification scheme for forest-based ecosystem services. These included the following points.

- There is a demand for a **simple, cost-effective verification system** for the impacts of forest-based ecosystem services. This should be **flexible** and applicable across **different regions and different ecosystem services**.
- Demand is highest for **verified impacts** related to biodiversity, carbon sequestration and storage, and water.
- Buyers have some willingness to pay for **verified ecosystem services impacts**, but this willingness varies depending on the ecosystem service in question, and may require new ways to deliver value to buyers.
- **Results-based claims** are preferable to activity-based claims, demonstrating the need for a certification scheme that quantifies the impacts of forest management activities.
- There is a demand for **different forms** of FSC-verified ecosystem services impacts; FSC could develop several market tools, or choose one that fits best with its existing certification system.
- Sustainable commodities buyers continue to represent a **key opportunity for FSC ecosystem services certification**. A verification and enforcement system that more fully incorporated companies' commitments criteria (e.g. to zero deforestation, the protection of biodiversity, the protection of human rights) would appeal to these buyers as a streamlined solution.
- FSC's role should be to **open markets up**, not set prices, make introductions between buyers and sellers, or intervene in transactions.
- To encourage the uptake of its ecosystem services market tools, FSC should invest in efforts to **generate demand** within key market segments, relevant associations, and their influencers.
- FSC should **seek the approval**, **recommendation**, and/or **endorsement** of as many market-relevant institutions as possible, to ensure maximum demand for FSC-verified impacts.



Information sign, Cuenca Río Mechaico, Chile

Part II.
Outcomes and achievements

The ForCES partners turned a vision into reality: developing and testing tools to reward the responsible management of forest ecosystem services. We now hope these can inspire and benefit others.

– Alison von Ketteler,
ForCES Global Project Manager
and independent consultant for FSC

5. How the ForCES project led to FSC adapting its policy framework and standards

5.1 Strengthening FSC's strategic commitment to ecosystem services

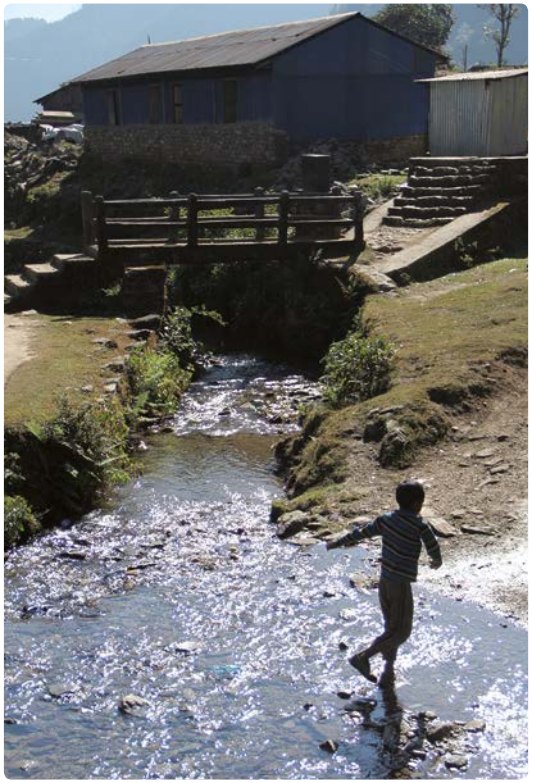
Ecosystem services have always been a part of FSC's purpose. The ForCES project provided an opportunity for FSC to make this more explicit, by updating the policy framework and strategies that guide how the organization operates (such as the FSC global strategy), and revising its normative framework (standards, policies, and procedures) and guidance to include the possibility of measuring impacts on ecosystem services. These policies and standards now underline the central strategic role that ecosystem services will play in the future of FSC.

This clear vision and organizational commitment to ecosystem services is cemented in the latest FSC strategic documents. In the *Global Strategic Plan 2015–2020*, Strategy 2 aims to "Increase the market value of FSC" with a target of FSC's share of global forest-based trade being 20 per cent by 2020. Payments for ecosystem services are set to play a major part in achieving this, creating new market opportunities for FSC certificate holders. This is captured in critical result area 2.3, "empowering people to access and develop new markets," which outlines the objective to create "new tools for certificate holders to access emerging ecosystem service markets."

This target is based on another output of the ForCES project: the *FSC Ecosystem Services Strategy*, published in 2015. This explicitly states that part of the overall goal of FSC is to develop new tools for certificate holders to access emerging markets for ecosystem services, which:

- strengthen the incentive for responsible forest management, forest protection, and forest restoration;
- deliver greater value for certificate holders, communities, and other actors along the supply chain.

To achieve this, FSC identified seven specific strategies to address the adaptations to its existing standards and assurances system. These are needed to support ecosystem services claims and deliver value to its stakeholders.



A stream near Suspa village, Charnawati, Nepal, where the community forest user group is managing the forest to provide clean drinking water

1. Include optional ecosystem services requirements relevant to specific ecosystem services in national forest stewardship standards.

2. Develop practical methods for demonstrating the impacts of forest stewardship on the provision of ecosystem services.

3. Form partnerships to support the development of ecosystem services tools.

4. Create FSC ecosystem services market tools for certificate holders.

5. Develop FSC ecosystem services market opportunities.

6. Support equitable benefit-sharing of ecosystem services payments.

7. Explore models of ongoing support for certificate holders to access ecosystem services markets.

Meanwhile, Version 4 of the FSC *Principles and Criteria* (FSC-STD-01-001 V4) was revised and the current version includes, among other changes, explicit references to ecosystem services. For example, Principle 6 requires the organization to "maintain, conserve and/or restore ecosystem services," while Criterion 5.1 requires the forest management organization to "identify, produce, or enable the production of, diversified benefits and/or products, based on the range of resources and ecosystem services existing in the Management Unit."

5.2 Introducing Annex C

Further, the FSC *International Generic Indicators* (FSC-STD-60-004 V1-0), which were developed based on Version 5 of the FSC *Principles and Criteria*, include Annex C. This is the cornerstone of the new FSC ecosystem services tools and lists the additional management requirements that apply when a certified forest manager decides whether to make FSC claims about the maintenance and/or enhancement of a particular ecosystem service.

Development of Annex C was supported by the FSC Ecosystem Services Programme, with contributions from CIFOR, by benchmarking the international generic indicators against the

leading standards found in existing markets for ecosystem services. This process revealed that the international generic indicators already covered almost all safeguards for the forest ecosystem services under consideration. A small number of new safeguards were added, tailored to each ecosystem service, to ensure that all the issues that might affect the 'sale' of these services in the markets were addressed.

Annex C introduces the publicly available ecosystem services certification document. This is the cornerstone of transparency in the new system for certifying ecosystem services and requires forest managers to follow the requirements set out in the new ecosystem services procedure (see Chapter 6 for more details).

Before any of the new requirements under Annex C can be applied at the site level, national standards development groups worldwide must update their own national forest stewardship standards to incorporate the international generic indicators, including Annex C. FSC has indicated that all national standards development groups should include the requirements in Annex C, but has left the choice to be made at the national level.

Charnawati, Nepal

5.3 Updating national forest stewardship standards

National forest stewardship standards specify the requirements that each forest manager in a country must comply with to obtain FSC certification. Each standard must contain the precise language of the internationally agreed FSC Principles and Criteria for responsible forest management, but also include indicators that reflect the diverse legal, social, and geographical conditions of forests at the national level. In this way, the national standards are adapted to local contexts while recognizing the international FSC system.

They are developed by standards development groups in each country, which have representatives from each FSC chamber. For countries where it is not feasible to establish a standards development group, either interim national standards (developed jointly by certification bodies and approved by FSC) or a generic forest stewardship standard (developed by FSC) are applicable. Both of these will also include the additional ecosystem services requirements.

Observing a protected water source and storage tank in the Suspa community forest, Charnawati, Nepal

National standards must be adapted to include the new requirements of the updated version of the *Principles and Criteria* and the *International Generic Indicators*. Annex C can also be included in these national standards to allow FSC certificate holders in each country to use the new FSC market tools for ecosystem services.

5.4 Updating national standards in the ForCES pilot countries

The process of updating national standards with the requirements in Annex C began during the ForCES project, but experienced a slow start. The pilot countries had to wait until the *International Generic Indicators*, which contained Annex C, were completed, and this process only began after the start of the ForCES project, while the new requirements were not formally approved by the FSC Board of Directors until March 2015.

As a result, the updating process has not been completed in any of the four countries. Despite this, progress has been made. Draft national standards in all four countries now include Annex C.

Chile

Chile was the only pilot country to have a national standard prior to the ForCES project. During the project, a working group constituted under FSC Chile's national office completed the first revision of its national standard. A stakeholder consultation was held on the first draft of this at the end of 2016.

Indonesia

A diverse set of stakeholders, led by LEI, have produced a second draft of the national standard, based on feedback from the first consultation. This draft is targeted for submission for approval in 2017.

Nepal

Three drafts of the national standard have been completed, along with one public consultation. The second draft was tested in two sites nationally, including Charnawati, and under two different management regimes (community forests and collaborative forests). A field-tested draft was released for public consultation and the standards development group is working to produce a pre-approval draft, which was due to be submitted for review and approval in July 2017.

Viet Nam

Three drafts of the revised national standard have been completed, based on two public consultations. The standard has been field tested in both of the ForCES pilot sites and was scheduled to be submitted for approval in June 2017.

Box 3. Developing national standards in Viet Nam: success thanks to ForCES

The process of developing national standards in Viet Nam began over 10 years ago, but the first 19 attempts never reached the stage where they could be submitted to FSC for approval. There were several reasons behind this, from not following FSC guidelines on how the process should work to a failure to create a detailed plan of how the final standards should look.

However, during the ForCES project, Viet Nam prepared a national standard that is ready to be submitted for approval. Several things were different this time. One was greater involvement by the wider FSC network, whose members provided feedback and advice throughout the process. Another was government involvement, with the Deputy Director-General of the Viet Nam Administration of Forestry chairing the standards development group, which also included new members this time. The end result was an agreed set of standards, which will soon be submitted to FSC for approval.

Quang Tri, Viet Nam

6. The new FSC tools for ecosystem services

CIFOR's research on ecosystem services certification provided valuable insights into the different options for expanding the FSC certification system to enter the emerging markets for ecosystem services. For example, Jaung (2014) explained how, before the ForCES project, FSC provided businesses with a 'safeguard model': providing a guarantee to potential buyers of FSC-certified products about how social, environmental, and economic values are protected in forests. To effectively apply this to emerging markets for ecosystem services, FSC-certified forest managers needed to augment this with information about the quantity of the ecosystem service: known as a 'quality model'.

Jaung outlined three potential business strategies for FSC to explore through the ForCES project:

1. develop its own systems for quantifying ecosystem services;

2. incorporate systems developed from other quality models (e.g. Verified Carbon Standard, Gold Standard Foundation);

3. allow FSC-certified forest managers to choose and apply their own quality model certification schemes, in addition to FSC certification.

Ultimately, FSC decided to mix the first two of these business strategies. As of 2017, the organization is completing the final consultations and testing of the draft **ecosystem services procedure**,[22] which provides an evaluation of the impacts of forest management activities on ecosystem services. The aim is for this to be approved and ready for use in 2018.

22 FSC-PRO-30-006 *Demonstrating the Impact of Forest Stewardship on Ecosystem Services* is being developed with the advice of a technical working group comprising Julianne Baroody (Verified Carbon Standard), Owen Hewlett (Gold Standard Foundation), Bruno Brazil de Souza, Mateo Cariño Fraisse (NEPCon), Shambhu Charmakar (ANSAB), Timo Lehesvirta (UPM), and Jeff Milder (Rainforest Alliance). Sini Savilaakso is the Principle Science Advisor to the group.

6.1 Verifying impacts: the ecosystem services procedure

The new ecosystem services procedure is a significant achievement. Once finalized it will provide FSC certificate holders with a common methodology for demonstrating the impact of their forest management activities on one (or more) of the five ecosystem services considered under ForCES. This is the first time that FSC has provided certificate holders with a way to measure, verify, and communicate the impacts of their work on ecosystem services.

The ecosystem services procedure builds on CIFOR's proposed global methodology to assess the environmental and social impacts of the certification of ecosystem services (Savilaakso and Guariguata, 2013). Different approaches and market tools were tested at the ForCES pilot sites, and then by businesses during the second half of 2016; following this, the first full draft procedure was written in early 2017.

The current version of the ecosystem services procedure involves eight steps that make a causal link between measured outcomes and the management activities that forest managers have undertaken. Following these steps leads to a demonstrated impact, in the sense that the measured outcomes are attributed to the management activities.

In summary, the ecosystem services procedure:

- sets the requirements for **demonstrating an impact**;
- requires that the forest manager fills out the **ecosystem services certification document** (one of the new market tools);
- sets the requirements for the use of the new **market tools** (discussed later in this chapter), each of which will be based on the demonstration of impact.

The ecosystem services procedure may not always result in the direct quantification of an ecosystem service, but it will verify the maintenance or enhancement of a particular ecosystem service. At the same time, the procedure allows for the use of external methodologies for measuring changes in outcome indicators, thereby permitting the application of existing external certification schemes.

