Forest Stewardship Council®

FSC Monitoring & Evaluation Report

Context, figures, effects, and impacts

Public Report 2016

Explanatory notes: This report highlights some of the contributions that FSC delivered in pursuit of its mission to "promote environmentally appropriate, socially beneficial, and economically viable management of the world's forests". The scope of potential social, environmental, economic, and political contributions to this mission is as broad as the types of forest ecosystems, forest management, forest users, and their needs and interests in forests. FSC implemented a monitoring and evaluation (M&E) programme to increase the understanding of the complex impacts of its activities, and to provide a systematic foundation for a transparent, impartial, and consistent evaluation of FSC's effectiveness in delivering its mission. In 2013, the FSC Theory of Change was the subject of consultation and subsequently approved, and a set of intended impacts was identified. This document reports on some of these intended impacts and related indicators. This is a living document and will be updated periodically. This edition of the M&E report covers 2016 data, minor discrepancies between constituent figures and totals are due different reporting dates (15 or 31 December, or earlier data from other FSC reports), and to rounding.

***

The FSC Vision

The world's forests meet the social, ecological, and economic rights and needs of the present generation without compromising those of future generations.

The FSC Mission

FSC shall promote environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

FSC Monitoring & Evaluation Program Manager

Dr Marion Karmann, m.karmann@fsc.org

FSC International Center GmbH, Charles de Gaulle Strasse 5, 53113 Bonn, Germany

FSC Monitoring and Evaluation Program Report 2016

Contents

The FSC vision and mission are a response to a global crisis

Since the 1980s, scientific researchers have pointed clearly and precisely to the severe stress placed on the world's forests. The complex relationship between the natural functioning of forest ecosystems, forest use, and the people involved is a challenging one. Research on forest areas and the biodiversity of forest-dependent flora and fauna indicates prevalent deterioration of forest ecosystems, their functions and structures, for many and complex reasons, and that the destruction of tropical forests is proceeding at a frightening rate. In many countries, political and economic conditions result in fragmentation of resources instead of favouring and supporting sustainable use of resources. Data collected on social and socioeconomic conditions demonstrate that in many cases traditionally forest-dependent people (e.g. communities, Indigenous Peoples, and marginalized populations) are facing serious challenges to their reliance on forests for their livelihoods, often because of a change of management of the forest areas.

The Yale School of Forestry & Environmental Studies (Cashore et al., 2006, p. 8) summarizes these alarming research findings:

> *In the face of this body of knowledge and the consensus that many problems are intensifying, domestic and international governmental responses have been strongly criticized as woefully inadequate and far too slow to address the myriad problems facing global forest management.*
>
> *As a result of this frustration, some of the world's leading environmental groups and their allies decided to sidestep governments and, in 1993, created the "Forest Stewardship Council" (FSC). The FSC turned to the marketplace to generate incentives for forest businesses to conform to environmentally and socially responsible forest practices. Their solution was relatively simple: develop a set of global principles and criteria of sustainable forestry, have national and sub-national multistakeholder committees develop regionally appropriate standards, have third parties [i.e. independent] audit forestry operations for compliance, and "certify" those who pass the test – providing a badge of honour that, the hope was, would allow certified operations to gain some type of market advantage vis-à-vis their competitors (such as market access, price premiums, and the more abstract notion of a "social license to operate").*

Unique among social and environmental initiatives, FSC developed a new kind of certification system that evaluates the practices by which timber and other products from forests are produced, rather than the environmental performance of the products themselves. This evaluation is based on standards developed jointly by a broad range of stakeholders that usually do not work on the basis of joint consensus. Since 1993, FSC has evolved and grown in both scope and breadth. Today, over 23 years later, FSC is actively promoting responsible forest stewardship in more than 120 countries worldwide through both forest management (FM) and chain of custody (CoC) certification.

Through joint efforts of various FSC supporters and constituencies, almost 190 million hectares (Mha) of forest are managed and certified according to the high standards of FSC. Around the globe, 33 FSC-accredited certification bodies are working with committed forest managers and

forest product purchasers (see Table 1 on page 8). Consumers, often organized through powerful environmental and social nongovernmental organizations (NGOs), are pushing for products from responsibly managed forests.

What does FSC monitor?

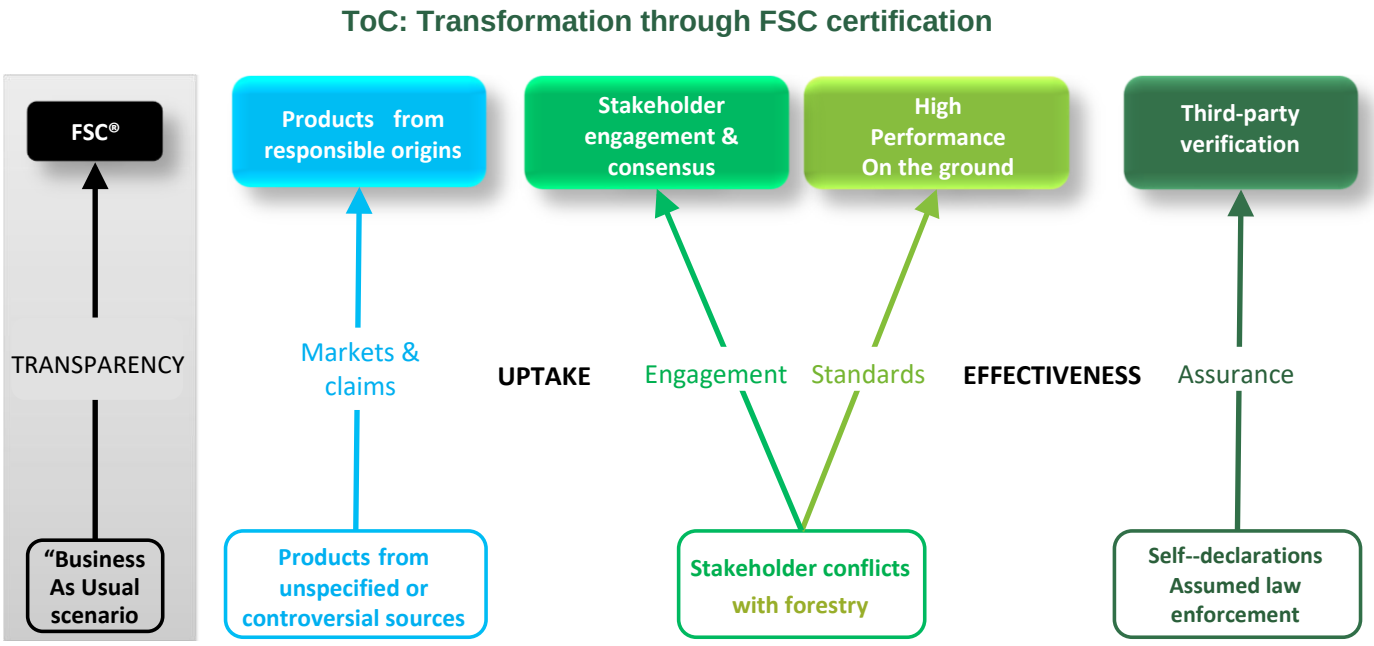
There are many ideas about which impacts FSC certification should deliver beyond the transparency that certification brings via evidence for compliance of FM with FSC standards. FSC held a public consultation in October 2013 on its Theory of Change (see Theory of Change, FSC, 2014b; and Figure 1), and the related intended impacts and indicators, to determine which kinds of effects and impacts (see Figure 2, p. 12) to monitor and evaluate. The FM-related indicators cover the three areas addressed in the FSC mission (environmental, social, and economic effects of FM), as well as general, overarching aspects of FM. The auditors of FSC-accredited certification bodies continue to monitor elements of FSC impact and report on many of these indicators. This information is publicly available in the FSC certification reports for each of the approximately 1,350 certified operations, updated annually on the FSC website (info.fsc.org). FSC is working to improve the reporting format to allow easier analysis of these reports. In the previous years' M&E Reports (FSC, 2014a, 2015a, 2016a), we reported that some of the suggested indicators are currently not assessed in FM audits, but might become reporting requirements for candidates in the modular approach programme (MAP). In 2016, the MAP was still not implemented nor fully developed for FM certification.

Another set of indicators focus on the tools that FSC uses to 'promote' responsible FM politically: in engaging stakeholder groups to develop solutions for conflicting interests in FM; in contributing to meaningful forest certification (e.g. through participation in standard development processes and public consultations); and through market-linked activities. While the progress against some of these indicators will be measured regularly, a subset of indicators might be assessed on a sample basis by external researchers, as explained in the FSC M&E System Reports (FSC, 2015e, 2016).

Built on FSC's Theory of Change (FSC, 2014b, 2015b, and Figure 2), 12 intended impact areas are identified. The following report indicates with highlighted number in brackets where ① - ⑫ evidence or indications for theses intended impact areas can be found.

Summarizing versions of the 'FSC Theory of Change' and of the 'Monitoring and Evaluation System' can be accessed with the following links:
FSC Theory of Change
Monitoring and Evaluation System

Figure 1) FSC's Theory of change



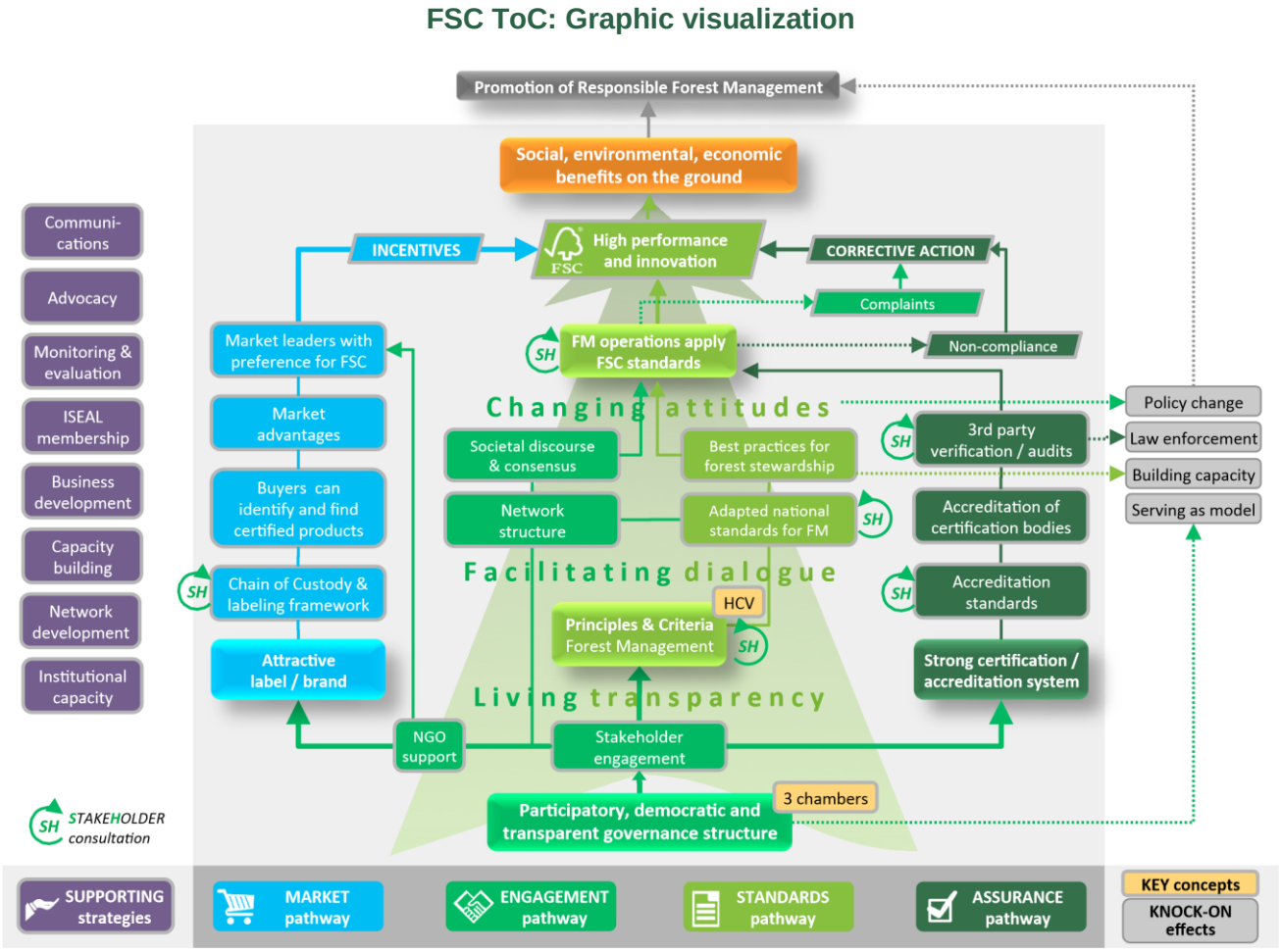


Figure 2) FSC Intended Impacts

PROMOTION OF RESPONSIBLE FOREST MANAGEMENT: HIGH PERFORMANCE AND INNOVATION – SOCIAL, ECONOMIC AND ENVIRONMENTAL BENEFITS ON THE GROUND

ECONOMIC	SOCIAL	ENVIRONMENTAL	GENERAL
① **Forest management (FM) operations gain market advantages through certification.** **1a.** Number (no.) and area of certified operations is growing in all climate zones and regions, for natural and plantation forests, for all ownership structures and sizes of operations. No. of re-certified operations increases. → Data, frequency and sample: No. and area of certified and re-certified operations. Trends from previous years compared to current. For all FM certificates, annual reports.	④ **FM operations have good and fair relations with indigenous and other local communities, and maintain or enhance fair access to resources and economic benefits.** **4c.** Aspirational: No. and quality of additional social services delivered by FSC-certified management. Access to forest resources and mechanisms for sharing benefits are perceived locally to be fair. → E.g. No. and area of certified operations with solved CARs related to legal issues. Reports on case studies.	⑦ **Minimized degradation of natural forests, no conversion of forests to other land use in certified areas.** **7a.** Area of certified FM operations managing natural forests increasing. → Minimized degradation of forests, no conversion of natural forests to plantations and other land uses: Area of natural forests in certified natural, plantation and mixed forests operations increases. → Aspirational: Sample sites show evidence that after five years defined priority areas are not significantly degraded.	⑩ **FM operations develop strategies to diversify their portfolio of forest products, and manage a broad portfolio to increase environmental and economic resilience.** **10a.** Aspirational: Portfolio of products incl. lesser known timber species, non-timber forest products and ESS offered as certified is maintained or growing. → No. of such products offered per certified operation. Trends of product range over time per region and operation type. When data accessible.
② **Harvesting activities are based on the principle of sustained yields: there is a balance of growth and yields of specific species.** **2a.** Aspirational[1]: The actual harvest of each species does not exceed allowable harvesting rates over defined timeframes. → Relations between annual allowable and actual harvest rates; for selected sites with counterfactuals.	⑤ **Forest-dependent, forest-managing certified communities improve their livelihoods as well as their forest management and marketing skills.** **5b.** Aspirational: No. of people obtaining an income through FSC is increasing. → Regular interviews of members of the smallholder support and of the modular approach (MAP) programs.	⑧ **FM operations maintain or enhance biodiversity. High conservation values (HCV) of forests are identified with stakeholder input and maintained or enhanced through appropriate management.** **8b.** Area of HCV classes, set asides, representative samples compared to entire certified area is maintained or growing. → When data accessible.	⑪ **Legal compliance by FM operations and exclusion of illegal activities within the forest management units.** **11c.** No. and quality of CARs issued and implemented in relation to criteria addressing legal compliance, illegal activities. → E.g. Analysis of CARs related to human rights, protected areas, rare species within and in relation to the certified operation. When data accessible.
③ **FM operations gain increased competence, e.g. in planning, impact assessment & evaluation, silviculture, health & safety, marketing.** **3c.** E.g. Corrective action request (CAR) analyses over economic, social, environmental criteria show lessons learned. → For all FM certificate holders, when data accessible.	⑥ **FM operations improve workers' living and working conditions, especially with respect to occupational health and safety.** **6a.** Aspirational: No. of male / female forest workers (incl. contractors) trained in safe working techniques increases. → For all MAP candidates, qualitative case studies for some large-scale operations.	⑨ **FM operations identify and maintain the forests' manifold ecosystem services from forest soil, water, biodiversity.** **9b.** Aspirational: Areas certified as managed for ecosystem service (ESS) provision are maintained or increasing. → E.g. No. and areas of forests offering certified ESS. Trends, when data accessible.	⑫ **FSC brings together diverse groups of people to craft policy; with local and international consistency; empower marginalized stakeholder groups.** **12c.** E.g. No. of FSC members per chamber and level of FSC awareness growing. → No. and structure of membership; statistics about prompted recognition of "FSC," users of FSC websites. When data accessible.

[1] Indicators we are aiming toward, but are not yet available.

Table 1 gives a global, quantitative overview about FSC's developments in terms of certification (certified area, numbers of FM and CoC certificates, and numbers of certification bodies and national standards) and of the FSC network (number of members of FSC International and of countries with FSC representation). Most of this information will be elaborated in the following chapters.

	End 2000	End 2006	Sep 2008	End 2013	End 2014	End 2015	End 2016
Forest area certified (Mha)[2] ①[3]	**24.4**	**82.6**	**105.4**	**190.7**	**184.4**	**187.2**	**196.3**
No. forest management (FM) certificates[2] ①	**284**	**860**	**944**	**1,257**	**1,309**	**1,369**	**1,462**
No. chain of custody certificates (CoC)[2] ①	**1,138**	**5,178**	**11,111**	**27,054**	**28,519**	**29,764**	**31,599**
No. countries where FSC certificates (FM, CoC) are issued ①	**49**	**73**	**97**	**118**	**112**	**119**	**124**
No. accredited certification bodies	**5**	**16**	**19**	**35**	**35**	**36**	**38**
No. countries with approved forest stewardship standards ⑫	**5**	**26**	**29**	**31**	**32**	**32**	**33**
No. FSC International (Asociación Civil) members ⑫	**357**	**647**	**811**	**831**	**842**	**851**	**889**
No. FSC network partners[4] ⑫	**19**	**39**	**53**	**43**	**44**	**41**	**46**
No. FSC regional offices and network managers[5] ⑫	**0**	**4**	**4**	**4⑥+** central coord.	**4** + central coord.	**4** + central coord.	**5** + central coord.

Sources: FSC Database; Karmann & Smith FSC Literature Review 2009; FSC Certificate database, 2014, 1 December 2015, 4 Jan 2017

[2] For the first three categories, we used to report for 'global North' and 'global South', referring to the Organization for Economic Co-operation and Development (OECD) categories, but in 2015 FSC changed categories to geographically Northern and Southern countries; therefore these data sets are no longer comparable. In following reports we will use the geographical North / South data for comparisons.

[3] Numbers in parentheses refer specific intended impact indicators from FSC's Theory of Change (see pp. 5, 7).

[4] FSC network partners: before 2011 called 'national initiatives'.

[5] The roles and ownership of regional and subregional offices have changed over time. In 2014, FSC had regional offices in Africa, Asia, and Latin America, each with subregional offices and FSC-managed national offices. The subregional and country offices are now counted under FSC network partners.

Certificates in numbers

Certification of forest management

The FSC concept is based on the underlying assumption that each additional hectare certified to FSC standards brings us closer to achieving the FSC mission to improve FM worldwide. **The larger the forest area certified to FSC standards, the larger the forest area that brings evidence that its management is socially beneficial, economically viable, and environmentally responsible**. We also assume that forest managers apply for certification because they see an advantage in being certified. Therefore, we refer to the (FSC 2014b) "Theory of Change" Economic Intended Impacts area ①:

> *To be sustainable, Forest Management (FM) operations must be economically viable, (and environmentally appropriate and socially beneficial).*
>
> *1. Forest management operations gain market advantages through certification.*
>
> *[Proxy indicator] 1a. Number and area of certified operations is growing in all climate zones, regions, for natural and plantation forests, for all ownership types and sizes of operations.*

By the end of December 2016, some 1,462 FM operations were certified as managed according to FSC standards, they cover a total area of 196.3 Mha, and they are spread over 82 countries on five continents, in different climate zones (see Table 2, p. 12).

Figure 3 shows that the 196.3 Mha **certified area** are the largest area certified as managed in compliance with FSC standards ever, 4.8% more than at the end of 2015. But the steep annual growth of FSC-certified area experienced until 2012 has not been achieved again. During the five years 2009–2013, the forested area certified by FSC grew at a relatively constant rate of 15.5 Mha per year. On 15 December 2014, however, the certified area was with 184.4 Mha 6.3 Mha (3 per cent) smaller than end 2013 with 190.7 Mha. In the two years from end 2014 to end 2016 FSC-certified forest area has increased by 11.9 Mha (roughly the size of Malawi) and is now larger than it was by end of 2013.

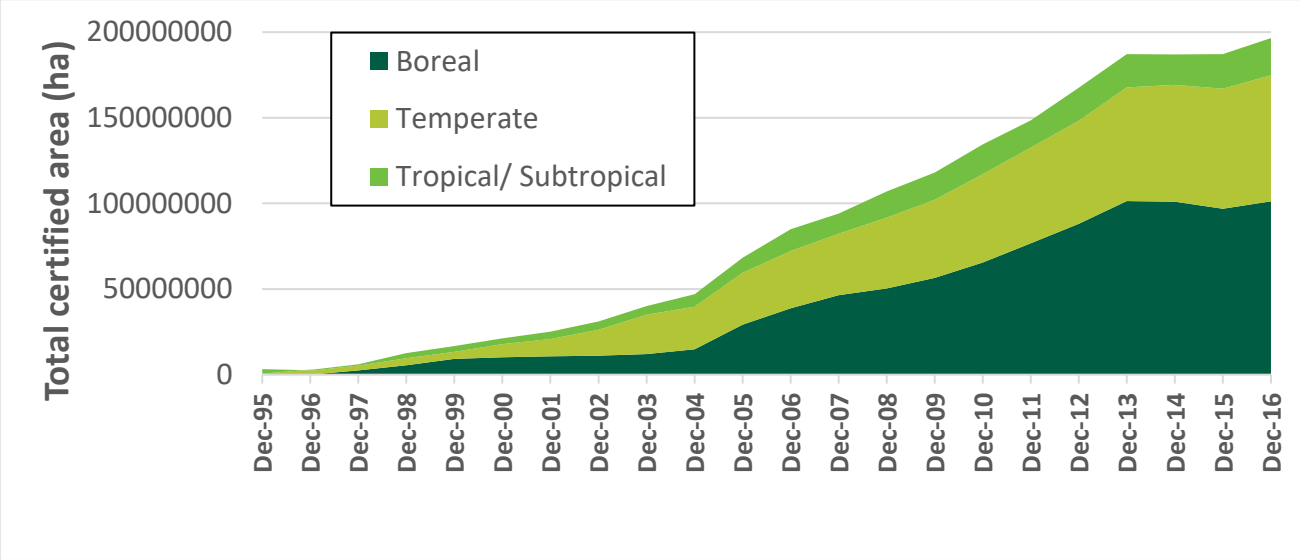


Figure 3. Total FSC-certified forest management area (1995–2016)

Source: FSC Certificate database, December 2016.

As in the previous years, the **number of certified operations** continued to grow, even stronger than since 2012, and reached by the end of December 2016 1,462 FM operations, 6.8 per cent more than in the previous year's 1,369 certificates.

During 2016, 198 forest management certificates (2 FM, 185 FM/CoC and 11 CW/FM) were issued the first time; 115 FM/CoC certificates were reissued and 10 reinstated (after suspension) in 2016, and 97 certificates elapsed. More information about retention rates and reasons for termination in chapter 'Certificate holders' perspective'. In 2015 the corresponding numbers are 142 certificated issued, 98 certificates ended.

The 11 new FM entities which received the 'controlled wood' (CW/FM) status in 2016 are located in seven countries: Australia, Indonesia, Brazil, Cameroon, Estonia, Latvia (4) and Peru (2). For two operations in Ghana the 'controlled wood' status was reissued in 2016.

For 97 forest management operations the certificate ended (3 FM and 94 FM/CoC) in 2016. More information about terminations are laid out under 'Forest management recertification' (page 41ff). Information about each of the valid, suspended, and (recently) terminated certificates can be retrieved via info.fsc.org.

FSC-certified FM operations can be small to very large scale (millions of hectares). Forest operations can join and organize for group certification. The (simple) average size of a certified forest operation (including groups) in late 2016 was 134.268 ha (average of 1,462 certificates with a total area of 196.3 Mha). This was slightly lower than the December 2015 level (136.742 ha) or the December 2014 level (140.870 ha), but significantly larger than, for example, 16 years ago, late in 2000, when the average was 85.915 ha (284 certified operations with a total of 24.4 Mha). Compared to the other continents (see also Tab.2, p.12) Europe (incl. Russia) shows the highest number and the largest area of certified forest operations, and Europe therefore shows the smallest average size of certified forest management operations. But because the size of forest operations

can differ drastically from country to country, and regionally within a country, and also depends on the forest management system and ownership structures, therefore this generalization over continents is not too meaningful.

Chain of custody certification

Because FSC is a market-linked instrument and its intention is to enable consumers to identify and choose products from responsibly managed forests, FSC reports on both certified FM figures and on the number of operations certified to buy and sell FSC-certified products (ranging from saw mills to copy shops). As of December 2016, some 31,599 CoC certificates were valid in 122 countries, 6 per cent more than late 2015 (29,746 certificates), and exceeding the growth rates of the previous years with 4.5 per cent each from 2013 (with 27,246 certificates) to 2014 (28,519 certificates) and to 2015 (Table 1). By the end of 2016, the number of CoC certificates was almost double that of January 2010 (when there were 15,766 CoC certificates). The majority of FSC CoC certificates (about half) were concentrated in Europe, followed by Asia and North America. Detailed information about the evolution and distribution of CoC certificates can be found in FSC Market Info Packs (FSC, 2015d, and upcoming reports).

These figures and more related information are updated monthly in *FSC Facts & Figures*, and are publicly available on the FSC website (FSC, nd-b).

Regional trends

Table 2 on page 12 shows the distribution of FSC-certified area and numbers of FM operations and CoC certificates by region. The numbers in **bold** show that the continent-wide certified area is at an all-time high, while numbers in *italics* show that the current level is close to the all-time high.

① Compared to the other continents, Europe (incl. Russia) shows the highest number and area of certified forest operations. Like Europe the three North American countries show a much higher level of certified forest area than Asia, Africa and Oceania and South America and the Caribbeans. Related to CoC certificates, Asia is after Europe the strongest player in FSC, and shows like Europe a steady growth of the number of CoC certificates.

While in Europe the area and numbers of certified FM and CoC operations continue to grow in 2016, in North America certified area and number of FM certificates experienced little growth from 2014 to 2015 and 2016 after some decline since 2013. A part of this decline in 2014 can be explained with the termination of certificates of two large operations totalling 1.5 Mha. The number of CoC certificates continues to drop.

Table 2. FSC-certified area per continent (ha) and number of certified operations

	North America	Europe	Asia	South America & Caribbean	Africa	Oceania
FSC-certified area						
2013	**77,526,654**	81,623,564	8,959,685	*13,390,488*	6,729,825	2,550,506
2014	67,871,110	85,420,144	**9,027,363**	12,686,538	6,832,756	2,580,791
2015	67,082,598	89,224,338	8,045,569	12,792,087	**7,745,980**	*2,666,952*
2016	69,212,841	**95,075,822**	8,344,675	**13,386,694**	7,596,115	*2,668,908*
No. forest management (FM) certificates (operations certified)						
2013	241 in 3 countries	507 in 32 countries	181 in 13 countries	246 in 17 countries	47 in 11 countries	38 in 5 countries
2014	242 in 3 countries	542 in 32 countries	192 in 13 countries	*248* in 17 countries	46 in 10 countries	38 in 5 countries
2015	*247* in 3 countries	**595** in 32 countries	**210** in 13 countries	246 in 17 countries	**52** in 11 countries	38 in 5 countries
2016	*248* in 3 countries	**634** in 32 countries	**233** in 13 countries	*258* in *19* countries	48 in 10 countries	*41* in 5 countries
No. chain of custody (CoC) certificates (operations certified)						
2013	**4,306** in 3 countries	14,104 in 39 countries	6,796 in 27 countries	1,407 in 20 countries	165 in 16 countries	**468**[6] in 7 countries
2014	4,015 in 3 countries	14,950 in 41 countries	7,483 in 27 countries	1,445 in 19 countries	*168* in 12 countries	458 in 7 countries
2015	3,854 in 5 countries[7]	15,849 in 41 countries	8,095 in 29 countries	*1,496* in 20 countries	167 in 12 countries	439 in 8 countries
2016	3,612 in 5 countries[2]	**16,746** in 41 countries	**9,130** in 29 countries	*1,509* in **23** countries	*174* in *17* countries	428 in 7 countries

Source: FSC Certificate database, 4 January 2017, 15 December 2015, 15 December 2014, 15 December 2013.