A watering trough in Cuenca Río Mechaico, Chile

6.2 Developing the new market tools

Impacts verified using the ecosystem services procedure will enable FSC certificate holders – both current and future – to connect with the emerging markets for ecosystem service payments and investments, and thus be rewarded for their work. The new market tools developed through the ForCES project will support them in accessing these markets.

Two market tools are currently under development.

- The **ecosystem services certification document**, a publicly available technical document that summarizes the impact(s) of management activities on forest ecosystem services.
- **Promotional statements associated with FSC trademarks**, which communicate demonstrated impacts on ecosystem services to potential buyers (see Box 4).

FSC has consulted on three additional market tools; further tools may also be developed in the future.

- **Ecosystem services claims (1)** that can be included within the scope of a forest management certificate and passed along the supply chain in association with forest products, potentially leading to the on-product labelling of ecosystem services impacts.
- **Ecosystem services claims (2)** that are attached to a tradeable asset, such as a carbon credit.
- An **intangible product** representing a demonstrated ecosystem services impact, which could be sold directly to interested buyers.

Figure 5 shows how these new ecosystem services tools work alongside existing FSC processes. Annex III contains more details of each new and potential tool.

The ecosystem services certification document and the promotional statements are nearing completion. Both were described in the first draft of the ecosystem services procedure, which was open for public consultation from 24 March to 21 May 2017. The latter three tools have been presented in a discussion paper and require further consideration before decisions are made about their development.

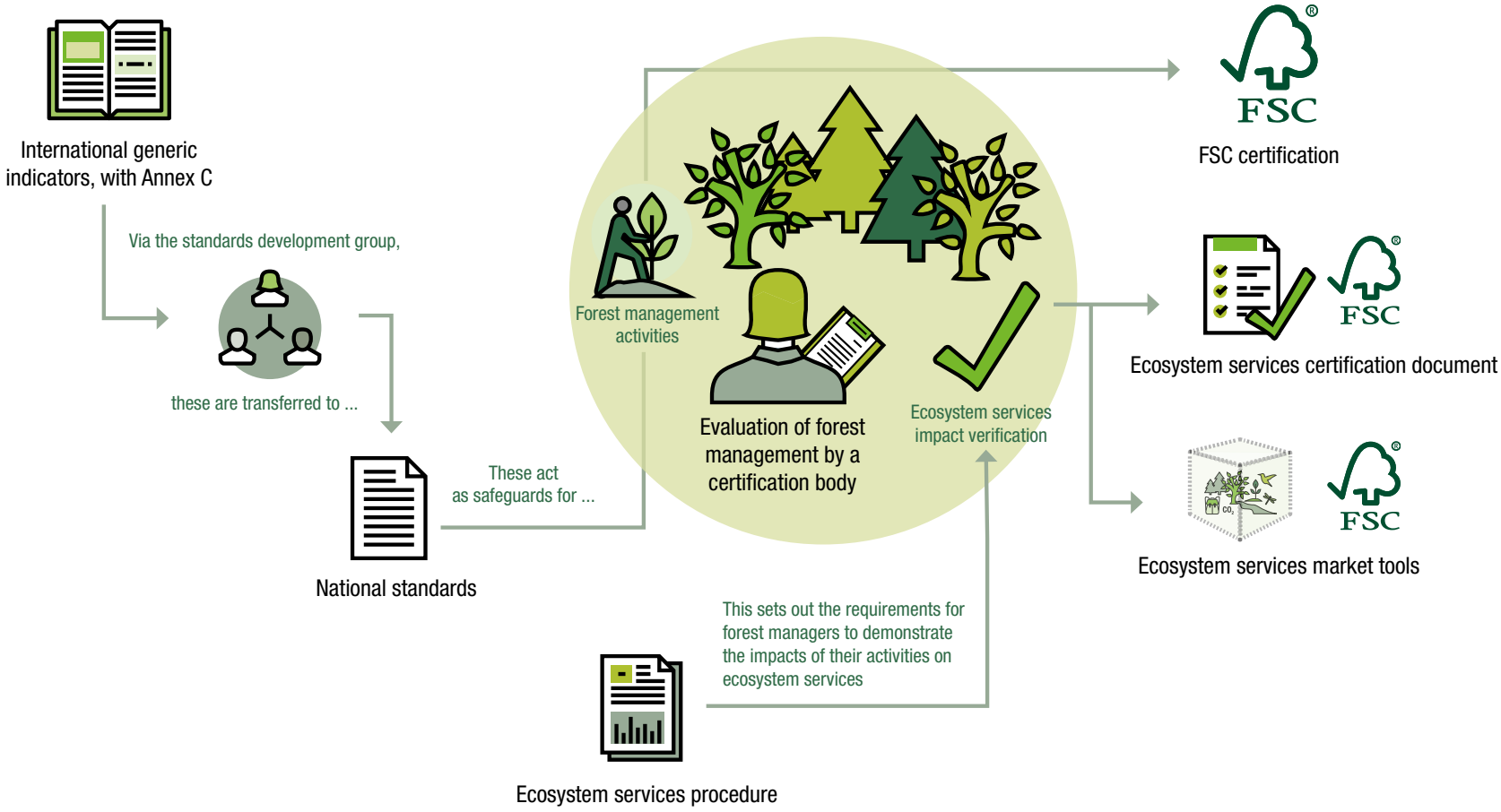
Box 4. Adding value through biodiversity claims

The rich biodiversity, including flagship fauna species, at the PT. Ratah Timber site in Indonesia was well known before the ForCES project started, thanks to ongoing work with Kyoto University in Japan. This research had revealed high levels of biodiversity compared with other logged forests that did not implement the same low-impact management activities as PT. Ratah Timber.

Timber produced from the forests was first FSC certified in 2013, and the company wanted to add value to this by establishing ecosystem services claims related to the site's biodiversity. Early ideas for how to do this were through statements such as: "If you buy timber from Ratah, you are contributing to sustainable forestry that supports wildlife."

The impacts on biodiversity have been tested and PT. Ratah Timber is waiting for the final results from the auditors. The financial value of these claims, and how they will be promoted, are yet to be finalized. But the ForCES project has set the wheels in motion towards realizing this ambition.

Figure 5. How the new ecosystem services tools fit with the existing FSC system for forest management certification



A millet field in the edge of the Suspa community forests, Charnawati, Nepal

Building on and complementing existing FSC certification, these new tools will reward participating FSC certificate holders by improving their access to payments for ecosystem services and impact investments. As a result, they create additional incentives to preserve the ecosystem services derived from responsibly managed forests. They will also increase the confidence of governments, investors, buyers, and businesses in ecosystem services markets, and can be used to demonstrate the impact that investments in forests have on preserving ecosystem services (FSC, 2017).

Importantly, the new tools can be used for different types of ecosystem service and will be open to forest owners that are not yet certificate holders, once they become FSC certified. And the scope for potential impact is huge: they could potentially be applied to FSC-certified forests and plantations anywhere in the world.

Preliminary ecosystem services claims and promotional statements were tested during 2016 at the ForCES pilot sites, based on the initial draft versions of these tools; Chapter 7 has more details on the progress made.

7. Measuring impacts at the ForCES pilot sites

An important component of the ForCES project was to develop a global methodology for assessing the long-term impacts of management activities on and FSC certification for ecosystem services. This methodology, developed by CIFOR, was used to measure progress towards the environmental and social impact indicators identified at the pilot sites (UN Environment, 2011). It was also a key input into the process of drafting the ecosystem services procedure.

The results discussed in this chapter are based on the work of the implementing partners in each country (see Table 3, page 13)[23] and CIFOR.

Measuring water flow, Gaurishankar, Nepal

7.1 Developing locally appropriate impact indicators

To develop impact indicators for each pilot site – the indicators that would be monitored to demonstrate the impacts of management activities – CIFOR led workshops in each pilot country between June and August 2012. Using a participatory approach, these workshops identified sets of indicators by considering: (1) the potential users and uses of each ecosystem service; (2) its attributes (i.e. the qualities and/or features of the service that users value); and (3) the threats to that ecosystem service.

The indicators developed formed the basis for the subsequent site-level monitoring (Savilaakso, 2012). In some sites, for example Charnawati and PT. Ratah Timber, there were already ongoing monitoring programmes that provided the foundation for the impact demonstration.

23 In addition to those listed in Table 3: the European Space Agency project Earth Observation for Ecosystem Services Valuation, conducted by Metria, Geoville, and Argans, provided forest cover change results for both sites in Viet Nam; Tobias Edman from Geografiska Informationsbyran analysed the data on open sand areas and forest cover change in Quang Tri; and a research group from Kyoto University, led by Professor Kitayama, provided their results from the PT. Ratah Timber site for use in the ForCES project.

> ForCES generated self-motivation and readiness to adopt the standards for conservation and sustainable management of our forests and other high conservation value areas.
>
> – Ganesh Bahadur Karki, Chairperson, FECOFUN

7.2 Demonstrating impacts at the pilot sites

One decision with regard to demonstrating impacts was whether to monitor the impact of management activities only, or whether the impact of the overall intervention (i.e. certification) would be evaluated. In the end, it was decided to focus on the impacts of management activities.

The demonstration of impacts under the ForCES project can be divided into two categories: (1) retrospective impacts, i.e. the change in management activities happened before the project and the management goal is to maintain the provision of ecosystem services in the future; and (2) prospective impacts, where the change in management activities happened during the project and the long-term impacts will materialize in the future. For the first category, it was possible to study the kind of impacts the management activities had at the pilot sites; in the second category, the demonstration of impacts is based on a theory of change (i.e. how management activities lead to long-term impacts) and measurement of the outputs and/or outcomes of the management activities undertaken (Savilaakso, 2017a).

7.3 Positive impacts at the pilot sites

Across the ForCES sites, positive impacts – on the environment, on governance, and on social issues – were identified that relate to ecosystem services, from either current or past management activities.

Table A5 in Annex IV lists the indicators identified at each site, the methods used to monitor these, and the results from these activities. In many cases, these impacts were submitted as evidence to FSC-accredited certification bodies as part of the expanded certification of pilot sites in conformance with the draft ecosystem services procedure (Chapter 8).

Environmental impacts

Biodiversity inventories were conducted at several sites, and the positive biodiversity impacts identified relate to forest protection and improved forest management practices. Existing natural forest and high conservation value areas have been protected to ensure this biodiversity is maintained.

Management practices have improved in forest management areas. In Cholchol-Imperial, for example, changes in plantation management practices have helped to maintain the populations of

medicinal plant within the natural forest areas in plantations. At PT. Ratah Timber, the tree species composition of a logged FSC-certified site was only slightly reduced compared to a completely intact forest – indicating that the biodiversity safeguards implemented at the site are effective.

Improved forest management practices have also had positive impacts on carbon stocks (e.g. Charnawati), while at other sites (e.g. Huong Son) carbon stocks have been maintained by completely protecting the area from logging.

Increased forest cover through tree planting – either before or during the ForCES project – has had a positive impact on several ecosystem services. At Quang Tri, it has reduced wind-based erosion and the movement of sand into agricultural fields, which in turn have benefitted the farming communities living in the area.

Similar impacts on reducing erosion through tree planting were observed at other sites. It is predicted that this will have positive impacts on water quality, although these have not yet been proven through direct water quality measurements, which are planned as part of the future activities. Improvements in water quality were also targeted through the protection of water sources and waterways; these activities are also predicted to have positive impact in the future, once they are scaled up to cover whole catchments (e.g. Charnawati, Lombok island, and Cuenca Río Mechaico).

A further, indirect environmental benefit of tree planting is the reduced pressure on natural forests, as the planted trees provide fuelwood. They have also increased household incomes at some sites (e.g. Lombok island, Quang Tri).

Governance

The quality of governance – particularly the enhancement of participatory governance – improved directly at several sites during the ForCES project. At Cholchol-Imperial, a roundtable of stakeholders was established to ensure the continued availability and sustainable collection of medicinal plants. This established agreed good practices for collection and facilitated the exchange of information between stakeholders. It also increased awareness of the company's practices among the community, as well as awareness about the Mapuche cultural values and how to protect medicinal plants on company lands. There is already field evidence that the changes in management practices have led to positive impacts on the ground (i.e. increased availability of medicinal plants).

Lombok island, Indonesia

Box 5. Impact monitoring at Quang Tri: a change of approach

The experiences at Quang Tri highlighted the importance of flexibility in pursuing ecosystem services claims, as well as some of the challenges faced in demonstrating the impacts of past management activities, such as the tree planting that began in the 1990s.

The original plan at this site was to quantify the impacts of tree planting on soil quality through taking soil samples and comparing them with those from a similar plot without management activities. However, it became clear that the community lacked the technical skills needed to collect the data, and it was not possible to identify a soil expert in Viet Nam to assist with this. This approach was also likely to be very expensive, increasing the costs of certification.

To work around this problem, CIFOR and SNV decided to use satellite images of the project site instead. These were analysed by Geografiska Informationsbyran to measure the changes in forest cover and the areas of open sand. This analysis did not demonstrate the exact impact on agricultural soil quality, however. To determine this, the project team interviewed key informants (i.e. farmers) to establish the impacts on their agricultural land, their incomes, and their well-being, as well as their perceptions of the impacts on the environment.

Similarly, in Nepal, different stakeholders – some of whom had previously been in conflict with each other – were brought together and managed to agree on the best governance structures and responsibilities.