In Asia, from 2015 and 2016 certified area, numbers of certified FM and of CoC operations increased again, after a loss of a number of large-scale certified operations in China during 2014. In Africa, the certified FM area and number of FM operations decreased slightly since 2014, with a

[6] In 2013, we erroneously reported 1,468 CoC certificates where it should have read 468 CoC certificates.
[7] North America here includes Bahamas and Puerto Rico with 1 and 3 CoC certificates, respectively.

small increase in the number of CoCs, and more countries with CoC certificates. Except for the decrease in CoC certificates in Oceania, there, as well as in South America & Caribbean, the numbers have been more or less stable over the last three years.

The order of the countries with the largest FSC-certified areas is almost the same as in the previous years: Canada, Russia, the United States, and Sweden account with together 124 Mha for 63 per cent (62 percent in 2015, 63 per cent in 2014) of the total FSC-certified area. With the area certified in Belarus, Poland and Brazil (the fifth, sixth and seventh largest certified areas), seven countries cover almost 3/4 of the total FSC-certified area. Canada alone (54.7 Mha in 2015) has about one quarter (27.8 per cent, cf. 29 per cent in 2014) of the total FSC-certified area, while Russia (43.7 Mha) has about one fifth (22.3 per cent).

Table 3 shows the percentage of FSC-certified forest area by continent or region.

Table 3. Geographical distribution (per cent) of FSC-certified forest area by continent and region, 2013, 2014, 2015 and 2016

Region	2013	2014	2015[8]	2016
Europe (incl. Russia)	43	46	47.5	48.4
North America (incl. Mexico)	40	37	35.9	35.3
South America and Caribbean	7	7	6.8	6.8
Asia	5	5	4.4	4.3
Africa	4	4	3.9	3.9
Oceania	1	1	1.4	1.4
Total FSC-certified area	100	100	100	100

Source: FSC Certificate database, 2016.

While FSC has achieved particular success in European and North American countries, its coverage is significantly less in tropical regions. Comparing the data from 2013 to 2016, we see a shift of certified area from North America (Canada) to Europe (including Russia), while the proportions for the other continents remained stable at low levels (in total 17 per cent of the FSC-certified area; Table 3).

The concentration of certification in the temperate and boreal forests of North America and Europe is illustrated in Table 4 and Figure 3 (p.10).

[8] *As of 1 December 2015.*

Table 4. Percentage of FSC-certified forest area by biome, 2008, 2013, 2014, 2015 and 2016

Biome	Apr 2008	Dec 2013	Dec 2014	Dec 2015[9]	Dec 2016
Boreal forest	49	54.4	53.3	51.7	51.5
Temperate forest	38	35	36.2	37.4	37.5
Sub-/ tropical forest	13	10.6	10.5	10.8	10.9
Total	100	100	100	100	100

Source: FSC Certificate database, 2015 ([1] as of 1 Dec 2015).

Table 4 breaks down the FSC-certified area by biome for the years 2008, 2013, 2014, 2015 and 2016, showing very similar figures for these years, and indicating that half of the total FSC-certified area is in boreal forests, and only 10 per cent in tropical and subtropical regions.

Table 5. Percentage of FSC-certified forest area by forest type, 2008, 2013, 2014, '15 and 2016

Forest type	Apr 2008	Dec 2013	Dec 2014	Dec 2015[1]	Dec 2016
Natural forest	65	64	64.5	65.64	65.15
Mix (semi-natural and/or mix of plantation and natural forest)	27.5	27	27	26.05	25.97
Plantations	7.5	9	8.5	8.28	8.86

Source: FSC Certificate database, December 2016.

Most of FSC's certified area is natural forests (Table 5). As with the breakdown by biome, the figures forest type for 2008, and for 2013 to 2016 are very similar.

196 million hectares are FSC certified – how much is this in relation to the forests of the world?

To answer this question, we first have to agree on a definition about what kind of 'forest' area we use as baseline. Would the savannah in East Africa count as forest area, or the park with trees close to a big city? Can we include strictly protected forest areas, which are not meant for harvesting activities? We decided to refer to the statistics of the Food and Agriculture Organization of the United Nations (FAO). FAO has been monitoring the world's forests since 1946, initially at 10-year intervals, and every five years since 2000. The FAO Forest Resources Reports (FRA) provide a consistent approach to describing the world's forests and how they are changing (FAO, 2010,

[9] *As of 1 December 2015.*

2015c). FAO sets definitions for forests (FAO, 2015a,b), and we use FAO forests figures as baselines for our calculations.

"Forest area"

The total global forest[10] area reported by FAO for 2015 (based on country information) was close to 4,000 Mha. This area includes areas that will not be used for forestry for various (ecological, legal, geographical) reasons.

Of the 4,000 Mha global forest area, the 196 Mha managed under FSC certification make up 4.9 per cent.

"Forests with management plan"

One of the preconditions for FSC certification is that the forest operation has a management plan, and FSC can therefore be a driver for the development of FM plans. FAO also sees management plans as an important tool for achieving sustainable forest management and hence as a relevant indicator for reporting on the state of the forests. FAO (2015a) defines "Forest with management plans" as "Forest area that has a long-term documented management plan, aiming at defined management goals, which is periodically revised." FAO (2015c) reports that this area is steadily increasing, in 2010 it was more than half of the total forest area. But the information from the countries reporting to FAO is only available for 80 per cent of the total forest area.

"Production and multiple-use forests"

One of the FAO (2015a) categories is "production" forests, which are "primarily used for production of wood and non-wood forest products". About 30 per cent, close to 1,200 Mha, is managed primarily for the production of wood and non-wood forest products. An additional 949 Mha (24 per cent) are designated for multiple uses – in most cases including the production of wood and non-wood forest products (FAO, 2010, 2015a,b). FSC-certified forests are often multiple-use forests; fewer are tree plantations. But these definitions are not aligned with FAO categories, and not applied in the reporting and the FSC certificate database. **If we decide to use the FAO production forest together with the multiple-use forests as baseline, the 196 Mha FSC-certified forests would make up 9.1 per cent of global forests.**

"Planted forests" versus "natural forests"

The differentiation of "planted" and "natural" forests is important, as they have different ecological and socio-economic roles and values. When estimating the change of forest area, it is most relevant to be clear with these categories: "forest area" can include natural and planted forest, and a reduction in net forest loss (which could result from a combination of a loss of natural forest and a gain in planted forest) is not the same as a reduction in deforestation.

In the FAO (2015a) definition, "planted forests" are "forest predominantly (more than 50 percent of the growing stock at maturity) composed of trees established through planting and/or deliberate

[10] FAO (2015a) defines forest as "land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use." It does include areas that are temporarily not covered by trees (clear cut), but foreseen for further reforestation management.

seeding." They include coppice from trees that were originally planted or seeded, and exclude self-sown trees of introduced species. Nevertheless, this category includes more than the narrow definition of "plantations" which are homogeneous, even-aged, planted (or coppiced), and often (exotic tree species) monocultures with short rotation cycles. FAO (2016) reports that of all forest area in 2015, some 291 Mha (7.2 per cent) were planted forests.

FSC area classified by certification bodies as "plantation" and as a "mix of semi-natural forests and/or mix of natural and plantation" (see Table 5, p.15) together covers 64.25 Mha. Note that this can include in some certified entities with a large share of natural forests. Therefore, simple calculation of the portion of FSC categories "plantation" and "mix" within the FAO "planted forests" (22 per cent) is an overestimation of the FSC-certified area.

For this "planted forest" category and others, FSC would need to adapt its internal reporting requirements and align them with the FAO definitions, to better set FSC-certified areas in relation to FAO-reported figures. It then makes more sense to calculate these ratios also at country and regional levels.

"Volumes coming from FSC certified area"

FSC aims to drive improved forest management, sustainable consumption and conservation by transforming forest-based trade. The goal is to reach a 20 per cent share of global forest-based trade by 2020. FSC does not require public reporting on timber volumes harvested in FSC certified operations, nevertheless in many of the public reports we find related information. FSC invested in opening each of the public pdf files to extract related information, and after interpolation we calculated that in 2016, the annual volume of FSC-certified wood was 300 million cubic metres which corresponds to 16.6 percent of the total volume of the global industrial roundwood production (based on FAO 2015 data). This refers to certified input to the supply chain. This exercise will be repeated in the coming years, with the expectation that we get over time better data reporting and results.

Forest-managing smallholders

⑤⑥ Various stakeholder groups expect FSC to attract more forest-managing smallholders so that this group can benefit more from FSC certification, and FSC is committed to support a general increase of smallholder representation in the system. The calculations for 'smallholders' are based on the members in the categories for community-managed forests and for the 'small and/or low-intensity managed forests (SLIMF)'. End of 2016 there were 309 forest management certificates issued as SLIMF and/or community-managed, covering together 8.2 million hectares, which is roughly 4 per cent of the total FSC certified area. The same 4 per cent of the total certified area were reported for mid-2015 in the *FSC Market Info Pack 2015*.

Since January 2015, when 285 certificates were held by smallholders on almost 7.5 million hectares, this is an increase of 8.4 per cent operations and an increase by 8.9 per cent in area over two years. We reported in more detail about smallholders in the *ETFRN [European Network for Tropical Forest Research] News* 57 of September 2015. The 309 certificates end of 2016 were mostly organized in groups and had 163380 sites (patches of forests). With the current FSC reporting requirements we cannot state firmly how many families or other social constructs are managing theses smallholdings.

Access to finance often limits the quality of FM provided by smallholders, and also their ability to apply for certification. To overcome this challenge, at least for some smallholders, FSC initiated the **FSC Smallholder Fund**. This is a small-grant scheme that funds projects for 1–3 years with the objective of supporting small and community producer organizations to become certified or to maintain their certificate. By end of 2015, some 41 projects in 26 countries had been supported by this fund. Project ideas range from acquisition of safety equipment to fulfil health and safety requirements of certification, though developing and monitoring procedures for high conservation value schemes, to investment in equipment and training followed by marketing activities to enhance the value chain. Training courses were conducted in 2015 in Indonesia for indigenous community forest managers on 'Value chain and business models'. A 'New Approaches Initiative' was set up by FSC and is running, among other things, to review the effects of the programme. Evaluation results are not yet available and will be published in a future M&E report. Meier-Dörnberg and Karmann (2015) give more details about the programme. Some success stories are available on our website (FSC, nd-j). A more detailed analysis of smallholders within the FSC system was planned to be included in this report. Unfortunately, a series of unforeseen circumstances prevented the team that drafted this document from doing so. We regret this and will strive to provide for such an analysis in subsequent reports.

Research on the impacts of certification on the quality of forest management

Different FSC entities work with a variety of research consortia to identify FSC strengths and weaknesses, and intended and unintended outcomes and impacts. For example, the FSC M&E Manager has engaged with the Center for International Forestry Research (CIFOR) and World Wide Fund for Nature (WWF) International at steering committee level, and as technical advisor for various studies of ecological and social impacts in Africa, Asia, Latin America, and Russia. Other FSC programmes cooperating with independent research organizations are the Forest Certification of Ecosystem Services (ForCES) project, the Quality Assurance Programme, and the Business Development Unit.

For 2014 and 2015 we reported about a number of research projects – for all of them it is still too early to report on outcomes and findings:

- FSC started detailed analyses of corrective action requests (CAR) given in certification assessments in different regions; for example, for the FM certificates granted in Asia. These impact evaluations are ongoing with multidisciplinary research teams taking long-term perspectives on "high risk supply chains". The studies include, where possible, first-hand data and counterfactual control groups, and they are ongoing in 2017.
- FSC is engaged in a number of projects, such as the Helmholtz Alliance, which, with other research organizations focusing on earth observation tools to identify options to better evaluate changes in forest cover and use. This evaluation plans to identify the status, dynamics, and disturbance of certified forest areas and the neighbouring landscapes. It is run in parallel with on-the-ground monitoring activities in FM certification to increase transparency in strengthening the reliability of monitoring activities of foresters, auditors,

Accreditation Services International (ASI)/FSC, and other stakeholders, such as environmental NGOs. The Helmholtz Alliance project concludes in 2017.

- From FSC M&E perspective the most prominent expert working group is the Value and Impact Analysis Initiative (VIA) (http://www.isealalliance.org/VIA), initiated in 2014/15 by business to promote the benefits of legal, responsibly sourced, sustainable timber and to clarify the role of FSC certification in the delivery of these values. VIA is coordinated by ISEAL Alliance, independent from FSC, and developing research designs for impact evaluation first for FSC, and later for other ISEAL Alliance member certification schemes. This major project to analyse effects of FSC certification is planned to run until September 2017 and engages a group of some 15 independent scholars from different research disciplines. The FSC M&E Manager supported in 2016 the preparation of the VIA Initiative's activities, and provides access to relevant information for the research group. Results from VIA are expected to be published in late 2017.

In 2016 FSC also commissioned research, often in cooperation with FSC M&E, but not necessarily dedicated "impact studies", conducted by independent experts and scientists. One of these commissioned research projects is about "Chile's Forestry Industry, FSC Certification and Mapuche Communities". The findings are expected to be published in 2017. Another study commissioned focused on "Reduced Impact Logging practice and FSC standard requirements in Indonesia." Due to limited funds this study did not evolve in a full gap analysis, but remained on a more country specific and theoretical level, and is used to inform the Indonesian Forest Management Development (SDG) group in Indonesia. Yet another example are studies commissioned to evaluate the background and status quo and to assess options to implement requirements of motions of the FSC General Assembly. Such studies were commissioned for Motions on the management of Intact Forest Landscapes, on the effect of large scale forest operations, on inclusion of Ecosystem Services in forest management certification, on solutions for application of space born data for mapping FSC certified areas, or on market trends in the forest product sector. Most of these studies' findings are used internally to inform the related working groups and decision makers.