In both countries, enhancing participatory governance in this way required substantial effort and considerable time (2–3 years) but, encouragingly, all stakeholders seem content with the changes, providing a strong foundation for a long-lasting impact.

Social impacts

Positive social impacts across the pilot sites will contribute to the long-term sustainability of the project outcomes. Increased stakeholder participation, increased awareness through capacity-building, and improved communication between stakeholders were the most important social impacts, but there were also benefits in terms of the provision of ecosystem services. These include health and cultural benefits, such as the increased availability of Mapuche traditional medicinal plants at Cholchol-Imperial, and perceived health benefits from improved air quality through tree planting to prevent wind-based sand movement at Quang Tri.

Increases in incomes have been reported from some sites, either as a direct consequence of the ecosystem services provision or indirectly, for example through improved agricultural yields (e.g. Quang Tri). There have also been labour benefits, for example reduced time tending fields and undertaking irrigation activities at Quang Tri. These have given people more free time to spend on social activities.

8. Site certification and testing the business models

After planning and implementing management activities to protect or restore ecosystem services at the sites, and developing impact indicators and establishing methodologies for monitoring these, the next steps were to test the tools developed through certification of the sites and identify business models – who was going to pay for the certified ecosystem services, how, and how much – for each ecosystem service at each site.

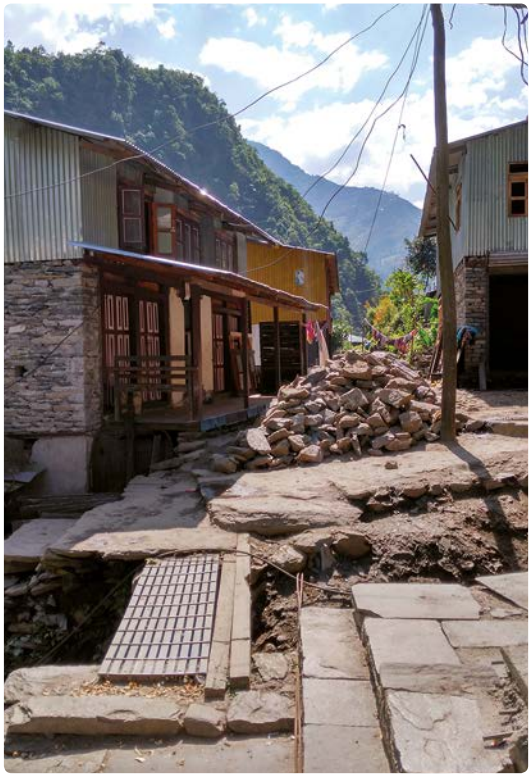
8.1 Site certification: testing the new FSC ecosystem services tools

Certification according to FSC forest management standards is required for any forest manager wanting to make use of the FSC ecosystem services tools. The sites at Cholchol-Imperial and Charnawati were FSC certified before the start of the project, but Charnawati has lost its FSC certificate until corrective actions are taken to address non-conformities with FSC requirements. Four more sites (Huong Son, Lombok island, Quang Tri, and PT. Ratah Timber) became FSC certified through facilitation by the project. Certification at Cuenca Río Mechaico is pending, while Gaurishankar has not yet obtained FSC certification.[24]

With nearly all pilot sites having, or close to having, FSC certification, auditing of the new draft requirements and compliance with the draft ecosystem services procedure could begin in 2016. These were audited by FSC-accredited certification bodies and, once approved, the sites could begin communicating the certified ecosystem services to potential buyers using the new market tools developed under ForCES.

As of September 2017, audits had been carried out at all eight sites.

- The world's first FSC **ecosystem services claim** for carbon has been approved at Huong Son (see Box 6). Despite this achievement, the ecosystem services claims for biodiversity and water at Huong Son were not verified, due to questions from the auditor about the completeness of the evidence provided.[25]



Earthquake damage, Gaurishankar, Nepal

24 The remaining two pilot sites, Parque Pumalín and West Kalimantan, decided not to pursue FSC certification; see Chapter 3.
25 This does not mean that these ecosystem services are not being preserved at this site

Huong Son, Viet Nam

Box 6. The first verified ecosystem services claim: carbon sequestration at Huong Son

During the ForCES project, forest managers at Huong Son in Viet Nam successfully completed the ecosystem services procedure to measure the impacts of management activities on carbon at the site. This claim was approved by GFA Certification GmbH in March 2017 and the certificate holder can use this for 18 months:

> *An FSC-accredited certification body [GFA Certification] has verified that forest carbon stocks are being maintained on this FSC-certified forest.*
>
> – GFA Certification GmbH

After 18 months, the site will have to align with the revised, final ecosystem services procedure. The next step for the project team is to identify a list of potential buyers and donors for this FSC-certified claim, and FSC and SNV are collaborating to try and achieve this.

- Ecosystem services claims were also approved for watershed restoration at Cuenca Rio Mechaico, and the conservation of medicinal plants at Cholchol-Imperial
- A decision on approval of the impacts is pending at PT. Ratah Timber and Lombok island.
- Following the 2015 earthquake, there was and is a lot of rebuilding to be done in Nepal. Due to the ongoing demand for timber, the volumes harvested at Gaurishankar exceeded the amounts permitted for small and low-intensity managed forests.[26] Consequently, the audit process for FSC certification becomes more thorough and involved more steps, for which the site was not prepared.
- Quang Tri was not able to establish an ecosystem services claim for soil conservation as several non-conformities with the requirements in Annex C and the ecosystem services procedure were identified during the audit. These mostly concerned forest soil (e.g. burning practices) and a lack of identification of high conservation value areas for soil.

While disappointing for those involved, failure to succeed using the new ecosystem services tools show that FSC's additional requirements for ecosystem services, and its draft ecosystem services procedure, do work: there has been one successful approval and others should follow shortly. The

26 See: https://ic.fsc.org/en/for-business/fsc-tools/certifying-small-forests

results also provide evidence that the new tools are usable by forest managers, with early indications that they can demonstrate evidence of change and are appropriate for documenting successful working examples of how responsible forest stewardship protects ecosystem services. Further, the unsuccessful audits show that the new FSC ecosystem services tools have the required quality and verification systems built in to be robust.

8.2 Testing business models for certified ecosystem services

To add value, the new FSC ecosystem services tools must enable certificate holders to convert demonstrated impacts into direct benefits. Each site therefore needed to develop a business model for how stakeholders would be rewarded – financially or otherwise – for their efforts. Figure 6 provides an overview of the different business models, including those developed at the pilot sites and other potential models.

Encouragingly, several pilot sites established successful business models during the ForCES project. The type of model varied according to the service in question and local circumstances, and were usually developed by the certificate holders with the support of the project's local partners. Table 6 summarizes the progress towards proving the effectiveness of different business models by the pilot projects, as well as some of the challenges encountered.

Focus group discussion about tourism planning in Gaurishankar, Nepal

Figure 6. Business models for FSC ecosystem services tools

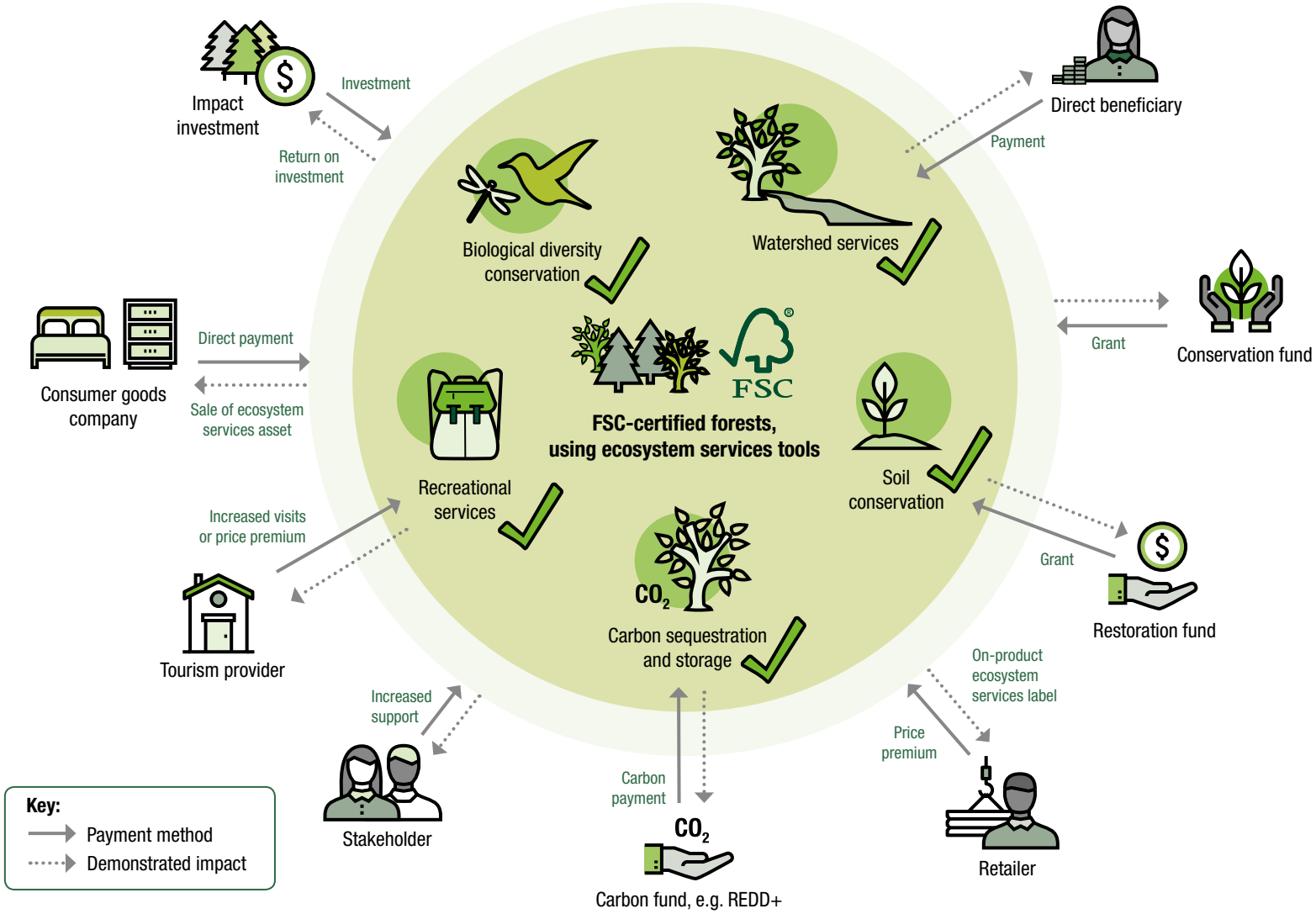


Table 6. Business models developed at ForCES pilot sites

Business model	Progress at the ForCES pilot sites
Attract an additional **price premium** when selling timber or non-timber forest products	*Charnawati* Exporters of handmade *lokta* paper, and another luxury paper brand sold in the USA, have agreed to pay a premium of 1–2% based on an FSC-verified ecosystem services claim for impacts on biodiversity. The communities will need to take corrective action arising from their audit before they can move forward with this. *Quang Tri* Buyers of FSC-certified timber, which already pay a 15% premium, have agreed to pay a further premium of 1–2% based on a verified FSC ecosystem services claim regarding impacts on soil protection. This has not yet been verified, as the site did not comply with all the management requirements. FSC, SNV, and WWF Vietnam are working with the forest owners to develop a plan to address these non-conformities. Having a prospective buyer in place is an incentive to fix these issues rapidly.
Attract **payments** from the direct beneficiaries of ecosystem services	*Lombok island* WWF Indonesia is planning to use the FSC-verified impact for watershed restoration impacts to entice additional water users, including the private sector, to join the local scheme for payments for water services. *Charnawati* The Charikot Drinking Water and Sanitation Users Institution has signed a contract with the FSC-certified community forest upstream to make monthly payments, based in part on compliance with the draft FSC ecosystem services procedure. In 2016, it paid two FSC-certified community forestry user groups for maintaining water resources. The communities will need to address corrective action requests arising from their FSC forest management audit in order to satisfy the terms of their contract. ANSAB is also negotiating with a downstream hydropower facility to establish if it will pay for a demonstrated reduction in sedimentation. *Gaurishankar* Tourists have demonstrated a willingness to pay additional fees on hiking trails where FSC certification demonstrates sustainable forest management and a high-quality nature experience, for example no forest fires, encroachment, or degraded forest patches. Service providers, forest management units, and NTNC are preparing a final forest management assessment along the trekking route, including impacts on recreational services, in the hope this will attract a greater number of visitors.

Gaurishankar, Nepal

Table 6. Business models developed at ForCES pilot sites (continued)

Business model	Progress at the ForCES pilot sites
Attract **investment** for restoration projects	*Cuenca Río Mechaico* A private watershed restoration fund is being created to support the restoration activities developed and tested during the ForCES project. FSC forest management certification and verification of the restorative impacts are being considered as part of this system.
Attract **sponsorship** for conservation impacts	*Huong Son* FSC and SNV are looking for a business to sponsor the FSC-verified carbon impact, in exchange for promotion of their sponsorship. *PT. Ratah Timber* FSC and WWF Indonesia are looking for a business to sponsor FSC-verified impacts for carbon, and possibly biodiversity, depending on the outcome of the FSC forest management audit that took place in June 2017.
Use **demonstrated impacts** as evidence of compliance with jurisdictional REDD+ programmes	*Huong Son* Sustainable forest management and forest certification are included in Viet Nam's National REDD+ Action Program. *Charnawati* This site offers a potential demonstration site for REDD+ activities in Nepal. ANSAB helped communities to implement a successful programme that addressed the causes of deforestation and forest degradation, and enhanced the forest carbon stock. The carbon stock assessment in 2016 showed an incremental change in forest carbon in comparison with the baseline figure and previous monitoring data. Similarly, forest groups have identified costs and a benefit-sharing model at the landscape level. Thus, they are almost ready to begin trading carbon. Finalization of Nepal's REDD+ strategy and the creation of funding infrastructure should allow the site to link to international carbon markets. *PT. Ratah Timber* Although the company was interested in receiving REDD+ payments, the national regulation for carbon ownership in Indonesia remains unclear in such forest concessions.
Use **demonstrated impacts** to increase support from stakeholders and improve relations	*Cholchol-Imperial* Bosques Cautin S.A. and Forestal Mininco S.A., which own the land, intend to use FSC-verified biodiversity impacts to strengthen their reputations and community relations. *PT. Ratah Timber* The company is interested in using verified ecosystem services impacts to strengthen support among stakeholders and help secure market access for its timber.

Box 7. ANSAB: a pioneer for REDD+ in Nepal

Since 2008, ANSAB has been driving the process of establishing a REDD+ programme in Nepal, working from the grass roots to the government level. Early on, the organization developed guidelines for monitoring forest carbon, which have been adopted by the government.

ANSAB's role in Nepal's REDD+ programme continued during the ForCES project. It helped to set up three pilot REDD+ projects, including one at Charnawati. Through seed funding for REDD+ pilot projects, the forest managers and community groups established a baseline for carbon at Charnawati in 2010. This was measured again during the ForCES project. And it has had further impacts: for example, the benefit-sharing mechanism and the ecosystem services certification processes developed under ForCES are being included in Nepal's national REDD+ strategy. Once this has been approved, it should be possible to realize payments for this service at Charnawati.

Charnawati, Nepal

Box 8. A range of business models at Charnawati

Four ecosystem services were tested at Charnawati, the most of any pilot site, and the project aimed to establish business models for each of these. These ranged from high-level outcomes, such as approaching international buyers for carbon claims, to smaller-scale targets, such as finding local sponsors to support improved soil conservation practices.

The efforts made at Charnawati led to some notable achievements. For example, the first payments for water services were made in 2016 and the guidelines for community-based water resource assessment and management will be completed in 2017. Further, a contract between a company exporting non-timber forest products and forest managers is being created; this will see suppliers paid a premium for conserving biodiversity. The net impact of these successes is evidence that complex, bundled schemes for ecosystem services can work – this fulfils a major expectation identified during the ForCES market research (see Chapter 4).

Through the ForCES project, ANSAB supported the forest management unit at Charnawati to monitor the forest carbon stock. Similarly, the project carried out a landscape-level study regarding the costs and institutional setup needed to access carbon markets, and developed benefit-sharing model for REDD+ that included FSC certification of carbon.

The results were shared with Nepal's national REDD+ strategy development team and other national-level stakeholders, which helped them to understand these issues. The final draft of Nepal's REDD+ strategy recognizes forest ecosystem services certification as a tool for enhancing carbon and other co-benefits.

This strategy, and the necessary infrastructure to implement it, are still being finalized, so the pilot site has not yet certified its carbon sequestration claim or established clear buyers for the business model – a delay that is beyond its control. But the efforts made during the ForCES project have brought these a lot closer to fulfilment.

Danau Sentarum National Park, Kapuas Hulu, West Kalimantan

Part III.
Looking forward

As the project draws to a close, we are faced with fewer questions about how to do this, and more excitement about the potential future impact of what we have created.

– Chris Henschel,
FSC Ecosystem Services Programme Manager
and ForCES Project Lead

9. Sustainability and replicability

From the start of the ForCES project, it was important – to UN Environment and all project partners – that the results achieved were sustainable after the project had ended, both at global level, through evolving the FSC system, and at the country level. Even more importantly, UN Environment and FSC wanted to see the new tools and awareness created through ForCES replicated, in the four pilot countries and beyond, to achieve conservation outcomes that support responsible forest management more widely.

9.1 Sustainability

Environmental sustainability

As recognized in the Project Document (UN Environment, 2011), the environmental sustainability of the ForCES project's outcomes is achieved through the comprehensive environmental, social, and economic safeguards of existing FSC forest management standards.[27] In addition to these, Annex C of the *International Generic Indicators* brings new requirements tailored to ecosystem services that certified forest managers must adhere to when using the new tools. Taken together, the FSC core standards and these additional requirements result in a strong system for ensuring and demonstrating the sustainability of forest-based activities, and for maintaining and/or enhancing a forest's ecosystem services.

This system becomes real in the forest. Four sites became certified during the ForCES project, while Huong Son successfully earned the world's first FSC-verified ecosystem services impact. This is testament to good environmental management at the site level.

Not all sites managed to achieve this, of course, but the imperfect performance at the site level demonstrates the effectiveness and rigour of the FSC system in terms of environmental performance. The Gaurishankar site was deemed unready for FSC certification, largely due to disruptions caused by the 2015 earthquake; the Charnawati site lost its certificate until corrective

Parque Pumalín, Chile

27 These include: compliance with all applicable laws; maintain, conserve, or restore a forest's ecosystem services and environmental values; uphold Indigenous Peoples' legal and customary rights; and maintain or enhance the social and economic well-being of workers.

A tourist information board in Gaurishankar, Nepal

actions are taken; and although Quang Tri passed its main forest management evaluation, it will not be able to make an ecosystem services claim because its practices did not comply with FSC's additional ecosystem services requirements for soil conservation (due to site burning). Project partners have provided assurances to address environmental non-conformances and complete the certification process at each of these sites. This will contribute to the positive environmental impacts achieved during the ForCES project being sustained.

Socio-political sustainability

The socio-political sustainability of each project's outcomes is primarily determined at the country level. Commitment from government and other national-level stakeholders is crucial for taking project outcomes forward.

Local stakeholders can also help, however, and the ForCES project fostered commitments at many of the sites. A new water fund is proposed for the Mechaico River watershed; community forest user groups signed a payment contract with downstream water users in Charnawati; and an alliance of forest companies, medicinal plant collectors, and the health service was created in the Cholchol-Imperial area of Chile. These will all help the project's outcomes to persist in the future. Further, the establishment of an FSC standards development group in all pilot countries is a significant accomplishment, bringing together environmental, social, and economic stakeholders that can act as champions for the FSC system.

The governments of Indonesia, Nepal, and Viet Nam have all been strong supporters of the ForCES project. In Nepal, for example, the steering committee chaired by the Chief of the Foreign Aid Coordination Division under the Ministry of Forests and Soil Conservation was instrumental during the project's implementation, providing timely inputs and making decisions on relevant issues. This political commitment in Nepal is evident in the integration of ecosystem services and forest certification provisions into several national policy documents, such as the *Forest Policy* (2015), the *Forestry Sector Strategy* (2015), *Nepal's REDD+ Strategy* (2017), and the Forest Act (1993, amended in 2016), which clearly defines forest ecosystem services in Nepal for the first time.

Despite this, the regulatory context can be limiting. For example, the introduction or parliamentary endorsement of regulations governing payments for ecosystem services is pending in these three countries. This delayed progress at the site level: tenure arrangements limited the extent

of land available for certification in Lombok island, for example. More work is required to promote regulatory change in the pilot countries to sustain and strengthen project outcomes.

Finally, the technical capacity of forest managers and local communities was developed at all sites. This is most likely to be sustained where there is continued interest and investment from project partners and third parties, especially NGOs – which is the case at nearly all sites. The only site without an identified NGO champion is Huong Son, but support from the national REDD+ programme may help to sustain the forest's carbon maintenance.

Financial sustainability

FSC's long-term financial needs for ecosystem services mainly pertain to promoting the new tools and supporting their implementation through guidance and training. In the short term, FSC plans to meet these needs through fundraising. FSC is also seeking longer-term financial sustainability by building market demand, including from the private investment sector and multilateral institutions such as the World Bank.

As uptake of the tools grows, and the clear business value to buyers is demonstrated, FSC may begin charging users for tailored business products. Even without specific charges, FSC expects these new tools to encourage new forest managers to become certified, resulting in increased revenues from existing FSC certification fees.

At the country level, more financial resources are required to complete important project deliverables, notably the national standards in each country and the completion of pilot site certification. FSC is committing additional resources to national standards processes where required, and will support funding and planning efforts to complete certification processes at the ForCES sites.

At the site level, however, the new ecosystem services tools must deliver additional net revenue to forest managers to be financially sustainable in the long term. Continued buy-in from certified forest management organizations is crucial in sustaining project outcomes, and this is gained when they are rewarded for their efforts and inputs: forest certification for ecosystem services needs to deliver benefits. At several of the ForCES pilot sites, FSC is already starting to deliver value, for example through direct payments, price premiums, and social licence (e.g. improved relations with communities).

At certain sites (e.g. Huong Son, PT. Ratah Timber), however, the business value of the project is less certain; this needs to materialize to maintain the forest managers' commitment to pursuing certification. Without significant benefits, the business models developed will not be financially viable in the long term at several pilot sites; only those with established access to timber markets and demonstrated timber price premiums are likely to be continued. Encouragingly, the market research undertaken confirmed that there **is** demand for certified ecosystem services from forests – and this was validated at some of the pilot sites.

Ultimately, the success of this new system for certifying forest ecosystem services will depend on how much buyers are willing to pay. FSC can play its part in achieving financial sustainability by promoting these tools effectively, and listening to feedback from buyers to ensure that the tools provide good value and evolve with changing circumstances.

Box 9. Changing the law in Indonesia

A significant achievement of the ForCES project in Indonesia was the Ministry of Environment and Forestry issuing a change of legislation, which saw the scope of forestry concessions and other forest classes modified into Forest Management Units, as well as expanded to include ecosystem services. Based on the ForCES experience, WWF Indonesia provided some input to help shape this regulation. It still needs guidance in the implementation level.

WWF Indonesia has also been partially successful in securing tenure reforms that give land rights to villagers at some sites. In Lombok, for example, it was only possibly for some sites to become certified because of these tenure reforms.

Institutional sustainability

The strongest foundation for the sustainability and replicability of project outcomes is the strengthened integration of ecosystem services into the wider FSC system. While the maintenance of ecosystem services has always been an implicit requirement of FSC standards, this requirement has now been made explicit.

FSC has strongly embraced the project goal of applying the new certification tools to emerging ecosystem services markets, as reflected in its *Global Strategic Plan for 2020* and the stand-alone *FSC Ecosystem Services Strategy*. The new tools are now a permanent fixture in the FSC system and they will allow the replication of outcomes far beyond the ForCES project's boundaries. This institutional framework is supported by an Ecosystem Services Programme, with three permanent staff at FSC International in Germany, supplemented by ever-increasing interest and participation from staff and offices in the global FSC network.

9.2 Replicability

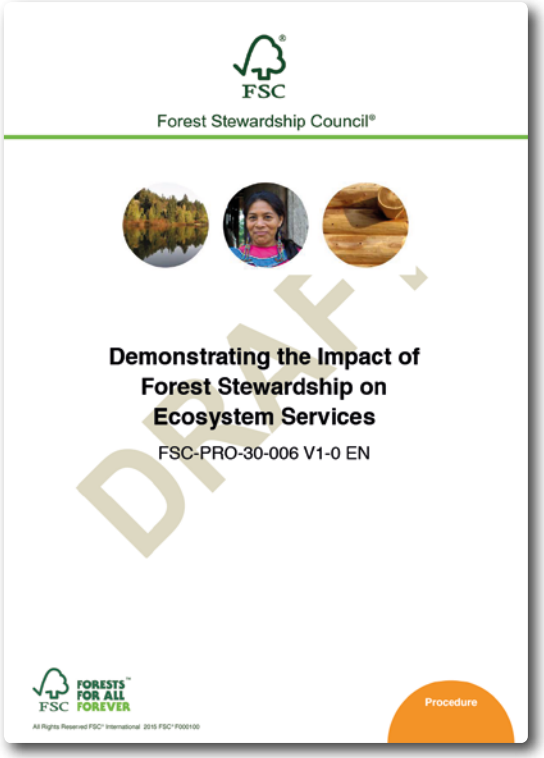
The global reach of FSC creates strong and exciting opportunities for the ForCES project's outcomes to be replicated. Existing and new FSC forest management certificate holders, in all regions of the world, can now use the new ecosystem services tools to support their access to ecosystem services markets.

The ForCES project's market research confirmed that there is interest from FSC forest management certificate holders in these new tools. This interest was further confirmed when FSC received expressions of interest to pilot test the draft ecosystem services procedure from over 20 organizations, in North, South, and Central America, Europe, the Confederation of Independent States, Central Asia, South-East Asia, and Oceania.

The only prerequisite for certificate holders to use the tools is that their country's national standards include Annex C from the *International Generic Indicators* (see Chapter 5). And there is positive news in this regard, too: 24 draft national standards have already been developed or updated to include these additional requirements, including all four ForCES pilot countries. Annex C is included in the national standards of all countries of the Congo Basin, and the majority of countries in the Asia–Pacific region and Latin America.