Examples of recent independent research projects and findings

To evaluate FSC's impacts and outcomes on the ground, in 2008–2009 the FSC M&E Program reviewed independent research from hundreds of references, including reports, academic journals, and books, and screened analyses by various NGOs. The full report is freely available (Karmann and Smith, 2009), and can be regarded as a source of baseline information.

FSC is working on a more elaborate literature database with research findings about FSC-related effects and impacts. It was tested and is live internally for FSC, and options are explored how to allow public access to this database. In the meantime, FSC has a list of recommended reading on its M&E website. The ISEAL Alliance shares knowledge on sustainability initiatives, including FSC, by uploading information about published, ongoing, and planned studies, and research projects to its Sustainability Impacts Learning Platform (ISEAL Alliance et al., 2016, www.sustainabilityimpactslearningplatform.org). FSC and ISEAL Alliance encourage researchers and practitioners active in the field to contribute studies to this platform, and to use it to learn from and connect with others doing similar work.

In 2016, like in previous years, a number of academic papers have been published, which focused on FSC. Below we extract some findings from some of these research papers (published, and studied by FSC M&E between late 2015 and early 2017). This is not an exhaustive list, and not a literature analysis, but it gives examples where researchers see contributions from FSC certification to the 12 expected impact areas of FSC or, more simply, where FSC certified forest management shows good performance. We also point out where researchers identified weaknesses of FSC and address cases where we think that researchers' hypothesis does not fully reflect the context, and/or falsely attribute findings to FSC certification, and we summarized our findings at the end of this chapter. Please remember that the highlighted numbers ① - ⑫ indicate evidence for the FSC intended impact areas (see pp. 5, 7, Theory of Change).

⑧⑨ FSC certified since 1997: Orangutans and Pangolins are 'winners'

Rahel Sollmann teamed up with 11 other researchers to develop and test methodologies to "quantify mammal biodiversity co-benefits in certified tropical forests" (Sollmann, R. et al. 2017). They focus on rain forest mammals in Sabah, Malaysia, which are particularly threatened, but challenging to survey. They used photographic data from three commercial forest reserves to show how community occupancy modelling can be used to quantify mammalian diversity conservation co-benefits of forest certification. These reserves had different management histories, and one of them, Deramakot, holds an FSC forest management certificate since 1997 (and is therefore among the forest operations with the longest history in FSC certification). The researchers point out that their findings cannot be generalized, as they are limited to the specific context in Sabah, including only one FSC certified operation, and that the occurrence of a species does not necessarily reflect its abundance. The team finds that many threatened species occupied larger areas in the certified reserve, and that species richness (estimated per 200 × 200-m grid cell throughout all reserves) was higher in the certified site, particularly for threatened species. The reserve managed in compliance with FSC requirements also held the highest aboveground biomass. Within reserves, aboveground biomass was not strongly correlated with patterns of mammal richness.

> *Although estimates of overall species numbers were similar across reserves, the more sustainable forest management practices in the FSC-certified Deramakot appeared to benefit the mammal community on two levels: it harboured higher levels of species richness for IUCN-listed species; and half of all species occupied consistently larger areas in Deramakot. These 'winners' of sustainable forestry included eight of the 15 IUCN-listed species, including the Endangered Bornean Orangutan (Pongo pygmaeus, (…)) and the Critically Endangered Sunda Pangolin (Manis javanica, (…)).*

The researchers also identified 'losers' of sustainable forestry, but this is due to the fact that these species are not typical forest species:

> ***In contrast,*** *four of eight species occupying larger areas in both more intensely logged reserves were least concern, indicating higher tolerance to logging activities, or possibly even a benefit from the opening of the forest (e.g. Mohamed et al., 2013). Our analysis also suggested that two endangered species were 'losers' of sustainable forestry, the Otter Civet*

> *(*Cynogale bennettii *(...)) and Banteng (*Bos javanicus*, (…)). As a grazer, the Banteng is associated with open habitats (…) and the semi-aquatic otter civet is associated with wetlands (..). In our analysis, both habitats are confounded with disturbed areas, because we consider forest as high quality habitat.*

Sollmann and her team give recommendations to identify High Conservation Values (HCV, of forests) and conclude that their camera-trapping approach provides a flexible and standardized tool to assess biodiversity and identify winners of sustainable forestry. Correlating species richness with aboveground biomass further allows evaluating the biodiversity co-benefits of carbon protection. These advantages makes their approach a tool to overcome the difficulties to rigorously quantify biodiversity co-benefits of forest certification and carbon storage payments, and this message is shared for example with FSC Ecosystem Program (ForCES).

About the same FSC certified operation Deramakot WWF International found in late 2015 that

> *An extensive economic analysis of two adjacent forest management units (FMUs) in Sabah, Malaysia – one FSC-certified since 1997, the other practising unsustainable logging – found that the volume of large high-value commercial trees and asset value per hectare in the FSC-certified FMU were twice as high as in the neighbouring non-certified FMU." WWF explains in this context that "(…) some companies consider the assurance of a more sustainable resource base over the long term as an important benefit of FSC. Certification encourages herbicide and chemical reductions, biological inventory, control over exotic species, and proper waste management.*

See more about the WWF study (WWF 2015) further down in this chapter.

⑧⑨ Gabon: The Golden Cat

The African golden cat is a wild cat endemic to the rainforests of West and Central Africa. It is threatened due to deforestation and bushmeat hunting and listed as Vulnerable on the IUCN Red List. Bahaa-el-din et al (2016) compares the population density of the *African golden cat* across five sites in Gabon, reflecting a gradient of human disturbance, including one FSC-certified logging concession. The authors hypothesized that within the FSC-certified logging concession higher density of golden cats should be found thanks to regulations on hunting and structural damage to the forest. A short-coming of the study is that only one FSC-certified concession is studied, which is moreover influenced by another key environmental parameter (a national park, see below). So the statistical power of the study is relatively weak and one should be cautious when attributing the effect of certification to the observed result – and invest in more research. Nevertheless Bahaa-el-din and team find that

> *there was a general trend towards lower population density with increased human disturbance. The Pristine site had the highest density estimate. The two logging concessions*

> *had the next highest density estimates, with the FSC-logged site having a slightly higher estimate*." "*Our estimates of density in the two logging concessions (FSC-logged and Logged) were the 2nd and 3rd highest among our study sites, confirming that golden cats can reach important densities in forests structurally impacted by commercial timber exploitation*.

Bahaa-el-din reminds about a study from 2009 by van Kreveld and Roerhorst (for WWF Netherlands) who found that

> *apes, including gorillas, chimpanzees and bonobos, benefit from FSC-certification due to the FSC requirements to block and guard roads to reduce poaching, as well as protect fruiting trees*.

Also Morgan et al. (2013) outlined in the IUCN Occasional Paper *"*Great apes and FSC: implementing 'ape friendly' practices in Central Africa's logging concessions" a framework within which logging companies adhering to FSC certification can be the catalyst needed to ensure the long-term preservation of African great apes, and in collaboration with conservation practitioners maintaining wildlife. Bahaa-el-din et al. explain that

> *both logging concessions included in this study were within 10 km of a national park boundary and it is as yet unclear how disturbance would affect an isolated golden cat population away from a large source population within a protected area.*

This parameter weakens the power of the conclusion as it is difficult to solely attribute the high cat density in the FSC-certified concession to the certification itself. But Bahaa-el-din et al. also state that

> *our findings that golden cats can be found at relatively high densities within well-managed logging concessions suggests that these areas should also be considered important for conservation efforts, including post- extraction management to avoid further human encroachment of forests that have been made accessible by logging activities*.

⑧⑨ FSC conservation zones are helping shrubs to helping trees, - not goats.

> *Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.*

This is criterion 6.4 of the FSC Forest Stewardship standard and requires in many national FSC standards more than the national legislation in terms of biodiversity conservation. In some countries FSC expects foresters to compare the development in these conservation areas with the areas managed for wood products, with the intention to learn from it, for better forest management. Filipe S. Dias and six research colleagues (Dias S.F. et al. 2016) investigate the impact of conservation

zones in FSC certified Mediterranean oak woodlands on the regeneration of oak trees and on the cover, species richness and diversity of shrubs. The researchers conducted a comparison between conservation and non-conservation zones within eight FSC certified cork oak woodlands estates. In these cases the conservation areas are managed for biodiversity conservation and are subject to less/no livestock grazing and shrub clearing.

> *The abundance of cork oak seedlings and saplings were found to be significantly higher in conservation zones.* Those differences *may be associated with low or no livestock grazing and less frequent shrub clearing*. (…) *The only shrub species whose cover increased in conservation zones were Ulex spp., which are very palatable species for livestock during its early stages of development when its spines have not hardened*. Interestingly, this shrub species *can ameliorate the effects of harsh temperatures and light conditions, improving* [oak] *seedling survival*.

Moreover, the seven authors found that the abundance of saplings was higher in area with intermediate cover of *Ulex* spp. and stated that these are *spiny, perennial, evergreen shrubs that can fix nitrogen and provide physical protection against livestock and shade to seedlings (Gómez-Aparicio et al. 2004).*

So, *Ulex* spp. might be critical for the regeneration of oak trees by providing shade and protecting against herbivores. Also, the abundance of oak seedlings increased with high adult tree cover. This might be explained by higher concentration of acorns beneath adult tree crowns and/or increased seedling survival due to lower temperatures under tree crown (i.e. less transpiration of seedlings). However, after a given value of tree cover (0.0025 m^2 /ha), the abundance of seedlings decreased, potentially indicating competition (e.g. for light, nutrients…) between adults and seedlings. The richness and diversity of shrubs were significantly higher in conservation zones. The authors proposed that this finding might also be caused by a reduction in both grazing and shrub clearing. However, they also suggest "*grazing pressure differences and/or certification time may not have been enough to induce significant differences*" in shrub cover between conservation and non-conservation area, which seems contradictory to the explanation for the observed differences in richness and diversity of shrubs. This findings should therefore be taken cautiously. On the other hand, studies like these show the FSC set-aside areas are useful study areas, and land owners can get incentives to balance competing interests in forest use – such as grazing area versus species diversity and natural oak regeneration.

⑫⑧⑨ Sweden: forest certification, a driving force for conservation

Forest certification is identified as introducing new driving force for conservation. According to the Swedish national FSC standard, a minimum of 5% of the productive forest land should be set aside "from measures other than management required to maintain or promote biodiversity conditioned by natural processes or traditional land use practices". The same requirement is also part of the national standard of the other large certification system PEFC. Simonsson et al found (2016) that areas voluntarily set aside by Swedish forest owners to comply with certification requirements can

lead to large increases in the total area allocated to conservation and also add numerous areas of smaller size to the network of traditional reserves. The structural diversity of voluntary set-asides can be high, and also have special qualities, complementing reserves.

> *Forest certification has therefore been an important driving force for VSA and these "certification-driven" set-asides are today an important part of Sweden's efforts to maintain biodiversity in the forest landscape. Although certification is a largely market-driven process, it has become increasingly integrated into state forest and conservation policy, e.g., the Swedish parliament has set desired target levels for the amount of VSA (Government Bill, 2013/14).*

Simonsson et al identified as

> *(…) important challenge for the future to develop long-term planning models in which both forms of protection and their spatial configuration are considered. To do this, integration of non-state and state governance processes will be necessary.*

FSC, with its multi-stakeholder based approach, can contribute to this integration process.

FSC as panacea? High expectations of ecologists do not match with the FSC concept

The two papers above, from Dias, F. S. et al. (2016) about 'Conservation zones promote oak regeneration and shrub diversity in certified Mediterranean oak woodlands**'** and from Simonsson, P., Östlund, L. and Gustafsson, L. (2016) about 'Conservation values of certified-driven voluntary forest set-asides**'** describe the benefits of FSC requirements for conservation area. In contrast, another group of researchers, Marina Elbakidze and three coauthors, evaluated the role of FSC certification on biodiversity conservation at different spatial scales in Lithuania. Those scales are however not necessarily relevant to the scope of FSC certification in the country. Expectedly, Elbakizde et al. (2016) concluded that FSC was not fully efficient for biodiversity conservation. More particularly, they compared previously legally protected forests with voluntary set-aside forests following FSC requirements. The comparison is based on the area, and the structural and functional connectivity of those forests, at different spatial scales. The authors are looking at the 36 FSC indicators that aim at biodiversity conservation, and conclude that:

> *there were no indicators relevant to the scale of ecoregion*". "*There will be no functional habitats for species requiring a habitat area of 1000 ha in any forest types, except pine and mixed coniferous forests*.

In fact, the authors do not specify if such functional habitats do exist in the country, which would also depend on historical decisions from the government (first two FSC certificates issued for Lithuanian forest management in 2002). The same issue is found for old growth forests which are said to be underrepresented in forest areas aimed at conservation.

Even though the method used is robust, the authors do not directly evaluate the implementation of the 36 FSC indicators aimed at biodiversity conservation. It is therefore difficult to draw conclusion on the actual impact of FSC in the ground by just looking at forest area and connectivity. This surely provides information but might be too much of a shortcut to generalize.

> *We argue that the FSC standard demonstrates a clear mismatch with current evidence-based knowledge related to biodiversity conservation*.

This conclusion should be pondered as 1) biodiversity conservation is not simply assured with set-aside areas but also with specific measures to be implemented in logged areas (Cf 36 indicators), which are however not discussed here. And 2), at a higher level, FSC's goal is to find a compromise between biodiversity conservation and socio-economical valuation. FSC is not a 'conservation' organization per se, although conservation is one of the goals of responsible forest management. To evaluate the value of FSC it is relevant to compare FSC certified forest management with the business-as-usual management in the same context.

No doubts, there are the sheer quantitative facts:

- *the total area of formally protected forests within the state forest enterprises was much higher than the area of voluntary set-asides*
- *the formally protected areas provided greater (functional) habitat connectivity of all forest types in comparison with voluntary set-asides*.

When the FSC M&E team discussed Elbakidze et al. findings within FSC, we learned that 17.64% (1.151.670,57 ha) of the territory of Lithuania belongs to formally protected areas. Moreover, 27,6% (606.085 ha) of all forests are formally protected. This includes various regimes of formal protection according to requirements set for I-III forest groups (group IV is commercial forest). Therefore it is natural that 5% of voluntary set-aside areas (no management activities at all) is less than officially protected forests and that formally protected areas provide greater habitat connectivity off all forest types vs. voluntary set-aside areas due to the area they cover. Only 1,1% (24.945 ha) of all forests in Lithuania belong to Ist forest group that is strictly protected by law with no management activities. But each certified forest management enterprise has voluntary set-aside 5% of their forest area for strict protection.

In this light FSC standard requirements are much higher compared to national legislation as certified operations voluntary set-aside forests (exclude from any type of commercial activities) not only in officially protected forests, but also in forest group IV for, e.g. woodland key habitats or other old growth forests that don't have any legal protection at all.

Therefore it is important to evaluate and understand what Elbakidze et al. consider formally protected forests and formally protected areas, as voluntary set-aside areas are different from what it is officially protected in the country. In many cases set-aside areas are supplementing the official protection by providing additional habitat connectivity, which is not covered by national laws. In addition we would like to remind the FSC Principle 1 require compliance with all applicable laws, in other words: FSC set-asides are not intended to replace legally protected areas. There is no

argument against the fact that FSC set-asides provide more biodiversity benefit on the small-scale than on the landscape-scale, but the additional areas protected by FSC can function as a complement to legally protected areas. This is especially true for 'Woodland Key Habitats', which often represent smaller habitats that are rare in the landscape but important for threatened species biodiversity, as elaborated for example by Laita et al. (2010). Further, a number of previous scholars described that due to the audit routine in FSC certified operations, there are effects of "soft" law enforcement, with less illegal activities and better protection in certified compared to not certified operations, and over time research might be able to evaluate the development of voluntary set-asides compared to formally protected forests.

①②④⑤ Chicken or hen? Management plans, economic development, deforestation

Another research paper from 2016 was questioned by experts: An article in Land Use Policy early 2016 by Brandt, Nolte & Agrawal, titled "Deforestation and timber production in Congo after implementation of sustainable management policy", concluded that deforestation were higher in forest concessions with forest management plans (FMPs) than in those without.

A group of more than twenty researchers around Karsenty, all familiar with the problems of forest management in Central Africa, conducted a study in response to the previous study published in Land Use Policy by Brandt et al. 2016. The authors firstly highlight several methodological biases and misinterpretations of FM that led Brandt and collaborators to draw their conclusion: Brandt et al. results are based on matching randomly selected plots in concessions with and without management plans. They suggest that the network of forest roads more developed in managed concessions is one of the explanatory factors. Another factor would be local development connected with specifications of FMPs, which would lead to an increase in population in these concessions and increased deforestation.

In response to Brandt et al.'s publication, the big groups around Karsenty analyzed deforestation at concessions level over the same time interval. Their results show that, this time, deforestation is lower in concessions with FMPs than in the others. They performed a comparison of deforestation rate in forest operations with and without FMPs using satellite imagery. They find that in their comparative analysis of deforestation with production remaining constant,

> *concessions with FMPs are approximately twice as efficient as those without; per cubic metre produced, gross loss of forests cover was lower by half in concessions with FMPs. We do not argue that forest management planning reduces deforestation because we understand that there are other factors which play essential roles. The dynamics of these other factors need to be analysed, to avoid systematically attributing deforestation trends to forest management plans, or giving them a greater role in than deserved.* The authors concluded that *(...) during 2000-2010 in North Congo, deforestation rates were higher in the seven (7) main FMUs without FMPs (all of which were harvested during this time) than in the six harvested FMUs with FMPs.*

Specifically related to economic development of both the concession and the local population, they point out that:

> *In fact, development of local communities and social programmes in the form of "social contracts" are characteristic of responsibly managed concessions, especially those certified by the FSC. Roads and economic development do stimulate human population growth in responsibly managed concessions ("Economic development [...] has led to a 69% growth in human population [...]"), which increases pressure on resources and land that may result in some deforestation for agriculture. Although the article also acknowledges the contributions of responsible forest management to economic development and the social benefits of enforcement of national laws that require the creation of on-site processing units and other social obligations including the provision of health centres, schools, and transportation infrastructure, it neglects to recognize the unavoidable consequence of these contributions to social welfare that result in increased local populations that, in turn, leads to increased deforestation, all else being equal.*

②⑦ Brazil: FSC certified forest management does care about future stocks

Tritsch et al. (2016) evaluated "*Multiple patterns of forest disturbance and logging shape forest landscapes in Paragominas, Brazil".* Their study proposes a method to detect, track and evaluate the impact of forestry activities and the associated management practice at the landscape scale using satellite images. It then uses this method to compare conventionally logged forests, FSC certified forests and forests without information on their management practice according to disturbance indicators and across a 15 years period in Brazil. The main shortcoming of the study is that the analysis are limited to descriptive statistics. Even though the trends observed are clear, inferential statistics should have been used to be able to conclude on the effect of management practice.

During the study period, the cumulative disturbance was on average only 5% in FSC certified forests, while it was 12% in conventionally logged forests, and reached 35% in forests with undefined logging practices. Over a 15 years period, FSC certified and conventionally logged forests were logged only once, while forests with undefined logging practices were logged almost three times. This result clearly suggest that the most impacted forests were illegally logged.

The comparison of the four disturbance indicators in conventionally logged and certified plots shows the positive effect of FSC requirements in reducing the impacts of logging as far as canopy opening is concerned. The authors conclude that their

> *disturbance indicators showed that the patterns of forest disturbance through time are much more favorable for forest cover inside a logging company with a FSC certified forest management plan than outside, where many actors mine the forest resources without any concerns for future stocks.*

①②③ Benefits: Learning, improved governance, empowerment, reputation

Carlson & Palmer (2016) reviewed literature to examine the different types of benefits associated with eco-labeling (FSC and MSC) in developing countries. In their "*Qualitative meta-synthesis of the benefits of eco-labeling in developing countries"* they include 28 FSC case studies, among which 13 were actually included in a meta-synthesis (i.e. a statistical procedure aimed at analyzing qualitative studies and detect categories of, for instance, benefits associated with FSC certification).

The introduction section includes an interesting overview of commonly cited benefits and limitations associated with FSC certification in developing countries. The results suggest that

> *the hypothesis that certification results in substantial benefits for producers, beyond immediate financial benefits, that have the potential to offset the costs of certification is confirmed. In all case-studies producers expressed satisfaction with the certification, mostly due to governance and social benefits.* Especially, three categories of benefits have been detected: learning, government support and empowerment, and reputation. More particularly,
>
> ***learning*** *was the most prominent and generalizable benefit of certification to emerge from our analysis […] all case studies showed evidence that certification promoted heightened producer awareness of environmental issues and the impact of their activities on the environment."* Moreover, *"Learning was also manifested through both increased stakeholder participation, including increased formal training opportunities, and improved management efficiency* […] *derived primarily from the deployment of new management techniques, enhanced monitoring, and enhanced data collection. This benefit* (improved management efficiency) *was experienced by 92% of the forestry firms* […] *and by both industrial and small-scale firms.*
>
> *A second broad theme that emerged from our analysis concerns the interrelated issues of improved governance and producer empowerment.* […] *This finding suggests a heightened awareness of the role government might play* […] *in over 76% of the forestry studies. Government support of certified firms tended to take the form of regulatory relief, tax benefits, public good provision, and preferential treatment in the allocation of resource access rights.* […] *Certification also provided stakeholders with more information about their rights, helping them to obtain legal recognition of customary land tenure.*
>
> *A final theme that emerged from our analysis is that producers benefitted from certification through improved reputation and prestige* […] *in 62% of the FSC studies.* […] *this benefit was much more common in cases involving small-scale firms.* […] *improved worker self-esteem and pride, even though they lack immediate private economic benefits, may in some cases be sufficient to drive continued sustainable resource management.*

Regarding financial benefits, improved market access was reported by only 38% of the producers (i.e. not generalizable), and this was especially prevalent (60%) for industrial-scale companies compared to community-managed forests (only a third of them). Only two case-studies reported evidence of a price-premium and several others explicitly stated that no price premium was detected. There is therefore limited evidence for private economic benefits. Note that the method used cannot identify causal relationships between certification and the benefits detected; it simply detect a correlation. Moreover, the study is subject to sampling bias in that it only focuses on studies that present certified producers and does not perform a comparison between certified and uncertified producers. Therefore, it fails to provide counterfactual scenarios and to draw robust conclusions on the true positive impacts of certification. Therefore the authors propose to conduct further research

> *to understand the type of government support offered, the intensity of this support over time (pre- and post-certification), and whether support to some firms encouraged other firms to consider certifying (…).* and to compare (…) *the benefits of both certified (adopters) and uncertified producers (non-adopters)*.

FSC as well as other certification schemes under the ISEAL umbrella are interested to engage with researchers looking into related research questions (see our “Call for research” on fsc.org).

③⑥⑫ European smallholders improve forestry through certification requirements

Small forest holders own approximately 55 % of European forests. Guilio Di Lallo and four other team members aim at determining 1) the kind of impact that FSC certification have on European smallholders and 2) what aspects FSC should focus on to facilitate small and/or low intensity managed forests (SLIMF) getting certified and to maximize benefits of certification. They provide new insight into the management of small forest enterprises (SFE) in Europe by analyzing 76 reports about FSC certified forest management from 31 European countries. Specifically they look at the SFE’s “non-conformities” with the FSC standard requirements, as identified by the auditors. The concept is, that such non conformities needs to be addressed with “corrective action requests” (CAR), and implemented by the forest management within defined timeframes. Such a “closed non-conformity” can be regarded as a proxy for a direct impact of FSC interventions, and improvement of forest management practices in compliance with the FSC standard. A limitation of the method used is that, as mentioned:

> *improvements* (of forest management) *made in preparation of the certification audits cannot be recorded, so available data are likely to underestimate the benefits provided by certification*”.

Di Lallo et al. (2016) find that

> *Principle 6 has the highest number of non-conformities. It concerns practices which can threaten biological diversity, water resources, soils, ecosystems and landscapes. In particular, 6.1 deals with assessments of issues caused by forestry practices*.
>
> *The criterion that has the highest number of non-conformities is the 7.1 (…), which concerns the description of the forest site. Findings indicate that small owners have difficulties in writing, implementing and keeping updated an appropriate forest management Plan*.
>
> *The Criterion 2 of Principle 4 also counts numerous non-conformities (23 major and 4 minor); this criterion refers to social aspects related to forest management, with special regard to workers' health and safety and that of their families*.

The authors firstly conclude that

> *FSC certification can improve the social conditions for forest workers and can deliver a number of benefits for a wide range of stakeholders in the forest industry (…)* since *a third of Small Forest Enterprises (SFEs) do not meet all applicable laws or regulations covering health and safety of employees and their families*.
> Similarly, they hypothesize that (…) *forest certification might enhances biodiversity levels* (because) *Principles 6 and 7, concerning environmental impacts and management plans, had the highest number of non-conformities (…)* and that putting CARs into practice should (…) *encourages better management techniques and can reduce negative environmental impacts*.

Secondly, the study highlights that certification costs is the most critical limiting factor for smallholders. Also, costs are likely to exceed benefits of being certified, especially on the short-term but also on the long-term for smallholders.

Finally, the authors propose some measures to boost forest certification among smallholders

> *simplifying the requirements that are still too strict for a company owning <100 ha; reducing certification costs; promoting forms of aggregation between private and public companies; supporting the access of SFEs to high-value markets*. They also underline that *(…) the number of SLIMF certificate is still low, especially in comparison with other certification schemes.*

Di Lallo et al (2016) findings do not come as a surprise to FSC, but here they are based on a broad set of European samples. FSC is engaged as multi-stakeholder organization to discuss such proposals, to identify partners and solution for more distributive equity. The FSC "New Approaches to smallholder certification" program is set up and dedicated to designing an FSC system for, and by, SFE managers. Di Lallo's findings are shared with the "New Approaches" team, and researcher and the FSC team are in contact.

(④, ⑫) Russia: Managed citizenship and the need for 'enabling conditions'

In the 2015 M&E Report we referred in more detail to the paper from Tysiachniouk & Henry (2015) who examined the political implications of FSC certification and its requirements for participatory governance by focusing on three case studies in Russia, drawing upon data from 2002 to 2014. They argue that one of the unintended by-products of forest certification is the advancement of a specific type of citizenship, what they call "managed citizenship". They explain that FSC certification has had a variety of impacts related to introducing a new model of democratic governance and citizenship in Russia. Maria Tysiachniouk and coauthor explain that prior to certification, the terminology of 'stakeholder' was virtually unknown, as was the concept of stakeholder rights and responsibilities. Tysiachniouk & Henry (2015) say that these new ideas about stakeholder citizenship remain in some tension with both local conceptions of firms' obligations to communities and with the role that the Russian state sees for itself in forest governance. The authors find that beyond the certified operations, the FSC governance processes have fostered new varieties of public engagement and new models of governance in Russia, encouraging intersectoral dialogue between NGOs and business – dialogue that had not previously existed. They summarize:

> *FSC certification also injected global norms and values into political discussion at the local level in Russia. Requirements for FSC certification, combined with NGO pressure, have forced companies to adopt new approaches to corporate social responsibility that include closer interaction with local communities. One of the most notable aspects of this engagement in the Russian context was that the role of the government, generally the dominant actor, was absent. Government interests were just one of many stakeholders at the local level rather than the primary decision-maker, and the government is not formally incorporated into the decision-making institutions of the FSC.*

In 2016 Tysiachniouk & McDermott focus on the importance of "enabling conditions" needed for an effective implementation of the FSC standards: the need for "multi-scale advocacy coalitions", in this case in Russia. Specifically for the situation in Russia, and compared to Di Lallo et al. (2016) above, Maria Tysiachniouk and coauthor (2016), come to different conclusions regarding FSC's impact on local communities and SFEs. While both authors in earlier papers describe the potential value of FSC stakeholder engagement, and somehow as continuation from findings in the Tysiachniouk & Henry (2015) paper, here they show that

> *(…) FSC's requirements for the protection of HCV forests were supported by strong and sustained transnational environmental networks, stretching from the node of design to the site of implementation, working both inside and outside of the FSC system." "Even with the extra efforts of this NGO, however, the impact of certification on the distribution of material benefits to local communities was minimal. In particular, certification failed to address local community concerns over the loss of small and medium forest enterprises, the high price of fuelwood, and loss of local access to sawnwood and building materials.*

Tysiachniouk & McDermott see the urgent need for multi-scale advocacy coalitions to ensure the effective implementation of global standards like FSC. Again FSC is engaged as multi-stakeholder

organization to discuss such proposals, to identify partners and solution for more distributive equity. The FSC New Approaches program is one of these efforts.