As the ForCES project winds up its work on developing its new ecosystem services tools, and begins to focus on promoting them, there are encouraging signs that organizations outside of the project are interested in what has been achieved. There has been strong interest from institutions wishing to explore their application in many promising contexts: national REDD+ programmes; organizations combatting deforestation; programmes to certify landscapes; 'green' bond rating and impact investing agencies; and organizations working to satisfy conservation liabilities from past deforestation. Preliminary discussions about the wider use of these tools have been held with WWF International, The Nature Conservancy, the United Nations Convention to Combat Desertification, Climate Bonds Initiative, the Coalition for Private Investment in Conservation, and the World Bank's Global Carbon Partnership Facility. Project partners are also exploring the use of these tools within national REDD+ programmes.

At the site level, opportunities for replication are strongest for water-based projects, where ForCES project partners in Chile, Indonesia, and Nepal all see opportunities for scaling up the model of payments, both throughout the pilot watersheds and in different watersheds.



The new ecosystem services procedure

Using gabion cages (bio-engineering) to protect against landslides in Charnawati, Nepal

10. Conclusions

10.1 How did the ForCES project perform against its objectives?

The achievements of the ForCES project represent a major step forward in the partners' shared ambition – to expand the global FSC system to emerging markets for ecosystem services. Furthermore, the range of achievements outlined in this report demonstrates FSC's ability to drive complex, multi-partner projects of this scale.

Looking back to the project's initial objectives, it is evident that considerable progress has been made on many fronts. Annex IV provides a detailed overview of this progress. In summary, at the global level, the ForCES project has established:

- the inclusion of ecosystem services as a priority in the FSC global strategy;
- a new ecosystem services procedure to measure the impacts of management activities on ecosystem services;
- draft ecosystem services market tools, designed to increase participating forest managers' access to ecosystem services payments and investments;
- proven business models that demonstrate how certificate holders can be rewarded for their work to protect ecosystem services, based on the measurement of impacts through the ecosystem services procedure and draft market tools.

At the national level, the ForCES project has achieved several major milestones, including the following.

- In **Chile**, the two sites that pursued FSC certification have developed business models that can be replicated by other interested beneficiaries. The watershed management model introduced at Cuenca Río Mechaico can easily be replicated in at least 100 catchments of the country. Meanwhile, the project at Cholchol-Imperial significantly improved relationships between landowners and local Indigenous Peoples. Many companies in Chile own large amounts of land that are close to Indigenous Peoples, and this provides evidence of how to resolve conflicts between these groups.
- In **Indonesia**, both the Lombok island and PT. Ratah Timber sites became FSC certified. Positive impacts on ecosystem services were measured at PT. Ratah Timber and auditor

approval of these, according to the FSC ecosystem services procedure, is pending. Indonesia's national standards have also been revised to include FSC's additional requirements for ecosystem services, and should soon be submitted for FSC approval.

- In **Nepal**, the two pilot sites tested the international and national markets for five ecosystem services: recreational services, watershed services, carbon sequestration, biological diversity conservation, and soil conservation. The business models for these are at different stages of development, but potential buyers or sponsors have been identified in several cases. Major stakeholder conflicts were overcome to produce a field-tested draft FSC forest management standard.
- In **Viet Nam**, potential buyers have been found for timber certified for ecosystem services at Quang Tri, while the first verified ecosystem services claim, for carbon sequestration, was achieved at Huong Son.

10.2 What was behind the success of the ForCES project?

Analysis by CIFOR, based on the findings from project partners who attended the ForCES annual meeting in November 2016, identified three sets of success factors: (1) those describing the global opportunities and pressures under which the ForCES project was conceived (global context); (2) those that helped to build the project and develop ecosystem services certification; and (3) those that helped to implement project activities at the site and national levels.

The partners ranked the different factors within these overall categories, giving them percentage values relative to their perceived importance. Figure 7 lists the success factors put forward during this meeting.

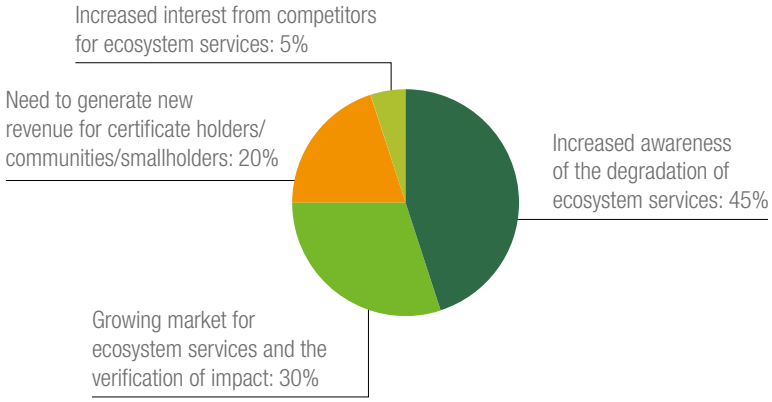
10.3 Key lessons learned

As well as progress towards these specific outputs and deliverables, the ForCES project was a significant organizational learning process. Everyone in the project was 'learning by doing': there were no precedents to follow for adapting a globally established certification scheme to ecosystem services markets. As a result, there were valuable lessons for each partner, and at each stage of the process.

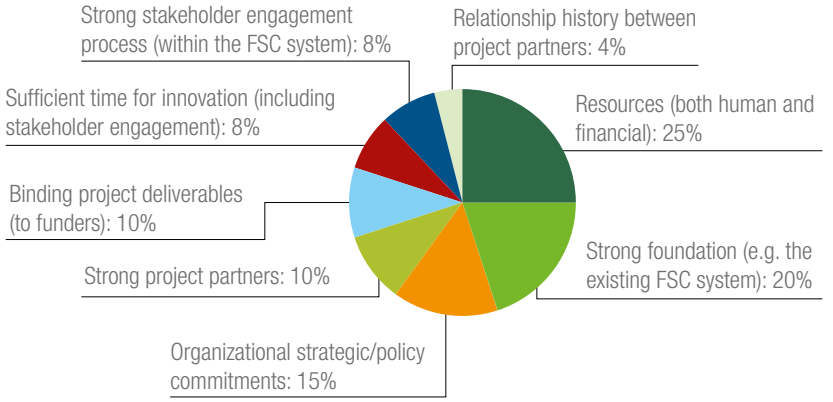
> The project was about progress, not just achievements. Overall, it was very successful: all the sites are aiming for FSC certification, or have achieved this, and all have potential business models.
>
> – Mauro Ciriminna, ForCES Policy Manager, FSC

Figure 7. Success factors behind the ForCES project

Global context

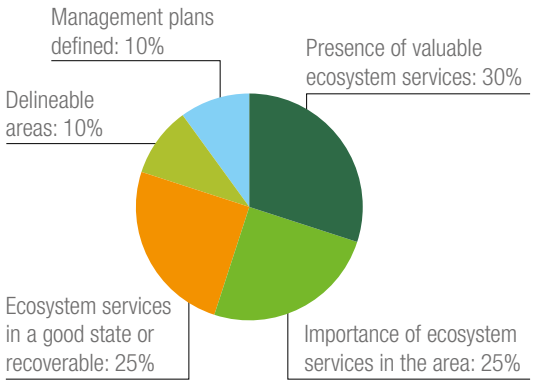


Building the ForCES project and developing ecosystem services certification

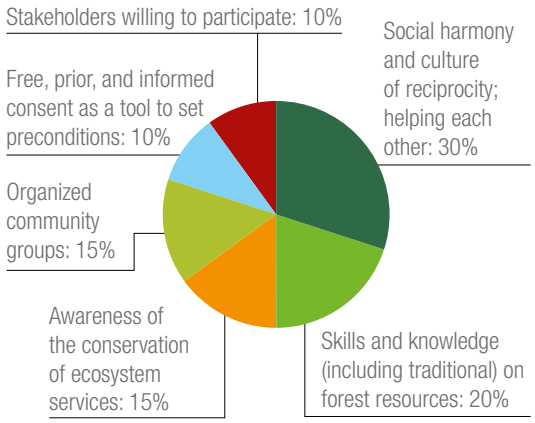


Site- and national-level factors

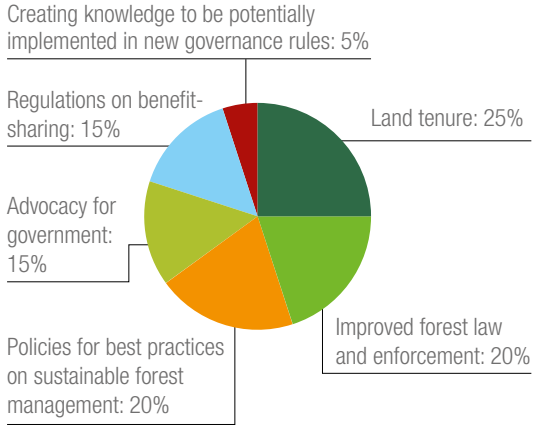
Environmental



Social



Governance



Source: Savilaakso (2017b)

> One key lesson learnt is the importance of flexibility and adaptation, between the project concepts imagined at the design phase and the reality during the implementation phase. The project was designed with a bottom-up approach, where country partners would propose changes they saw necessary in the FSC system. However, the FSC system is complex and soon partners asked for a clear vision and guidance from FSC. FSC took the lead in identifying and proposing the changes needed, to which partners provided feedback as they were testing them for real. This shift in approach gave a great boost to the project.
>
> – Alison von Ketteler, ForCES Global Project Manager and independent consultant for FSC

The following insights, provided by those directly involved in the pilot projects, will prove invaluable for projects looking to promote conservation and responsible land management through the certification of ecosystem services.

Finding buyers is not easy. Several projects found that this takes considerable time and effort, as there is no one system in place for how to find a buyer for each ecosystem service. And projects don't just need any buyer: they need one that will pay enough to more than cover the costs of certification. Each project needs a clear strategy for identifying suitable buyers.

Testing of business models in the ForCES project was largely driven by supply, i.e. forest managers decided the impacts they wanted to demonstrate and the buyers they wanted to attract. A buyer-led model might be more successful. Under this model, FSC could work at global and regional levels to develop demand, and then promote certification activities that supply this demand.

Carbon measurement in Boch, Charnawati, Nepal

All sites need to have a business model, monetary or otherwise. A good business case for the extra charges being applied makes it easier to get a buyer. In Charnawati, a guarantee of protected water sources in FSC-certified forests was a value that downstream users were willing to pay for. And, as the Cholchol-Imperial pilot in Chile demonstrated, a 'payment' does not need to be monetary; in some places, companies that own forests may be willing to support an ecosystem services project to improve their reputation, locally or globally, rather than to see an increase in the prices they can charge for certified products.

Certification of ecosystem services can be hard to communicate – to both buyers and forest managers – so, clear, simple messages are essential. Ecosystem services are a new concept for many people, so new certification tools need to be easy to understand for all stakeholders. In Chile, for example, the concept of 'conserving land' is often intangible; people want to see a flagship species that is being protected, as this is easier to understand. At Cholchol-Imperial, the management practices implemented have conservation benefits beyond the medicinal plants that are collected, but the focus on Mapuche medicinal plants was important in 'selling' the certification process and gave the project a clear aim in the eyes of outsiders.

To protect ecosystem services effectively, local communities must be involved. These are the principle forest stewards and, in some places, land title holders alongside the larger forest concession holders. Their local wisdom is a major part of these projects: they have knowledge of how their ecosystems function; they understand how to manage a forest and how to harvest its products sustainably. In turn, through the ForCES project, several communities learnt how to measure ecosystem services and proved that they can make assessments and evaluate forest resources, if they receive technical support.

Selling certified ecosystem services requires a lot of evidence. Both the market research and the pilot testing confirmed the theory behind ecosystem services certification: buyers want evidence of outcomes or impacts for their payments. Finding the right balance between credible evidence and practicality for forest managers, including smallholders, is crucial.

Ecosystem services are likely to be an add-on to other sources of revenue. In most places, forest projects need multiple sources of income. Payments for ecosystem services provide an extra

incentive to manage forests sustainably, and in some cases this may be significant – but these payments are unlikely to be sufficient to protect a forest on their own.

There is interest in certification for ecosystem services. The ForCES project has proven that this concept is not fanciful; people are willing to pay extra if certification can provide a guarantee that ecosystem services are being maintained. Although FSC continues to refine the new tools and further test demand, it must take confidence in the core interest that has been demonstrated.

Market offerings need to be tailored to buyers. Buyers' motivations vary, as does the form of product that they want to buy. A large retailer may want to communicate to its customers through on-product labels; another company will need a quantified impact that can be reported against commitments it has made to reduce its carbon footprint; governments and multilateral institutions want tools that can be integrated within their programmes. FSC has developed its new ecosystem services tools to be flexible, but further adaptation to particular requirements and uses may be required.

Designing a system that is flexible, and adaptable to erratic markets, is essential. When the ForCES project was being designed, markets for payments for certified carbon emission reductions from forests were growing fast; indeed, this growth was a strong justification for the expansion of FSC certification into these markets. The subsequent collapse of global prices for certified emission reductions from forests and land use could have had a damaging impact on the progress of the ForCES project. However, the project was also designed to target emerging ecosystem services markets in the medium to long term. The enormous growth of these during the project's lifetime, especially in markets for payment for water services, has proven that this vision – for ForCES to be flexible and ready for the future – was correct.

10.4 Next steps

The immediate next step is for each of the pilot sites that is pursuing FSC-certified ecosystem services to complete the certification process, either answering outstanding questions from certification bodies or addressing non-conformities that were raised during their audits. Each country will also need to finalize their national standards to include Annex C regarding ecosystem services (see Chapter 5); FSC has made additional funds available for this.

> The ForCES project brought together the key stakeholders for the responsible management of forests and ecosystem services … and created a basis for recognizing and rewarding local forest managers, linking them with the public and private sector at both domestic and international levels.
>
> – Dr Bhishma Subedi, Executive Director, ANSAB

All of the ForCES sites require additional investment to turn the business models they tested into functioning systems. In some countries, partners are embarking on ambitious initiatives to achieve this, such as co-founding a watershed restoration fund (Chile) or reforming national policies on payments for ecosystem services (Indonesia). Several sites also need to promote and market these services further to attract payments or investments.

After this, FSC will promote, identify, and further test the business models developed through the ForCES project, in additional countries and sites; this has already started where FSC is pilot testing a new draft of the ecosystem services procedure (e.g. Australia, Canada, Italy, Kyrgyzstan, Peru). This should attract interest among FSC certificate holders beyond the four pilot countries; there is already a lot of interest in ecosystem services among the wider FSC network. And now that there are established, working business models in place, this expansion should be easier.

For FSC more widely, the next steps are to finalize its ecosystem services tools, with approval of these scheduled for March 2018. Another priority is to complete the organizational business model for these tools, identifying the applications that will bring the greatest impact in meeting the organization's mission and strategic goals. Outreach to potential users of the new tools has already begun and will accelerate during 2017 and 2018, with a focus on priority tools and locations.

At the final annual meeting of the project partners in Nepal in November 2016, several actions to support the sustainability and replication of project outcomes were identified. In addition to those activities already mentioned, the project partners recommended that FSC develop guidance for conducting social cost–benefit analyses, and develop a new project focused on promoting and demonstrating the use of the new ecosystem services tools. This could potentially include greater alignment of the new tools and business models with new finance mechanisms for forest landscape restoration (e.g. bond mechanisms that need on-the-ground safeguards), as well as stronger incorporation of buyers' interests, through reaching out to these industries. FSC will consider these activities as it develops its work plan for the next two years.

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Parque Pumalín, Chile

Annex I. Global markets for ecosystem services

Table A1. Major payment for ecosystem services markets and market-like instruments (as of 2013)

Type of ecosystem service	**Market**	**Examples**	**Market size in 2013** (USD, per year)	**Potential market size in 2020** (USD, per year)
Carbon	Compliance forest carbon	Clean Development Mechanism; New Zealand Emissions Trading Scheme	52 million	2.2 billion
	Voluntary forest carbon	Emerging domestic voluntary programmes, e.g. Verified Emissions Reduction programmes in Japan, Republic of Korea, and Thailand	185 million	1.2 billion
	REDD fund-based carbon financing	Norway–Indonesia Bilateral REDD+ Deal; World Bank Forest Carbon Partnership Facility	252 million disbursed in 2012 (of approx. 4 billion pledged)	3–9 billion
Water	Compliance water quality trading	Schemes in Canada, USA, Australia, and New Zealand	7.7 million	10 million
	Voluntary private sector watershed payments	Beverage companies; industry and manufacturing; energy companies; private water utilities; tourism and recreation; agribusiness	4.3–4.8 million	10 million
	Payment for watershed services (PWS) and water funds	Schemes in Bolivia, Brazil, China, Colombia, Costa Rica, Ecuador, France, Japan, Indonesia, Mexico, Nepal, Peru, Philippines, Tanzania, South Africa, USA, and Viet Nam	8 billion	11.5 billion
	Environmental water rights purchases	Australia, Mexico, US Western States	170.9 million	200 million
Biodiversity	Compliance biodiversity compensation	US Compensatory Mitigation; Australia's BioBanking; Canada's fish habitat compensation; EU Habitats & Birds Directives offsets; China's Forest Revegetation Fee; Brazil's compensation mechanisms	3 billion	5–8 billion
	Voluntary biodiversity compensation	Extractive industry offsets (e.g. Business and Biodiversity Offsets Programme)	25 million	70 million
	Government-mediated biodiversity payment for ecosystem services schemes	National conservation programmes funding biodiversity; government funds for biodiversity conservation; Debt for Nature swaps; habitat- or species-specific conservation programmes	2 billion	2.9 billion
	Recreation	Ecotourism, park fees, hunting licences (e.g. Campfire)	115–230 billion	200 billion
	Genetic resources	Pharma, biotech, academic institutions	35 million	100 million

Type of ecosystem service	Market	Examples	Market size in 2013 (USD, per year)	Potential market size in 2020 (USD, per year)
Fisheries	Marine resource markets	Individual Transferable Quotas or catch shares exist in most developed countries' commercial fisheries, and many developing countries. There is also a small but emerging market for tradable use and access rights for marine space and recreational fisheries.	5 billion	9 billion
Bundled	Certified agricultural products	Coffee, cocoa, banana, tea, palm oil, marine fisheries; various organic products	64 billion	190 billion
	Certified forest products	Certified sustainable and verified legal wood products	54 billion (FSC only = 20 billion)	228 billion (FSC only)

Source: Adapted from Ecosystem Marketplace (2013).

Table A2. Barriers to markets for ecosystem services and how the ForCES project responds to these

Barrier	Description	How the new ecosystem services tools created under the ForCES project responds to this
Attribution	It can be hard to attribute broad benefits to a particular activity or process. For example, the continued supply of fresh water may be due to more than just the actions of landowners planting trees within the watershed.	The draft FSC ecosystem services procedure lays out an eight-step approach that FSC-certified forest managers can use to demonstrate impacts, using a 'theory of change' approach to attribute measured outcomes to the management activities undertaken. Certification bodies verify these impacts and approve the use of FSC trademarks to communicate them.
Awareness	Awareness of market opportunities is often low among the stakeholders managing an ecosystem.	For the new FSC market tools to be successful, FSC will reach out to its certificate holders and, through its global network, raise awareness and promote their use.
Demand and willingness to pay	This is often not clear and can be difficult to establish. In other places, a reduction in market prices can lead to the decline in a market's potential (as happened with carbon markets).	Global market research undertaken for FSC by Ecosystems Marketplace confirms an interest in the new FSC ecosystem services tools, and the willingness to pay for them varies by service and sector. In the next 18 months, FSC will put considerable effort into developing the most promising sources of demand and promoting its new tools.
Governance systems	Payment for ecosystem services schemes must work within a country's governance systems, but in many places these are not static; certifying organizations must operate within a system that is liable to constant change.	FSC certification improves forest governance systems within certified forest management units if properly implemented. Voluntary certification standards can improve regulatory systems in countries with relatively weak or poorly implemented public environmental regulation by introducing stronger requirements or strengthening enforcement. Voluntary certification standards can and have introduced new concepts that can be adapted to public regulation later on.

Barrier	Description	How the new ecosystem services tools created under the ForCES project responds to this
Land tenure	When land ownership in an ecosystem is complex or contested, a payment system will need to allocate a share of the service to a specific unit of land; this is often very difficult.	Some of the impacts that forest managers can demonstrate using the new FSC ecosystem services tools will be more applicable in discrete sites (e.g. protection of habitat versus abundance and trends of populations). Despite this flexibility, it will not be possible to demonstrate many of the impacts of ecosystem services, due to this barrier.
Measurability	The ecosystem service in question must be measurable: for example, the tonnes of carbon sequestered, the turbidity levels in water.	The draft FSC ecosystem services procedure has identified several measurable outcome indicators that can be used to demonstrate impacts for various ecosystem services. However, some ecosystem services that will be certified under the new tools cannot be measured.
Scale	Establishing a certification scheme applicable to all scales is extremely challenging. For example, the forests in a scheme may range from a few hundred hectares to more than a million; different types of certification are likely to be needed for different scales	The draft FSC ecosystem services procedure is designed to be applicable at a variety of scales depending on the size of the certified forest management unit. While some impacts may only be possible at larger scales (e.g. biodiversity), others will be applicable at smaller sites (e.g. soil conservation). The procedure can also be applied in group certification settings, where many smaller forest management units are taken together, to demonstrate a broader impact across a larger area.
Transaction costs	All certification incurs costs, for example through the additional workload placed on land owners to monitor activities. But for payment for ecosystem services schemes to function effectively, the additional income they generate must exceed the benefits of developing an ecosystem unsustainably and the additional costs of certification.	FSC is focused on keeping the marginal costs of applying its ecosystem services procedure as low as possible. Pilot testing between May and August 2017 will allow FSC to gauge the actual costs and adjust its procedure accordingly.
Variety of approaches	There is a wide range of models for ecosystem services markets – from regulatory to voluntary, from government based to private sector based – and establishing which works best for each type of ecosystem service, and in each location, is complex.	The new FSC ecosystem services tools are being expressly designed to be adaptable and applicable in many different circumstances. Several market tools are being explored and the ForCES project has shown that various business models are possible.

Sources: Adapted from: Ecosystem Marketplace (2014); Meijaard et al. (2011).

Annex II. Market research studies

The following research studies were conducted to assess the market opportunities and challenges for FSC's entrance into ecosystem services verification.

Table A3. Market research conducted for the ForCES project

Completed by	Date	Scope	Title
ANSAB	2014	Nepal	Market Analysis of Demand and Interest for FSC Certified Ecosystem Servicers at Pilot Site and National Level (Nepal)
Bennett, G., Hamrick, K., Ruef, F., Goldstein, A., and McCarthy, B.	2016	Global	Verified Value: Investigating Potential Supply and Demand for Verified Ecosystem Services Benefits from Responsibly Managed Forests
FSC	2016	Global	FSC Ecosystem Services Business Advisory Group Session Report
Infor	2016	Chile	Expanding FSC Certification at Landscape Level through Incorporating Additional Ecosystem Services
Jaung, W.	2014	Global	Forest Certification for Ecosystem Services: Business Strategies for the Forest Stewardship Council to Expand its Scope to Ecosystem Services Markets
Jaung, W., and Putzel, L.	2013	Global	Forest Certification for Ecosystem Services: Analysis of Market Conditions (International Market Assessment Part II)
Jaung, W., and Putzel, L.	2013	Global	Supply Market Analysis for Certification of Forest Ecosystem Services: Forest Certification Bodies' Preferences and Audit Capacity: International Market Assessment Part I)
Jaung, W., Bull, G.Q., Putzel, L., Kozak, R., and C. Elliot	2016	Global	Bundling Forest Ecosystem Services for FSC Certification: An Analysis of Stakeholder Adaptability
Jaung, W., Putzel, L., Bull, G.Q., Kozak, R., and Markum	2016	Indonesia	Certification of Forest Watershed Services: A Q Methodology Analysis of Opportunities and Challenges in Lombok, Indonesia
Jaung, W., Putzel, L., Bull, G.Q., Guariguata, M.R., and Sumaila, U.R.	2016	Global	Estimating Demand for Certification of Forest Ecosystem Services: A Choice Experiment with Forest Stewardship Council Certificate Holders

Completed by	Date	Scope	Title
Jaung, W., Putzel, L., Bull, G.Q., Kozak, R., and Elliot, C.	2016	Global	Forest Stewardship Council Certification for Forest Ecosystem Services: An Analysis of Stakeholder Adaptability
Jaung, W., Putzel, L., Guariguata, M.R., and Savilaakso, S.	2014	Global	Forest Certification for Ecosystem Services (ForCES): Business Model Analysis
Peters-Stanley, M., Bennett, G., and Cardono, S.	2015	Global	PES Marketing: The Nature of Market Scale, Expectations, Needs and Opportunities
Thuy, N.T.B.	2012	Viet Nam	Market Assessment of Ecosystem Service Demand in Vietnam
Tuan, D.A., and Duyen, N.T.M.	2013	Viet Nam	Assessing Opportunity and Implementation Costs of Forest Certification for Ecosystem Services (Vietnam)
WWF	2013	Indonesia	Market Assessment of Ecosystem Services in Danau Sentarum, Indonesia
WWF	2014	Indonesia	Market Assessment of Jasa Lingkungan Service in East Kalimantan, Indonesia

Table A4. Market segments covered by the market research

Market	Segments
Biodiversity	• Conserving biodiversity • Government-mediated biodiversity payments for ecosystem services • Species/habitat compensatory mitigation • Voluntary offsets • Wetland and stream habitat mitigation • Wetlands compensatory mitigation • Wildlife habitat mitigation
Carbon	• Compliance forest carbon markets • REDD+ • Sequestering and storing carbon in forests to alleviate climate change • Voluntary forest carbon markets
Certified commodities	• Commodity certifications and credits
Ecotourism (Chile and Nepal only)	• Providing biodiversity experiences through ecotourism • Providing cultural experience through ecotourism • Providing scenic beauty through ecotourism
Global commodities commitments	• Management and protection of High Carbon Stocks • Protection of high conservation value areas • Protection of human rights • Protection of peatland • Sustainability • Zero net deforestation
Non-timber forest products	• Providing non-timber forest products from forest ecosystems (for ecosystem services bundling)
Soil conservation (Viet Nam only)	• Conserving soil
Timber	• Providing timber from forest ecosystems (for ecosystem services bundling)
Water	• Environmental water markets • Local payments for watershed services • Public finance for watershed protection • Trading and offsets • Watershed protection for the provision of a certain quantity of water • Watershed protection in forests for the provision of high water quality • Watershed protection to reduce water-related risks, such as floods

Annex III. FSC's new and potential market tools

Ecosystem services certification document

Each organization wishing to use the new FSC market tools must complete an ecosystem services certification document. This is used to describe:

- the baseline environmental situation at each site
- the threats to the declared ecosystem service, both internal and external
- the land tenure at the site
- the management approaches being applied
- a thorough description of the methodologies being used to measure the change in each outcome indicator, in response to the outlined management activities
- the results of the impact evaluation
- a list of organizations involved in activities related to the declared ecosystem services
- a summary of culturally appropriate engagement with Indigenous Peoples and local communities.