① Certification & RIL: likely associated with social and environmental benefits

Zuzana Burivalova et al (2016) reviewed literature for a qualitative synthesis to evaluate the environmental, social, and financial impacts of (i) certified and/or Reduced Impact Logging (RIL)[11] based industrial forest management versus conventional industrial forest management; (ii) Community Forest Management (CFM) versus open-access use of forest resources by local inhabitants; (iii) certified CFM versus CFM; and (iv) certified industrial forest management versus certified CFM. Their study is restricted to tropical forests. From each study, they extracted information on whether one management regime was better, the same, or worse for a particular variable and presented this overview of research papers in a table. Burivalova and team found that forest management certification and RIL management brings substantial environmental benefits, which are typically achieved at a cost of reduced short-term financial profit, and accompanied by some improvements to the welfare of neighboring communities.

The five researchers in Burivalova's research team find that forest management certification and CFM often do not seem to be financially sustainable without external subsidies, at least over the short term and until positive externalities of good management are captured. (This seems to be in contrast to the findings of the WWF International (2015) papers, although the Burivalova paper focusses only on tropical forestry, and the WWF paper identifies financial balance in average after six years of certification, which might be seen as mid-term). Improved market access and price premiums seldom seem to provide sufficient incentive for certification, as reflected by its slow uptake by industry and communities in tropical and subtropical forests. Burivalova et al conclude that

> *certification is likely associated with social and environmental benefits that justify its promotion, despite it being often less profitable than conventional management. Most importantly, it appears that deforestation rates are reduced in certified areas. Through employment of RIL practices and generally lower extraction intensities, certification is also associated with less deleterious impacts on biodiversity. Certification also appears to be associated with improved welfare of certified communities and communities living in the vicinity of certified industrial concessions. However, more research is needed to substantiate these results, especially on the potential trade-offs and leakage effects.*

Burivalova and team present with their 'table 1' an excellent graphical overview of the available data (research papers) on environmental, economic, and social variables, combined with a link the fully detailed information a very illustrative, useful example of how research papers about FSC can be

[11] The concept of "Reduced Impact Logging" and the application of RIL techniques are the logical consequence, and a subset, of FSC requirements such as under Principle 6 "Maintain and enhance biodiversity" in the FSC Forest Stewardship standard, which is again is one out of ten FSC principles.

presented. The FSC M&E team is grateful for this presentation and intends to learn from it for the benefit of future M&E reports.

① WWF: Financial benefits of FSC certification tend to outweigh costs

In late 2015 Breukink et al. for WWF International published “Profitability & Sustainability in Responsible Forestry”, a literature review study seeking to advance knowledge about the impact of FSC certification on a company’s “bottom line”, including primary research on 11 forestry entities operating across four continents. These 11 participating companies represent a range of sizes, geographies, and sub-sectors. More than 500 original data points were analyzed to assess upfront investments, annual costs, annual benefits, and the overall net present value (NPV) of the decision to pursue FSC certification.

The clear outcome of the study is that for the forest operations evaluated, the financial benefits of FSC certification tend to outweigh the costs, albeit with high company-by-company variance. Based on this sample WWF found that it took the companies, on average, six years to break even on their FSC investment. (A certificate is issued for 5 years, which means that operations should apply recertification to see the financial benefit.) The business case for the companies in the WWF sample was strongest for tropical forest operations and small/medium producers (regardless of geography) who experienced significant financial gains, while temperate and large producers experienced small losses. On average, the companies earned an extra US$1.80 for every cubic meter of FSC-certified roundwood or equivalent, over and above any new costs, due to price premiums, increased efficiency, and other financial incentives. The WWF study shows the value that FSC can add to forestry assets, but like many other studies, it is clear that this value depends on company context.

With this research design WWF is aiming to establish a common methodology, and to provide researchers a basis for further assessment of the economic impacts of FSC. WWF suggests that FSC could facilitate research by making anonymous economic indicators part of its annual reporting requirements. Based on their findings the researchers support the common view of FSC as a proxy for lower risk and higher profitability in the forestry sector, and their research design as a step towards the development of a tool to support decision making processes of finance institutions.

⑪① Best practices for sustainable, responsible investment in ‘planted forests’

A group of forest economists and social science experts with field experience analyzed the value of “planted forests” for responsible investments. Investments in industrial-scale planted forests have grown exponentially in recent years and are included into investment portfolios for various reasons (e.g. diversification, risk mitigation, attractive returns). The rapid growth of planted forests may incur negative social and environmental impacts. Thus, investment companies and fund managers are increasingly interested in using tools (e.g. standards, guidelines, and codes of conduct) to categorize sustainable and responsible investments in planted forest, according to their capacity to

address environmental, social and governance issues. FSC certification is among the 5 tools with the highest overall performance of more than 50 tools tested (Brotto et al 2016).

Some FSC M&E reflection of 2016 research papers on certification

The above mentioned, from FSC M&E perspective selected research papers and the findings we extracted are a most welcome contribution of independent academia to the work of the FSC M&E program. The public FSC forest management reports are a useful source of information about potential impacts of certification on specific forest management operation level. The M&E team, as this report shows, draws also conclusions about the effects of forest certification. But our resources do not allow to invest in own research or to commission significant amounts of third party. Therefore we are most grateful for any research time invested by critical academia, and we do share research findings within the FSC network, to learn from research, and to strengthen the FSC system.

Generally speaking, beside many valuable research and interesting outputs about FSC effects, constraints and impacts, there are a few studies published in or close to 2016 which continue to show some misunderstandings about the mission and functioning of FSC certification. Particularly, authors that aim at evaluating the ecological impacts of certification tend to have high expectations. It seems that some authors forget that FSC's role is to get stakeholders with conflicting interests in forests and forestry at a table, to develop and agree on standards for responsible forest management. These standards are the guideline to certify forest management, thus including social and economic components, rather than assuring the highest environmentally-friendly possible activity, i.e. irrespective of the needs of local populations and market realities.

Also, studies that attempt to explore the impact of forest management certification do often so at a relatively local scale, or on a region characterized by a specific socio-ecological context. This is relatively unsurprising given the cost and time needed to collect data in the field by researchers. With very few research implemented at the global scale, it is *de facto* difficult to generalize on the general impact of FSC certification. The collection of data for the production of robust and global impact analysis could greatly benefit from the joint support of stakeholders involved in the certification process. For example, forest managers and certification bodies do have very valuable field data (e.g. state of the FMUs before pre-assessment visit and certification; digital GIS data) needed to run spatio-temporal analysis, but access to these data is usually limited.

FSC M&E most welcomes any researcher interested in work related to certification, to discuss the above mentioned issues!

Examples for FSC-conducted marketing research projects and outcomes

For research outcomes from the FSC Business Development Unit see section 'Certificate holders' perspective' (page 41ff), and FSC (2015c,d).

Promoting responsible forest management politically ⑫

The FSC governance structure and stakeholder engagement

In standard development and FM certification processes, stakeholder engagement at national and international levels is important for the acceptance and the improvement of the FSC system. The FSC stakeholder systems that balance economic, environmental, and social aspects encourage interaction and allow solutions to be developed for FM requirements of standards and policies acceptable for all parties.

FSC membership at global level

FSC is governed by its members. FSC Asociación Civil (FSC AC) is the international membership body. The FSC AC membership nominates and elects the FSC Board of Directors annually. The general assembly is the Council's highest decision-making body. Every three years, members of the social, environmental, and economic chambers (further split into subchambers of global North and global South) come together to discuss the political direction of FSC. These members may be organizational – representing organizations (e.g. environmental NGOs, furniture companies, labour unions) – or individuals, such as researchers. Within one chamber, individual members are collectively allotted a total of 10 per cent of the voting power of the respective chamber. The number of members per chamber does not influence the voting power of the chambers: each chamber has the same weight. Those applying for FSC membership require supporting letters from existing FSC members, and members pay an annual fee. Individual members pay less than organizational members, and members in the economic South less than members from the North. This could explain the relatively high number of individual members in the social South subchamber.

The number of FSC AC members continues to grow over time. FSC takes this as an indication that it is able to interest people at a global level, that members find their financial and time investment is meaningful, and that the system is trusted.

At the end of 2016, FSC AC had 889 members – a few more members than at the end of 215 with 851 members, and 2014 with 842 members. Between 2010 and 2015, the numbers of individual members decreased in all subchambers except in social South, while the number of organizational members increased, except in environmental North. Compared to 2015, in 2016 all except one (organizational Environmental North) of the subchambers experienced a bit of growth.

In 2016, like in 2015, the economic chamber had more than half of all FSC members, and the social chamber had the lowest though slightly increasing membership (175 in 2016 cf. 141 in 2010). The subchamber with the highest number of members is Economic North (n= 252), the one with the lowest number is Social North (n= 70). In total, in contrast to 2010, the ratio of the number of members from Northern countries to Southern countries is also now more or less balanced in 2016 (Table 6). For the long-term trend, see also the overview given in Table 1 (page 8).

Table 6. FSC AC membership in 2010, 2012, 2015 and 2016, by type: chamber and sub-chamber affiliation, and individual vs organizational membership

Chamber	Type	2010			2012			2015			2016		
		Sub-chamb. North	Sub-chamb. South	Total 2010	Sub-chamb. North	Sub-chamb. South	Total 2012	Sub-chamb. North	Sub-chamb. South	Total 2015	Sub-chamb. North	Sub-chamb. South	Total 2016
Environmental	Individual	32	159	191	41	127	168	27	95	122	30	97	127
	Organiz.	89	30	119	90	28	118	84	32	116	83	34	117
	Subtotal	*121*	*189*	*310*	*131*	*155*	*286*	*111*	*127*	*238*	*113*	*131*	*244*
Economic	Individual	56	95	151	64	94	158	57	80	137	60	92	152
	Organiz.	120	58	178	172	82	254	195	116	311	197	121	318
	Subtotal	*176*	*153*	*329*	*236*	*176*	*412*	*252*	*196*	*448*	*257*	*213*	*470*
Social	Individual	23	68	91	34	67	101	31	63	94	30	68	98
	Organiz.	30	20	50	37	17	54	39	32	71	42	35	77
	Subtotal	*53*	*88*	*141*	*71*	*84*	*155*	*70*	*95*	*165*	*72*	*103*	*175*
	Total	**350**	**430**	**780**	**438**	**415**	**853**	**433**	**418**	**851**	**442**	**447**	**889**

Source: FSC Membership Program database, 2016.

In 2014 and 2015, we reported on developments in membership numbers, especially organizational members, in relation to the FSC general assembly (GA) (2014) and about the Social chamber (2015 report). We will conduct a similar analysis close to the time of the 2017 GA to see whether the undulation (the previous peaks of membership application prior to GAs) follows a stable pattern.

Nevertheless, it is important to recall here that each of the chambers has same voting weight, so the actual number of members does not matter in that respect, as the chamber-balanced voting system helps to avoid one chamber overruling other chambers' interests, which simple majority voting could result in. More importantly, FSC generally strives for decision-making based on consensus, so voting should simply be a pragmatic response to time constraints.

FSC network partners and membership at national level

Since the establishment of FSC in 1993, many individuals and organizations have been interested in liaising with FSC in its development and this has resulted in a one of the organization's strongest assets: a group of FSC network partners around the world. Network partners are defined as: "FSC partners on a national level with a cooperation agreement with FSC. This comprises FSC national offices,[1] FSC national representatives[1] and FSC national focal points[1]" (FSC, 2014). The level of interdependence between FSC and its network partners contributes to FSC's global aims because network partners, among others, agree to the national or regional FM standards, which help to position FSC as the benchmark in forest certification. Network partners also have a crucial role in advocating on behalf of FSC, maintaining good relations with local social and environmental groups, and in introducing companies to the FSC system at every level of the supply chain.

As of December 2016, there were 33 independent national FSC offices, three more than in 2015, as well as national and sub-regional offices established by FSC in 10 countries (see FSC Worldwide, fsc.org). In addition, service provision by regional offices in Africa, Asia Pacific, Europe, Latin America, and CIS countries is coordinated through FSC International[12]. Network procedures have been developed to ensure that all partners adhere to the FSC requirements for network partners.

Not all of these national offices offer membership options at national level (among the exceptions are China and Indonesia), and not all of those with national membership follow the FSC AC chamber system (exceptions include FSC in Canada, Japan, and The Netherlands). As with the membership of FSC AC (cf. Table 6), the economic chamber has the highest and the social chamber the lowest number of members at national level, but, again like FSC AC, each of the chambers has the same voting power.

FSC AC members and membership at national levels: distinctions and overlap

Both FSC AC and most of the national FSC offices are open for individual and organizational membership. An individual or organizational representative can therefore hold more than one membership: of FSC AC as an 'international' member, and at national level, if there is an FSC network partner with membership options. In a few cases, membership of an FSC national organization (Canada, Mexico, United Kingdom, and United States of America) includes membership of FSC AC. In December 29016 1,617 individuals or organizations were members of one of the FSC network partners with national membership, 10% more than in 2015 with 1,465 members (all excluding FSC US and FSC Canada membership). As Figure 4 shows, there are more

[12] The titles, roles and ownership of regional and subregional offices have changed over time, so that a direct quantitative comparison of the different institutions over time does not work any longer. Nevertheless the trend is that FSC invests more in having more support for service provision to FSC stakeholders, and for aligned work throughout the FSC group (FSC International and FCS Network).

members in the Economic chamber in the two other chambers together, way more in among the membership of the FSC network partners. But as for the FSC AC membership, the chamber-balanced voting system helps to avoid one chamber overruling other chambers' interests with simple majorities. Figure 4 does not show the number of members from FSC US and FSC Canada, which are per statutes both national and FSC AC members. Because the membership databases at national and internationals level are not aligned, we cannot currently evaluate how many of the FSC AC members are also members at national level, or vice versa (except for FSC Canada and FSC US).

Figure 4. Number of FSC AC members and total membership FSC network partners per chamber. NOTE: there are double memberships (same organisation or individual member of both FSC AC and one of the FSC network partners).

Sources: FSC Membership Program database, FSC Network database, as of December 2016.