The ecosystem services certification document can improve an FSC certificate holder's market access to ecosystem service payments, as it contains the information that potential buyers or investors need in order to have confidence in the claim that is being made. Each ecosystem services certification document is assessed externally as part of a forest management evaluation by a certification body.

Promotional statements

FSC certificate holders will be able to use any FSC trademark in association with accurate and truthful promotional statements that describe a verified ecosystem services impact, i.e. one that is contained within an approved ecosystem services certification document. All new promotional statements regarding verified ecosystem services impacts will be submitted to the relevant certification body for approval.

Current thinking is that these could range from general statements to more specific narratives, with detailed information about the management activities that led to a positive change.

Ecosystem services claims (1)

Managers of an FSC-certified forest will be able to add an ecosystem services claim to the scope of their existing FSC certificate. This can then be passed along the supply chain. This approach mirrors the existing FSC approach for products that originate from small or community forest producers.[28]

This tool will enable the sellers of timber or non-timber forest products to request a price premium based on the ecosystem services claim, and allow manufacturers and end users to communicate to consumers the positive impact of their purchase through on-product labelling.

Ecosystem services claims (2)

This tool will link an ecosystem services claim to an existing, external tradeable ecosystem services asset issued for the same forest, such as a carbon credit. The FSC ecosystem services claim becomes an 'attribute' of this asset, which is passed along through all transactions.

This approach will enable the seller of the asset to request a price premium based on the additional ecosystem services claim, and allow the end user to communicate the asset's additional attributes in terms of protecting ecosystems. As an example, the buyer of a carbon credit would pay more for a non-FSC verified emission reduction that comes along with an FSC ecosystem services claim for other benefits, such as biodiversity conservation or watershed services.

Intangible products

This approach will allow the manager of a certified forest to seek direct payment from a buyer for the demonstrated ecosystem services impact. The buyer might be within or outside of the forest management certificate holder's supply chain for timber or non-timber forest products.

A buyer will be able to refer to their purchase of the ecosystem services product in different ways, for example to respond to consumer demand for responsible corporate behaviour or to report against key sustainability performance indicators. To facilitate this approach, FSC will add demonstrated ecosystem services impacts as intangible products.

28 This is FSC-STD-40-004 V3-0. See: https://ic.fsc.org/en/what-is-fsc-certification/reviews-processes/current-processes/chain-of-custody-certification-01

Annex IV. Impacts measured and monitoring approaches used at the 10 ForCES pilot sites

Table A5. Impacts measured and monitoring approaches used at the 10 ForCES pilot sites

Pilot site	Ecosystem service	Impacts being measured	Monitoring approach	Results
This table presents the results of monitoring and impact evaluation at the 10 ForCES sites. Through pilot testing of the draft FSC Ecosystem Services Procedure, many of these results were presented to accredited certification bodies as evidence of impact. In each case, the certification body will either approve or reject an impact based on the evidence provided as well as conformance by the forest manager with FSC forest management standards including the additional requirements for ecosystem services certification. * The impact was approved by the certification body. † The impact was rejected by the certification body. ‡ The assessment of the impact by the certification body is pending.				
Cholchol-Imperial	• Biological diversity conservation‡	• Presence / absence of medicinal plants • Availability of Mapuche traditional medicinal plants for sustainable use	• Theory of change to demonstrate causality between management activities and impacts. • Assessment of outputs and outcomes. • Semi-structured interviews with the participants of the roundtable to understand the perceived impacts and the permanence of the changes in management practices. • The information from these two sources was triangulated by a field visit, the information received from the project manager and the site manager, and the presence–absence records of the medicinal plants.	• There is field evidence that changes in management practices have led to positive impacts on the ground; for example, the availability of medicinal plants has improved to levels where these can be sustainably managed. • There is a commitment among the roundtable participants to the common impact goals and there are now agreed 'good collection' practices. • There is information exchange between stakeholders and increased awareness of company practices, as well as awareness about medicinal plants and how to protect them on company lands.
Cuenca Río Mechaico	• Watershed services‡	• Measures to prevent erosion and access of cattle to water sources	• Theory of change to show how activities at farms will improve water quality. • Assessment of outputs. • Field visits, interviews with site managers, and reviewing project documents.	• Farmers have implemented measures to reduce erosion and control the access of cattle to water.
Parque Pumalín	• Biological diversity conservation	• Site-level indicators were developed, but this pilot site withdrew from the ForCES project before the impacts of these were measured	• Theory of change to demonstrate causality between management activities and impacts.	• None

Pilot site	Ecosystem service	Impacts being measured	Monitoring approach	Results
Lombok island	• Watershed services‡	• Area of forest cover, which will enhance water provision • Extent of planting in degraded areas • Data on temperature, water debit, rainfall, soil type, and river flow • Monitoring of high conservation value (HCV) areas • Monitoring and collecting of water data • Intensive ground check for degraded areas in the community-managed areas to identify future areas for planting	• Landsat 7 image band 3 / band red (RED) and band 4 / band near infrared (NIR) were used to analyse vegetation changes from April 2009 (chosen as a baseline because the payment for ecosystem services scheme and restoration activities started the following year) to 2016. • Ground check in the field to verify which species were planted via the management activities. • Intensive ground check for degraded areas in the community-managed areas to identify future areas for planting.	• High-density forest cover has reduced between 2009 and 2016. • Medium-density forest increased between 2009 and 2016.
PT. Ratah Timber	• Carbon sequestration and storage‡	• Carbon densities (kg/m^2) and their change between 2010 and 2015	• 50 circular plots (20 m radius and each 0.126 ha) were established. • All trees ≥10 cm diameter at breast height (dbh) were measured and aboveground biomass was estimated. • A multivariate regression model was established, with the amount of carbon per plot as the dependent variable, and reflectance of the corresponding pixel on a Landsat imagery as independent variable. • The model was extrapolated to the entire area to estimate the amount of carbon outside the inventory plots based on the 2010 or 2015 Landsat imagery.	• Mean carbon density decreased by 0.28 kg/m^2 from 2010 to 2015. • If a *t*-test is applied straightforwardly to the pixel-basis values, the reduction of mean carbon density from 2010 to 2015 is statistically significant ($p < 2.2e{-}16$).‡ • The frequency of high-stock forests slightly reduced from 2010 to 2015, while the frequency of moderate stocks increased. This suggests that carbon sequestration is proceeding in the logged-over forests. • It can be concluded that the total carbon stock within the management unit of PT. Ratah Timber has been reduced by a small but statistically significant amount, but that there is no decrease compared to a regional reference level.

Pilot site	Ecosystem service	Impacts being measured	Monitoring approach	Results
PT. Ratah Timber (continued)	• Biological diversity conservation‡	• Inventory of medium-sized to large mammal species, conducted with sensor cameras at 10 circular plots (each with a 1 km diameter) • Measurements of forest intactness	• 10 circular plots (each with 1 km diameter) were systematically placed in the management unit. Within each circular plot, 10 camera-setting points were randomly selected; 157 setting points were initially used to install the sensor cameras, of which 147 provided useful data. • Differences in community composition among those plots laid out for estimating carbon storage were examined using an ordination technique. An ordination of plots was conducted with non-metric multidimensional scaling (nMDS). The nMDS ordination was applied to the combined dataset of the 2012 and 2015 inventories, and nMDS axis 1 scores of plots were obtained both for 2012 and 2015. A multivariate regression model was established with the nMDS axis 1 scores of plots as dependent variable and reflectance and textural metrics of the corresponding pixels on either 2010 or 2015 Landsat imagery as independent variables. The model was extrapolated to the entire area on 2010 and 2015 Landsat imageries.	• The presence of rich species diversity for animals indicates that the Ratah forests are of high conservation value. Of 34 species monitored using camera trapping, there was no difference in the number of photographs for 29 species; for two species the number of photographs increased, and for three species the number decreased between the old logged area and the recently logged area. Neither of the three species decreasing were vulnerable or threatened, suggesting largely effective biodiversity safeguards. • The overall change in forest intactness between 2010 and 2015 was nominal, despite continued logging activities. Forest stands with an intactness greater than 1.0 (i.e. more pristine stands) decreased, while forest stands with the intactness of less than –0.5 (degraded stands) also decreased. This indicates that recent logging activities have resulted in a loss of intactness, and that the regrowth of unlogged blocks has resulted in a gain in intactness. The overall change is a net small decline in intactness.
West Kalimantan	• Biological diversity conservation / recreational services	• Site-level indicators were developed. However, the site dropped out of the ForCES project, so no impacts were demonstrated		
Charnawati	• Biological diversity conservation‡	• Area of natural forest • Effective forest cover • Area of biodiversity habitat • Area of HCV forest • Area of intact forest landscape (IFL)	• Participatory resource mapping, forest inventories, and group discussions, all conducted by community forest user groups. • The team recorded: tree species; the number of trees; the number of poles-sized trees; regeneration; non-timber forest products (NTFPs). • They also measured the height, diameter, and weight of chosen species. • The team identified and estimated the status of species, their distribution, and composition.	• The forest inventory results show the presence of mosaics of forests with 10–40 tree species growing in a single management unit. • More than 7,000 ha of natural forests have been protected and a little over 860 ha have been designated as HCV areas for regulating environmental services and conserving biodiversity.

Pilot site	Ecosystem service	Impacts being measured	Monitoring approach	Results
Charnawati (continued)	• Carbon sequestration and storage‡	• Forest carbon storage (tonnes of CO_2), assessed in 2010 (baseline), 2013, and 2016 at landscape level	• 205 plots (41 under sparse canopy and 164 under dense canopy) were established. • Aboveground biomass, below-ground biomass, leaf litter, and soil organic carbon were measured.	• Carbon stock increased from 209.12 t/ha in 2010 to 221.44 t/ha in 2013 and 235.37 t/ha in 2016.
	• Soil conservation‡	• Area of natural forest cover	• As for biological diversity conservation.	
	• Watershed services‡	• Number of water sources protected • Discharge from water sources	• Participatory resources mapping. • Focus group discussions and interviews with key people. • Community monitoring of the buffer areas of water sources (10–30 metre radius, depending on the water flow). • Water discharge/flow measurement.	• Majority of the water sources identified have been protected.
Gaurishankar	• Biological diversity conservation	• Vegetation diversity in each forest management unit: availability, number, and species distribution, of trees and of non-timber forest product species • Areas of HCV, IFL, and conservation areas	• A participatory biodiversity monitoring protocol, developed by ANSAB in 2010, which focuses on ecosystem health and vitality, and includes an assessment of threats. • Methods include: direct observation; transect walks; key informant interviews; focus group discussions. • GIS mapping tool to identify areas of high biodiversity and critical ecosystem services.	• Local forest managers are actively conserving 7,563 ha with special attention to 1,026 ha. • There is a mosaic of forests, with 10–40 trees species growing in a single management unit. • Rare, threatened, and endangered species exist in the landscape, which led to the protection of 1,026 ha to conserve biodiversity and HCV areas.
	• Recreational services	• Area protected and accessible for nature-based recreation • Landscape features in the forest management unit • Spatial distribution of major forest and biodiversity hotspots • Presence of charismatic species	• Socio-resource mapping. • Key informant interviews and group discussion. • Results from a biodiversity survey in 2013 and a social survey in 2015. • Direct observations and a forest inventory.	• Local forest managers maintained 7,563 ha of forests, with mosaics, and diverse species composition and structure, as a good place for nature-based tourism. • The forest area is rich in natural forests, pasture land, snow-capped areas, water bodies including waterfalls, and socio-cultural features directly linked with natural resources. • Charismatic species are present.
	• Soil conservation	• Area of forest cover and change in forest cover • Areas vulnerable to landslides and soil erosion • Boundary map of the forest • Land use analysis • Spatial distribution of vulnerable areas	• GIS tools. • Socio-resource mapping. • GPS survey data.	• Approximately 2% of the total forest area was identified as highly prone to soil erosion and landslides, which has led to protective measures. • A spatial map of the erosion- and landslide-prone areas has been developed and measures to restore and conserve soil in these are being implemented. • GIS-based analysis identified the number of landslides, the area affected, and their locations as a baseline.