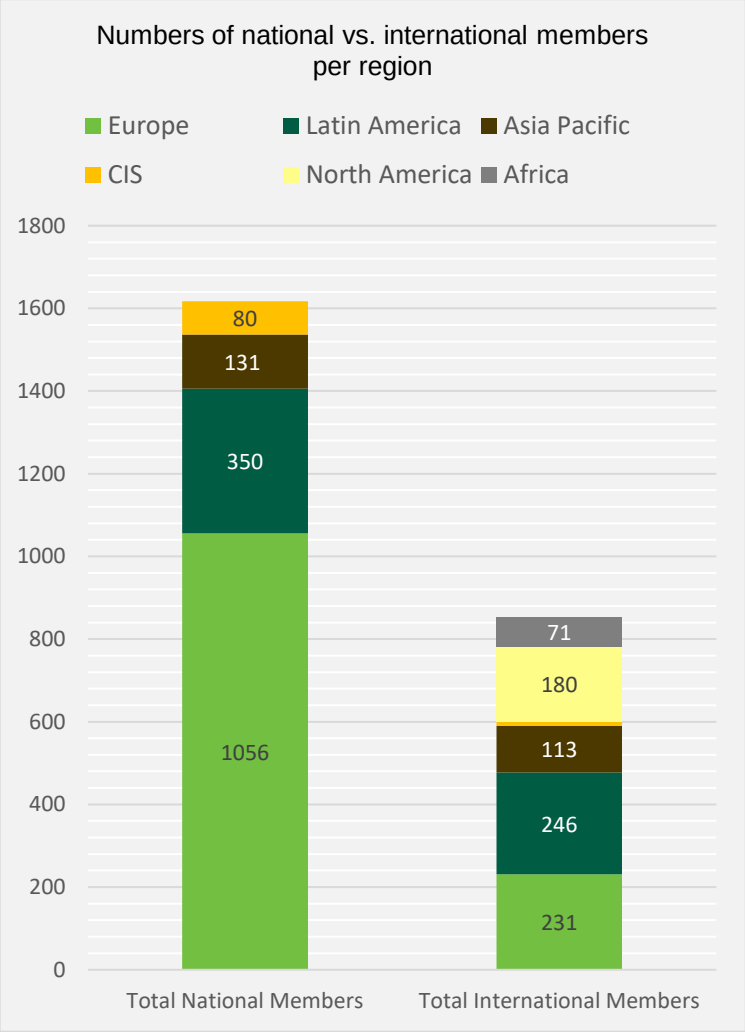


Figure 5. Regional distribution of membership in FSC AC and FSC network partner organizations ("National Members" excluding FSC US and FSC Canada).

Sources: FSC Membership Program database, FSC Network database, as of December 2016.

Figure 5 shows that Europe has the highest numbers of FSC network partner members, which reflects that the majority of the national offices (16 of 33) with membership options are based in Europe. South America has 350 national members (62 more than end 2015), with now more members organized in the 11 FSC offices than FSC AC (246 South American members). There are no national membership options in African countries. Figure 5 does not show the number of members from FSC US and FSC Canada, which are per statutes both national and FSC AC members.

Consultation processes ⑫

FSC brings people together to jointly develop solutions

FSC engages with stakeholders on different levels: in FM certification, for standard development and revision, for long-term strategies through GAs, and for many other issues. Consultations enable the public and relevant organizations and members to help develop acceptable strategies and solve problems. The aim is to involve everyone who is affected by an issue to help find the best solution – for FSC this often relates to the multiple interests in forests and their management. FSC has standards and guidelines for such stakeholder engagement processes, in line with, or stronger than, ISEAL Alliance and International Standards Organization (ISO) requirements. Sometimes a consultation will not address a specific problem, but will simply seek feedback and opinions on a topic. In addition, more political documents (statutes, theory of change, global strategies, etc.) are also subject to consultation.

For most consultations, the FSC network, certification bodies, FSC members, and external expert groups are invited to comment. Ongoing consultation processes are promoted on the FSC 'Consultations' website (FSC, nd-a, https://ic.fsc.org/en/what-is-fsc-certification/consultations) as well as in newsletters, expert mailing lists, and other forums. We elaborated the Principles and Criteria review consultation in the 2013 report. We will evaluate the participation in consultations on the FSC Global Strategy process in a future M&E report.

FSC is working to reduce the number of documents by merging and streamlining them. In 2014, we reported the total number of documents of the FSC normative framework applicable at international level (52 documents, comprising 28 standards, 13 policies, and additional related normative directives, advice notes, and guidance documents). We planned to revisit and analyse these figures again for 2016 for this M&E report, but we postpone this to a later report. The full catalogue with, for example, information about document ownership, and approval and effective dates, is publicly available on the FSC website 'Document Centre' (FSC, nd-b, https://ic.fsc.org/en/document-center).

National forest stewardship standards, and certified area

The development of indicators for FM at national level within the framework of the FSC Principles and Criteria for forest stewardship is, politically, a special case of standard development, although the requirements for working group composition and consultation processes are the same. National FM standards are at the heart of the FSC philosophy of forest stewardship. These processes usually take years of negotiation within country. In addition, many national standards have to go through harmonization processes with neighbouring countries. One of the countries that engaged very early in this process was Sweden, where WWF Sweden convened a group with balanced representation of economic, environmental, and social stakeholders to negotiate the standard in 1993. In 1997, Sweden was the first country to have its national forest stewardship standard approved by FSC.

Researchers say that these national processes facilitate participatory forest policy processes and better policy definition, and that they have strong impacts on the ability of civil society and stakeholders to bring issues to the table around workers' rights, tenure, and health and safety standards in FM (see Karmann and Smith, 2009).

For 2013, 2014 and 2015 we calculated the FSC certified areas in countries with FSC endorsed national standards, compared to the total FSC certified areas. By the end of 2015, there were 26 countries with endorsed national standards and one regional standard covering six countries,[13] with a total certified area of 150.8 Mha held by 818 certified forest operations. These figures represent 80.5 per cent of the total 187.2 Mha FSC-certified forest area, and 60 per cent of the 1,372 certified operations in 80 countries. (In 2014, these were 141.2 Mha by 748 operations, covering 77 per cent of the total certified area, and 57 per cent of the certified operations, with very similar figures in 2013.) In 2016 the national standard development groups (SDGs) continued their work, which was initiated in 2014/15: the development or revision of existing national standards, based on the gap analysis in relation to the international generic indicators. Bulgaria and France concluded this process in 2016 and got endorsement for its National forest stewardship standard, based on Version 5 of the FSC Principle and Criteria. Many more SDGs will conclude this process in 2017. We will do the next calculation of FSC certified areas in countries with FSC endorsed national standards, compared to the total FSC certified areas when the transition process of national standards based on Version 5 of the FSC Forest Stewardship standard is concluded, tentatively in 2018.

The list of all countries with their status – endorsed working group and/or endorsed national standards – is available on the FSC web page 'Document Center', there under 'National forest stewardship standards' (FSC, nd-g https://ic.fsc.org/en/document-center).

[13] The Regional Standard for the Congo Basin Countries covers six countries: Cameroon, Central African Republic, Republic of Congo, Democratic Republic of Congo, Gabon, and Equatorial Guinea.

Effects on community relations and forest work: Dispute resolution through FSC

Many conflicts related to FM are addressed and settled during certification processes. Before conflicts are brought to the attention of FSC International, they can be addressed between the complainant and the certificate holder or the certification body, using the dispute-resolution strategies required by FSC. If needed, FSC national representatives can be asked to mediate. Only a few cases related to the approximately 30,000 certificates granted by FSC have not been solved locally or at national level. At the highest level of FSC International, the FSC Dispute Resolution System has contributed to driving positive change for the benefit of marginalized people or the ecosystem in various cases.

In the 2015 M&E Report we detailed a case study about the “Transformation of the forest sector in Portugal”, which we see as a result of FSC interventions, which generated improvements in the forest industry sector through stakeholder engagement processes for consultation and dispute resolution, and whether it was creating an overall positive impact in the country. The study will be presented in more detail in a peer-reviewed Springer reader “Transforming the Sector” in 2016/17.

More cases about effects of FSC related dispute resolution processes will be reported in subsequent reports.

Certificate holders’ perspective

Forest management recertification

The benefits of being certified are sometimes questioned, and the direct and indirect financial investments needed to comply with FSC requirements and for audit costs are reported to be challenging. Both benefits and challenges depend on many factors, including quality of FM, experience of foresters, size and location of operations, market demand, and market access. It is assumed that those forest managers who decide to invest in recertification at the end of the first term of certification do perceive benefits from being certified, which are at least equal to or higher than the costs of certification.

After a successful main evaluation, and subject to annual audits, in most cases an FM certificate is issued for a five-year period. After this period, the certificate holder can apply for recertification for a further five years.

FSC FM certification was tested before 1993, and the first FM certificate was issued in 1993 in Mexico, while the first CoC certificate was issued in the USA. Since 1996, independent certification bodies have been accredited to use the FSC standards, and the first formally certified and labelled FSC product (a wooden spatula, in the UK) went on sale that year.

Figure 6 illustrates the duration of the FM certificates from the early days of FSC to 2016. (We reported the 2013 figures with a different graphic design.)

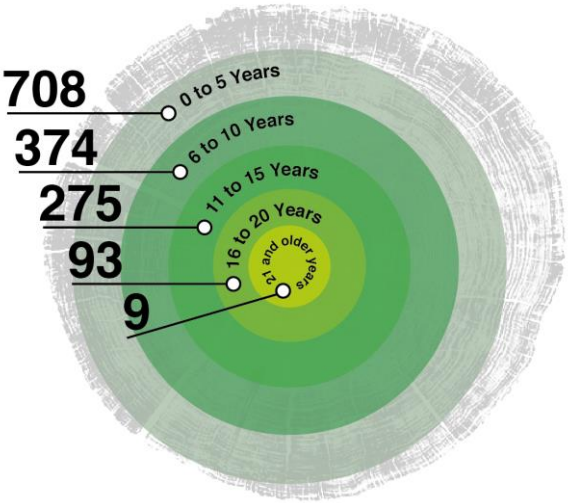


Figure 6. Duration / renewal of forest management certificates up to 2016

From 1,462[14] certified FM operations with a valid FSC certificate end 2016, some 48.5 per cent (708) were certified for the first time, while 51.3 per cent (751) were certified for at least[15] a second term. In other words, more than half of the certified forest operations got their first FSC certificate more than five years ago (prior to 2011). Of these 751 recertified operations

- almost half (374) were certified for a second cycle (first certified between 2007 and 2011)
- 37 per cent (275) were certified for a third cycle (first certified between 2001 and 2006)
- 93 were certified for a fourth cycle (first certified between 1996 and 2000).
- 9 of those valid at the end of 2016 have been certified since the very early days of FSC (first certificate issued 1995 or earlier).
- For comparison: in late 2000 a total of 284 FM certificates were valid, in 2006 860 certificates.

Reasons given for termination of forest management certificates

For 97 forest management operations the certificate ended (3 FM and 94 FM/CoC) in 2016. (In 2015 the corresponding numbers are 142 certificated issued, 98 certificates ended).

[14] For 3 of the 1462 certificates it was not clear when there were first issued.

[15] If the certificate had been terminated for any reason, the same FM entity applied for a new term of certification under a new name, or if the organization changed certification body, the older certificates do not show up in the figures. If the certificate was suspended it is included in the figures.

From the 97 forest management operations whose certificates ended in 2016, 36 had their certificate for the first time – not longer than 5 years, and another 36 lost the certificate after it was reissued after a 5-years cycle. 19 had their certificate for a third, and 4 for a fourth term (since 16 years or longer). Two of the 97 merged with a group certificate (so their forest areas are still certified, but under different codes).

Certification bodies have to report the reasons for termination of certificates, following the three main categories “administrative”, “forced” or “voluntary” reasons. In some cases, the certificate holders give these reasons, in the others the auditors do:

- 15 of the FM/CoC certificate holders became members of group certificates or changed their certification body, so their forest areas are still certified, but under different codes (“administrative”);
- The majority of these FM/CoC certificate holders decided not to continue with FSC certification, and they gave different reasons: they do not need the certificate (lack of demand), the certificate is too expensive ④, or because the business closed;
- 20 of these certificates terminated because the corrective action requests (CARs) were not implemented, or because the FM did not comply with other contractual commitments with the certification body (which might also be a way to ‘voluntarily’ end the certificate because they do not need the certificate or because they do not want to change their FM practices to comply with the standards)
- In some cases the “reason” given is “certificate expired at end of term”.

For a sound investigation why certificate holders decide to stay or to drop certification explicitly, excit interviews and more thorough research is needed.

FSC Global Market Survey and *Market Info Pack*

Since 2009, FSC has regularly surveyed all certificate holders (both FM and CoC) to seek their views, including a question on their motivation for applying for certification, and to obtain market information to guide FSC strategic development. The *Global Market Survey* is carried out every two years. The *Market Info Pack* (FSC, 2015d) also includes information about media coverage determined via media clipping analysis and findings from consumer awareness studies. In combination, the regularly updated *Market Info Pack* and the *Global Market Survey Reports* give a sound overview about FSC certification growth, market share, and indicators of the growth in supply and demand for FSC products, in the context of emerging trends within FSC and across various sectors. Some results from the 2014 *Global Market Survey* are summarized in the 2013 M&E Report (FSC, 2014a). Latest issues of these reports will be published later in 2017.

The survey to get data for the upcoming FSC *Global Market Survey* and the related research was conducted as in previous years by the independent research institute UZBonn of the University of Bonn, Germany. In fall 2016 the survey went out in 21 languages to all with valid FSC certificates at that point in time, to 1351 forest operations (FM/CoC, FM, CW) and to 29273 CoC certified operations, in 121 countries.

The response rate was 12 per cent, reflecting both forest and CoC operations in a balanced way. Preliminary analysis of the responses to the FSC Global Market Survey 2016 (in preparation for publication) indicate that, as in previous years, the wish to meeting client demand is the most prominent reason for becoming and staying FSC certified. Other reasons mentioned include: FSC certification is regarded as a way to communicate a company's sustainability policy, a way to show a commitment to responsible forestry, it facilitates market access, and that the FSC certificate gives a competitive advantage. FSC certificate holders are generally satisfied with their FSC certification: 83 per cent of FSC certificate holders are at least moderately satisfied with their certification (8 per cent indicated that they are extremely satisfied, 35 per cent are very satisfied and 41 per cent are moderately satisfied; whereas 12 per cent are slightly satisfied and 5 per cent not at all satisfied).

A detailed analysis of the method applied and the responses received will be published in the upcoming FSC Global Market Survey later in 2017. Updates about the recognition of the FSC logo and about media coverage below in this M&E report.

Recognition of FSC logo⑫

Consumer awareness is a critical success factor for FSC. When consumers recognize and express a preference for FSC-certified products, it is an important pull factor for companies to adopt certification. Surveys on public recognition of the FSC logo have been carried out in the past in various countries by FSC national offices and by third parties (see results from previous surveys in the M&E Report 2013 and in the FSC *Market Info Pack* **2013).**

Figure 7 illustrates findings from different studies conducted in the years 2013 to 2016 about prompted and unprompted awareness levels of the FSC logo in different countries. These studies have been conducted by different organisations with different designs, so this illustration is not meant for a direct comparison of awareness between countries, but more to give an indication about awareness levels.

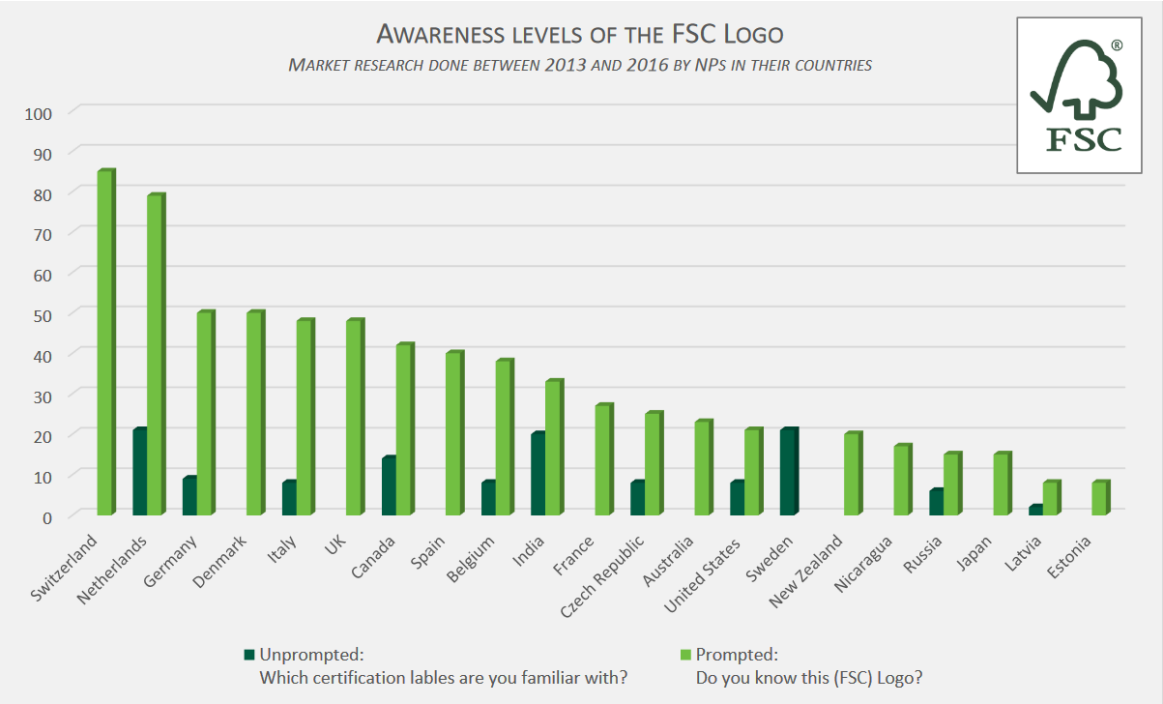


Figure 7. Awareness levels of the FSC logo in different countries as shown in studies conducted between 2013 and 2016

Research commissioned by FSC and conducted in the USA, Germany, and China showed that 49 per cent of respondents had seen an on-product FSC label. The survey also concluded that younger people were more likely to say that they had seen an FSC label, showing that sustainability is of strong interest to youth. Overall, FSC labels were strongly associated with being good for the environment and with sustainability[16].

FSC in the media

The FSC *Market Info Pack* team *reports that* over the 2016 period, the global media clipping data shows that FSC garnered significant media coverage (71%) as a forest certification scheme, most coverage being either positive or neutral (combined 94%)[17]. More detailed findings about the survey in the USA, Germany and China, as well as about the media coverage monitoring will be published in the next FSC Market Info Pack in 2017.

[16] B2B International on behalf of FSC International, Getting Our Labels Right – FSC consumer study. 2,013 respondents in the USA, China, and Germany. Overall margin of error +/-2.2% at 95% confidence.
[17] Meltwater global media clipping service, FSC benchmark report 2016.

Call for research

A large amount of information about FSC's impacts is generated within the FSC system through certification assessments of forests. Each FSC-certified FM operation must have an annual assessment, resulting in a report that describes the actions that the manager or owner has taken to gain, or maintain, their FSC certification. This information for the more than 1,460 (in 2016) certified operations is publicly accessible via the FSC Certificate database (FSC, nd-h) in summary reports.

FSC both promotes and follows independent research and case studies carried out by universities, research institutions, and other organizations. These studies include a wide variety of information types: analyses of certification reports and corrective action requests; ecological field studies; socio-political case studies; and economic analyses of timber markets.

There are a number of specific areas in which FSC would welcome external research inputs and collaboration. Together with the FSC Social Policy Programme, the M&E Program has identified the following priority areas for research:

- Direct and indirect cost-savings experienced by operations that switch from normal to SLIMF (small and low-intensity management forests) certification
- Potential synergies between FSC certification for smallholders and REDD+ (reducing emissions from deforestation and forest degradation)
- Costs and benefits of dual-certification schemes (e.g. FSC and Fairtrade) and their success in the marketplace
- Costs and benefits of contractor certification and its potential impact on the certification system.

We also encourage case studies on:

- Impacts of certification on the safety of forest workers
- Impacts of certification on Indigenous Peoples' land rights
- Impacts of certification on economic diversification (e.g. incorporating other revenue streams from forests, e.g. non-timber forest products)
- Social, financial, environmental, and institutional impacts of certification on SLIMFs and communities.

Figure 2 in the first chapter of this report, and Annex 1 to the 2014 M&E Report (FSC, 2015a) give an overview of FSC's intended impacts and related indicators, and invites researchers to support our research, especially related to our 'aspirational' M&E areas.

The FSC M&E Manager welcomes the submission of any research papers related to FSC certification and processes. Please contact m.karmann@fsc.org.

References

Bahaa-el-din L., Sollmann, R., Hunter, L.T.B., Slotowa, R., Macdonald D.W., Henschel, P. (2016) Effects of human land-use on Africa's only forest-dependent felid: The African golden cat Caracal aurata. Biological Conservation, 199.

Brandt, J.S Nolte, C. Agrawal, A. (2016). Deforestation and timber production in Congo after implementation of sustainable management policy. Land Use Policy, 52.

Breukink, G., Levin, J., and Mo, K. (2015) Profitability and Sustainability in Responsible Forestry: Economic Impacts of FSC Certification on Forest Operators. World Wide Fund for Nature, Gland, Switzerland. (Also available at http://wwf.panda.org/wwf_news/?250330, accessed 17 May 2017).

Brotto, L.; Pettenella, D.; Cerutti, P.O.; Pirard, R. (2016) Planted forests in emerging economies: Best practices for sustainable and responsible investments. CIFOR Occasional Paper no. 151; DOI: 10.17528/cifor/006136

Carlson, A. and Palmer, C. (2016) A qualitative meta-synthesis of the benefits of eco-labeling in developing countries**,** Ecological Economics, 127.

Dias, F. S. et al. (2016) Conservation zones promote oak regeneration and shrub diversity in certified Mediterranean oak woodlands, Biological Conservation, 195.

Di Lallo G., Masiero, M., Maesano, M., Marchetti, M. (2016) Analyzing Strategies to Enhance Small and Low Intensity Managed Forests Certification in Europe using SWOT-ANP. Small-scale Forestry, 15.

Elbakidze M., Manton, M., Razauskaite, R., Vogt, P. (2016) The role of forest certification for biodiversity conservation: Lithuania as a case study. European Journal of Forest Research, 135.

FAO (2010) Global Forest Resources Assessment 2010. Main Report. Food and Agriculture Organization of the United Nations, Rome. (Also available at http://www.fao.org/docrep/013/i1757e/i1757e.pdf, accessed 18 May 2017).

FAO (2015a) FRA [Forest Resources Assessment] 2015: Terms and Definitions. Forest Resources Assessment Working Paper 180. Food and Agriculture Organization of the United Nations, Rome. (Also available at http://www.fao.org/docrep/017/ap862e/ap862e00.pdf, accessed 17 May 2017).

FAO (2015b) Global Forest Resources Assessment 2015. Desk reference. Food and Agriculture Organization of the United Nations, Rome. (Also available at http://www.fao.org/3/a-i4808e.pdf, accessed 17 May 2017).

FAO (2015c) Global Forest Resources Assessment 2015. How are the World's Forests Changing? http://www.fao.org/resources/infographics/infographics-details/en/c/325836/ (accessed 17 May 2017).

FAO (2016) Global Forest Resources Assessment 2015. How are the World's Forests Changing? Second edition. Food and Agriculture Organization of the United Nations, Rome. (Also available at http://www.fao.org/3/a-i4793e.pdf, accessed 17 May 2017).

FSC (2014a) FSC Monitoring & Evaluation Report: Context, Figures, Effects and Impacts. Public Report 2013 (Revised version March 2014). Forest Stewardship Council, Bonn. http://ic.fsc.org/download.fsc-context-figures-effects-and-impacts-report-2013.1455.htm

FSC (2014b) FSC Theory of Change: FSC Intended Impacts and their contribution towards broader sustainability goals 2014-01 (VERSION 3) https://ic.fsc.org/en/what-is-fsc/what-we-do/demonstrating-impact

FSC (2015a) FSC Monitoring & Evaluation Report: Context, Figures, Effects and Impacts. Public Report 2014. Forest Stewardship Council, Bonn.

FSC (2015b) FSC's Theory of Change. (Factsheet). FSC International, Bonn. https://ic.fsc.org/download.fscs-theory-of-change.a-3976.pdf

FSC (2015c) Global Market Survey Report 2014. Forest Stewardship Council Global Development, Bonn. (Also available at https://ic.fsc.org/preview.fsc-global-market-survey-report-2014.a-6181.pdf).

FSC (2015d) Market Info Pack 2015. Forest Stewardship Council, Bonn. (Also available at https://ic.fsc.org/preview.2015-fsc-market-info-pack.a-5067.pdf)

FSC (2015e) FSC Monitoring & Evaluation System Report. Public Report April 2015. Forest Stewardship Council, Bonn.

FSC (2016) FSC Monitoring & Evaluation System Report. Public Report February 2016. Forest Stewardship Council, Bonn.

FSC (2016a) FSC Monitoring & Evaluation Report: Context, Figures, Effects and Impacts. Public Report 2016. Forest Stewardship Council, Bonn.

FSC (nd-a) Current consultations. https://ic.fsc.org/en/what-is-fsc-certification/consultations

FSC (nd-b) Facts & figures. https://ic.fsc.org/en/facts-figures

FSC (nd-g) National forest stewardship standards. https://ic.fsc.org/en/what-is-fsc-certification/national-standards

FSC (nd-h) Requirements & guidance. https://ic.fsc.org/en/what-is-fsc-certification/requirements-guidance

FSC (nd-j) Smallholder news & updates. https://ic.fsc.org/en/news/smallholders-news-updates

Heilmayr, R., and Lambin, E.F. (2016) Impacts of nonstate, market-driven governance on Chilean forests. PNAS, 113.

ISEAL [Alliance], the Sustainable Food Lab, and WWF (2016) Sustainability Impacts Learning Platform. http://www.sustainabilityimpactslearningplatform.org/

Karmann, M., and Smith, A. (eds) (2009) FSC Reflected in Scientific and Professional Literature. Literature Study on the Outcomes and Impacts of FSC Certification. FSC Policy Series No. 2009 – P001. Forest Stewardship Council, Bonn. (Also available at https://www.hcvnetwork.org/resources/folder.2006-09-29.6584228415/Impacts_report_-_Karmann_2009.pdf/view

Karsenty, A. et al. (2016). Do Forest Management Plans in Congo Lead to Greater Deforestation? Land Use Policy, 52.

Laita, A., Mönkkönen, M., Kotiaho, J.S. (2010) Woodland key habitats evaluated as part of a functional reserve network. Biological Conservation, 143.

Meier-Dörnberg, J., and Karmann, M. (2015) FSC certification: a solution for smallholders and community managed forests. ETFRN News 57: 164–171. (Also available at www.etfrn.org/file.php/316/etfrn-57.pdf)

Morgan, D. et al. (2013) Great apes and FSC: implementing 'ape friendly' practices in Central Africa's logging concessions IUCN Occasional Paper of the IUCN Species Survival Commission No. 49. https://portals.iucn.org/library/efiles/documents/SSC-OP-049.pdf

Price, F. (2010) The Nature Conservancy and tropical forest certification. In: Sheil, D., Putz, F.E., and Zagt, R.J. (eds) Biodiversity Conservation in Certified Forests. ETFRN News 51, pp. 105–111. Tropenbos International, Wageningen. (Also available at http://www.etfrn.org/publications/biodiversity+conservation+in+certified+forests)

Simonsson, P., Östlund, L. and Gustafsson, L. (2016) Conservation values of certified-driven voluntary forest set-asides. Forest Ecology and Management, 375.

Sollmann, R., et al. (2017) Quantifying mammal biodiversity co-benefits in certified tropical forests. Diversity and Distributions, 23.

Tritsch, I. et al. (2016) Multiple patterns of forest disturbance and logging shape forest landscapes in Paragominas, Brazil. Forests, 7.

Tysiachniouk, M., and Henry, l.A. (2015) Managed citizenship: global forest governance and democracy in Russian communities. International Journal of Sustainable Development & World Ecology, 22.

Tysiachniouk, M. and McDermott, C. (2016) Certification with Russian characteristics: Implications for social and environmental equity. Forest Policy and Economics, 62.

Van Kreveld, A. and Roerhorst, I. (2009) Great Apes & Logging. WWF Netherlands http://assets.wwf.ca/downloads/great_apes___logging.pdf

WWF (2015) WWF Certification Assessment Tool (CAT). http://wwf.panda.org/wwf_news/?246871/WWF-Forest-Certification-Assessment-Tool-CAT