Pilot site	Ecosystem service	Impacts being measured	Monitoring approach	Results
Quang Tri	• Soil conservation†	• Area affected by wind and water erosion • Changes in forest cover and open sand areas • Condition of environment before and after tree-planting activities • Socio-economic impacts the tree-planting activities have had on their livelihoods	• Landsat 5 and Landsat 8 data satellite images from 1988–2015. • Semi-structured key informant interviews with 21 people from four villages that participated in the ForCES project.	• Forest cover increased and open sand areas decreased between 1988 and 2015. • Forest cover increased from 194 ha to 1,136 ha between 1988 and 2015. When the harvested parts are included, the forest area increased to 1,992 ha between 1988 and 2015. • Open sand areas decreased from 52 ha to 15 ha between 1988 and 2005, but since 2005 mining activities outside the community controlled area have caused an increase up to 97 ha, as of 2015. So far, this has not had a negative impact within the community-controlled areas according to interview data. • Tree planting has prevented sand movement by wind, which has increased soil fertility and water retention in fields. This has increased crop yields, contributing to increased incomes for farmers. • In total, farmers identified 13 positive changes in the condition of the environment which have directly and indirectly improved their well-being.
Huong Son	• Biodiversity conservation†	• Forest cover change 2002–2012 • Biodiversity (forest cover, fauna, and flora) • HCV areas	• Satellite images. • A rapid assessment was carried out 2015 to establish a baseline, using 20 transects (0.5–3 km) across the whole forest area. These are monitored via monthly patrols.	• Although selective logging has occurred in the forest management unit, there have been only minor changes in forest cover. • HCV 1, 3, and 4 areas totalling 7,926.03 ha are in good condition to be protected, with no further fragmentation. • There has been no negative change in the composition of flora and fauna.
	• Carbon sequestration and storage*	• Forest carbon storage (tonnes CO_2) • Maintenance of carbon pools, determined by forest trees and biomass measured in randomly assigned sample plots	• Participatory carbon-monitoring tool developed by SNV. • Forestry inventory.	• Measurements in 2014 showed 967,575 tonnes of reserves and 3,550,999 tonnes of carbon, with contributions of 13,555.3 ha of production forests (reserves 625,717 tonnes of carbon, 2,296,380 tonnes of carbon) and 6,190.3 ha of protected forest (341,858 tonnes of reserves, 1,254,619 tonnes of carbon). • The continued implementation of this management approach (not logging) will maintain the carbon stocks.
	• Watershed services†	• Forest cover in HCV 4 area, which protects 23% of the headwater area of the Song Con branch river of Ngan Pho River • This is measured via: natural forest cover; forest structure; incidence of illegal hunting and harvesting	• Periodic inventories and regular monitoring by patrols to ensure no changes occur in forest cover and the HCV 4 areas are kept intact. • Earth observation data.	• Forest cover maintained in 2,236 ha of HCV 4 forest. • Only minor changes in forest cover occurred between 2002 and 2012.

Annex V. Progress against ForCES project objectives

Table A6. Progress against ForCES project objectives

Component	Expected results	Responsible agency	Deliverables	Benchmark/milestones at the start of the project	Status/outputs, as of March 2017
1 Development of science-based certification models following FSC Principles & Criteria and targeting maintenance and/or enhancement of ecosystem services	• Develop an FSC ecosystem services strategy • Strategy approved by the FSC IC Board	FSC IC	• Global ecosystem services-based FSC strategy document	By March 2013, the FSC IC Board approved a strategy on new certification business models, incorporating payments for ecosystem services into FSC standards	• The FSC ecosystem services strategy was approved by the FSC Board in 2015. The goal of the strategy is that "FSC will develop new tools for certificate holders to access emerging ecosystem services markets [including biodiversity conservation], which: (1) strengthen the incentive for responsible forest management, forest protection, and forest restoration; and (2) deliver greater value for certificate holders, communities and other actors along the supply chain." This goal is supported by seven strategies, all of which are being implemented.
	• Draft implementation policy document circulated to stakeholders, and consensus document prepared for the FSC Board of Directors • Policy on 'Expanded FSC Certification' approved by FSC Board of Directors	FSC IC	• FSC policy document	By January 2015, FSC global policy on payments for ecosystem services standards adopted	• The FSC ecosystem services strategy was approved by the FSC Board in 2015. The goal of the strategy is that "FSC will develop new tools for certificate holders to access emerging ecosystem services markets [including biodiversity conservation], which: (1) strengthen the incentive for responsible forest management, forest protection, and forest restoration; (2) deliver greater value for certificate holders, communities, and other actors along the supply chain." This goal is supported by seven strategies, all of which are being implemented.
	• International standard development undertaken • International generic indicators approved • Validated ecosystem service indicators in pilot countries are incorporated into national standard development	FSC IC, CIFOR, and national partners (with national standards working groups)	• Agreed indicators for inclusion in national standards and at international generic level	By January 2015, approved indicators are incorporated into draft national standards	• FSC approved Version 5 of its Principles and Criteria in 2012 with a more explicit reference to ecosystem services. Approved in 2015, the FSC *International Generic Indicators* includes Annex C – a module of additional requirements for ecosystem services, which apply when forest management certificate holders wish to make use of the new FSC ecosystem services market tools. • Annex C has been transferred into the draft national forest stewardship standards of all four ForCES countries.

Component	Expected results	Responsible agency	Deliverables	Benchmark/milestones at the start of the project	Status/outputs, as of March 2017
2 International and national market assessment	• Market analysed and business models designed and adopted • Enhanced business case made for sustainable forest management through expanded FSC certification schemes	FSC IC and CIFOR	• Market study document with business models identified and adopted	By July 2013, the feasibility of at least four different ecosystem services-based FSC certification models was confirmed in the pilot countries	• CIFOR published several studies regarding opportunities and constraints for forest ecosystem services certification, FSC business strategies for ecosystem services certification, market supply of certified forest ecosystem services, and demand for ecosystem services certification from forest management certificate holders. • FSC commissioned two global market surveys to understand the demand for ecosystem services certification in general, and the demand of FSC verification of ecosystem services in particular. • FSC developed a menu of business models for country partners to test at the site level. • Market analysis of demand was carried out by each country partner to refine business models.
	• The results of the market study analysed and business models adopted, in order to support the development of an FSC market strategy	FSC IC	• Market strategy document	In April 2014, the FSC market strategy was developed	• FSC developed an organizational business strategy of building an optional module on ecosystem services quality certification tools in addition to existing forest management (safeguard) certification and offering this module as an optional tool for FSC certificate holders to improve their access to ecosystem services markets. • Based on the business models developed and tested, FSC has described five market tools for and requested feedback through a stakeholder consultation. FSC will finalize its market strategy in 2017 before launch of the tools.

Component	Expected results	Responsible agency	Deliverables	Benchmark/milestones at the start of the project	Status/outputs, as of March 2017
3 National pilots on expanded FSC certification	• Technical support to promote FSC certification and communicate the social and environmental impact, and put existing FSC content into an ecosystem services perspective • FSC Policy and Standards Unit able to support standards development, incorporating ecosystem services into FSC	FSC IC	• Competence developed in FSC Policy and Standards Unit, with appropriate tools to provide the necessary technical support	Since July 2013, the FSC Policy and Standards Unit has been providing technical support on ecosystem services certification	• FSC Policy and Standards Unit has created an Ecosystem Services Programme with three full-time staff. This programme promotes and supports the expansion of FSC's adapted standards across the FSC global network. • The programme can rely on other tools developed by FSC and other FSC team members (Key Account Management, Marketing, Communications, etc.)
	• Measures for access and benefit-sharing based on free, prior, and informed consent incorporated into pilot sites	National partners	• Production of a model for access and benefit-sharing	• By July 2012, measures for access and benefit-sharing at the pilot-site level had been incorporated into pilot sites' plans • By April 2015, these measures have been applied and tested in at least four pilot sites	• Each site applied the FSC free, prior, and Informed consent guidance, and this will become standard as the countries are using Principles and Criteria version 5. • At the country level, benefit models have been developed and the experiences gathered from the sites are available for scaling up at the national level.
	• First forest management sites certified under the additional ecosystem services system	National partners	• Management plan template, and training and guidance for assessors and forest managers • FSC pilot certificates issued	• By July 2013, at least four pilot sites were in the process towards biodiversity or ecosystem services-based certification, with at least one in each pilot country • By July 2015, at least six pilot sites were in the process of gaining biodiversity or ecosystem services-based certification, with at least one per country	• Four sites became FSC forest management certified during ForCES. Seven sites have undergone FSC forest management evaluations including assessment against additional ecosystem services requirements and the draft ecosystem services procedure (FSC-PRO-30-006), with at least one site per country. Of these, one has formally concluded the process with a verified ecosystem services impact. Two were unsuccessful in the forest management evaluation and four continue the process. Two final sites will be evaluated in May 2017.

Component	Expected results	Responsible agency	Deliverables	Benchmark/milestones at the start of the project	Status/outputs, as of March 2017
3 (continued)	• Incorporate a methodology and system assessing the long-term environmental impact of the certification system, tested at the pilot sites • Methodology developed to provide evidence that FSC forest ecosystem services certification allows for increased social well-being and/or environmental performance	CIFOR, FSC, and national partners	• Clear methodological guidelines, including globally applicable indicators, in place for testing long-term impact	By January 2013, social and environmental impact targets defined and methodology agreed by project partners	• CIFOR methodology for impact evaluation used in all countries at the site level with some modifications depending on site-specific situations. • The CIFOR global methodology was used as an input to the draft FSC procedure, ***Demonstrating the Impact of Forest Stewardship on Ecosystem Services*** (FSC-PRO-30-006), which will be available at the global level and has been tested at seven pilot sites (with a final two sites tested in May 2017). This procedure is open for consultation from March to May 2017 and is scheduled for approval in early 2018. • The first draft of the ecosystem services procedure is out for public consultation until end of May 2017. It should be completed by the end of 2017.
4 Awareness and promotion of FSC certification for ecosystem services nationally and globally	• Preparation of generic tools to guide National Coordination Units and their partners to strengthen the capacity of staff of local partner agencies and potential disseminators on expanded forest certification and payment for ecosystem services • Training programmes and associated tools available from FSC for local capacity-building	FSC IC with national partners	• Training modules and toolkits developed • First training and information materials available and workshops held	• By July 2015, the modules and toolkits were available on the FSC website and with National Executing Agencies • At least 60 community members trained in each country in the new models for expanded FSC forest certification (ecosystem services)	• Training modules available in Indonesia and Nepal. • Numerous training activities at the country level on sustainable forest management, FSC certification, free, prior, and informed consent, impact indicator selection, monitoring and impact evaluation, potential ecosystem services models, participatory carbon monitoring, nursery training. • Book on the sustainable management and harvest of Mapuche medicinal plants available in Chile. • At the global level, a guide for transferring Annex C of the ***International Generic Indicators*** (additional requirements for ecosystem services) into national standards was published and a training module for standards development groups and certification bodies was developed. • FSC IC has provided training on the use of the draft FSC ecosystem services tools to certification bodies, FSC national offices, and forest managers involved in pilot testing the tools.

Component	Expected results	Responsible agency	Deliverables	Benchmark/milestones at the start of the project	Status/outputs, as of March 2017
4 (continued)	• FSC database of certificate holders adapted to capture ecosystem services certification data • Database includes information on certification for additional ecosystem services	FSC IC	• Database adapted to generate ecosystem services certification information	By July 2012, FSC certificate holder database adapted and ready to record additional ecosystem services information	• FSC has proposed changes to its database within the draft ecosystem services procedure (FSC-PRO-30-006): approved Ecosystem Services Certification Documents will be published on the FSC database of registered certificates.
	• Content prepared and material designed and disseminated to communicate about new business models for ecosystem services-based FSC certification • Promotional material prepared for new FSC ecosystem services business models • Material disseminated nationally and internationally	FSC IC, with national partners and CIFOR	• Communications materials about the new business models for FSC certification disseminated	By January 2015: • >20 articles published in the national (ForCES countries) and international media • 8 national training and communications events held • 3 international media events on ecosystem services or biodiversity based certification (e.g. at CoPs, ITTO, international FSC Board meetings) • >12,000 copies of various didactic materials completed and disseminated in the four pilot countries and internationally	• Over 10 global and national media stories and video documentaries. • Over 30 printed articles/publications/posters. • Over 10 presentations at international media events. • Dozens of national training and communications events. • Over 20,000 copies of didactic materials completed and disseminated.
	• Market strategy devised and visits undertaken to interested private sector stakeholders involved • Demonstrated private sector interest in supporting FSC additional ecosystem services certification	FSC IC, with national and international partners	• Visit reports	By January 2015, as a result of dissemination and use of the market strategy document (see deliverables under 2.2) and manifested interest, at least three priority markets selected as 'best bets'	• Biodiversity, carbon, and watershed markets have been selected as the 'best bets', including the source of demand for these ecosystem services from the global commodities sector that has made zero deforestation and sustainable supply chain commitments.

A Palo santo tree (*Weinmannia trichosperma*), the bark from which is extracted for Mapuche cultural medicine

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Our mission is to ensure Forests *For All Forever* by promoting environmentally appropriate, socially beneficial, and economically viable management of the world's forests. We are asking forest managers, certificate holders, certification bodies, businesses, governments, financial institutions, and investors to demonstrate their commitment to responsible forest management, reducing deforestation, and to preserving ecosystem services, by helping us develop and promote FSC ecosystem services tools, and supporting or investing in ecosystem services markets.

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