

Effectiveness of forest certification and its role in a conservation policy mix

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Summary

Forest certification acts as a bridge between market regulation and environmental governance by furnishing specific criteria in response to consumers and buyers' demands that production practices ensure forest integrity and resilience. In this sense, voluntary certification acts as a non-state arbiter of conformity with quality and performance criteria in achieving socio-environmental goals. This chapter seeks to analyse the limitations and perspectives that forest certification may contribute toward biodiversity conservation as part of a broader policy context. The study describes a range of forest certification initiatives around the world, how they operate and who are the primary stakeholders involved. It also discusses key elements such as the institutional context and requirements for the instrument to be effective for biodiversity conservation and to minimise the negative socioeconomic and environmental impacts of forest resource utilisation. It concludes with a brief analysis of the role of forest certification in a mix of command-and-control and economic instruments.

Keywords

Forest certification, non-state regulation, multi-stakeholder standards, best practices, biodiversity conservation, FSC, PEFC, policymix, Europe, Latin America

1 Certification of forestry practice

1.1 Conformity of production practices with certification criteria

Certification is a procedure by which a third party gives written assurance that a product, process or service conforms with certain standards. It is also a guarantee of origin that is used to orient the consumer in product choice, with some form of added value, usually derived from environmental integrity and/or social fairness. Often certification schemes are considered non-state and market driven but typically they involve public sector actors and assume conformance with state regulation. The degree to which certification reflects autonomy and external verification varies. According to Conroy (2007), certification processes may be classified into three distinct stages, characterising different degrees of autonomy in verification and monitoring:

i) Codes of conduct or declarations of good intentions adopted unilaterally on the part of companies, known as “*First party certification*”. These have the advantage to call attention to the consumer regarding the form of production (socio-environmental footprint of the purchase), and not only what is being produced (price, quality). However, these instruments carry the risk of being used inappropriately as certificates or testaments of sustainability simply to avert criticism. Due to their unilateral character, these instruments offer limited credibility on their own and are mere expressions of the adopting organisations' willingness to enter a market and compete on the grounds of social acceptability and environmental integrity.

ii) Initiatives of business groups and associations in an activity adopting defined labels and certificates. This type of initiative has been called “*Second party certification*” since it includes the intervention of another actor, an association, besides the company itself. The certification schemes advocated by some states and groups of states can be considered to fall under this category, as the state is somewhat external to the certified producing companies (Cashore et al., 2005). It similarly allows the consumer to focus attention on aspects of production or on how internal corporate operations are conducted. Because they are verified by an actor external to the company, these certifications have a bit more credibility, but this depends on the credibility of the independence of the external actor with respect to the specific company under review.

iii) “*Multi-stakeholder*” initiatives, also called “*Third party certification*” are inspired by the “*stakeholders*” theory enunciated by Freeman (1984)¹. An important characteristic in this approach is that the “*third party*” is a non-state private regulator (Cashore et al., 2005). This approach seeks to manage social and environmental responsibility in response to concerns expressed by numerous interested or associated parties. It assumes that the company needs to invest in engagement with its “*stakeholders*” not only for ethical reasons but also to access and maintain a position in the market, achieve and maintain reputation and improve competitiveness. From this perspective, a company worthy of a certificate is one that is attentive to its stakeholders' concerns. Thus, this third category of certification instruments presents a completely different way of dealing with environmental responsibility, in which dialogue and interactions with and among stakeholders are of paramount importance. Certification thus challenges the traditional state-centred idea of regulation, as it shifts control and power from the public sector to the auditing third party and to final consumers. In doing so, it establishes a basis for consumer confidence, expressed in legitimation of third-party labelling.

1.2 Initiatives toward forest certification around the world

The movement in favour of forest certification began at the end of the 1980s, with commercial boycotts by consumers in Northern countries against logging of tropical timbers originating from deforestation. In this context, European and North American tropical wood consumers, concerned with their long-term business prospects formed an alliance for protection of tropical forests – the *Woodworker's Alliance for Rainforest Protection* (WARP), and published a “*Good Wood List*” in an effort to protect wood suppliers derived from “*good management*”. In 1993, representatives of NGOs, suppliers and buyers of wood met

¹ *Stakeholders are those groups that affect and/or are affected by the organisation and its activities. These can include, but are not limited to: landowners, administrators, functionaries and labour unions, clients, associates, business partners, suppliers, competitors, government and regulatory agencies, the electorate, non-governmental organisations/non-profits, pressure groups and opinion leaders, and local and international communities. In fact, the definition of the stakeholders' boundaries becomes a determining factor (Bodet and Lamarche, 2007). As J. Samuelson recalls: «...and if you discern who your stakeholders are, it is very likely that they will do this for you... » (Samuelson, 2008).*

in Toronto, initiating a process that led to the creation of the "Forest Stewardship Council" (FSC). In response to the lack of criteria to define what constituted good forest management practice, three international chambers, representing commercial, social and environmental concerns instituted 10 principles and a rigorous body of subsidiary norms (Azevedo-Ramos et al., 2006).

The FSC gained popularity also among northern timber producing and processing actors and states, partly spurred by the general trend of searching for forms of governance alternative to state control in both North America and Europe (Cashore et al., 2003; Rametsteiner and Simula, 2003). In some cases, the evolution of the FSC stimulated fierce dialogue between different forestry regimes and sustainability standard controlling systems, with forest industries and timber producers dominantly favouring national certification schemes at the outset (Cashore et al., 2003). With further legitimacy pressure from markets and environmental NGOs, many northern timber processing and consuming countries dependent on international markets eventually also adopted the FSC system (Cashore et al., 2003; Gulbrandsen, 2004). In countries such as the USA, Finland and Norway, where landownership was predominantly small-scale and the forest sector was relatively powerful, the national certification systems maintained their position of dominance over the FSC.

The European national forest certification schemes are grouped under the Pan-European Forest Certification (PEFC) scheme, which functions as a rather open umbrella, but which is internationally powerful due to its large geographical coverage. Clearly, throughout the disputes, the FSC has remained popular among environmental NGOs, and has continued to attract companies and regimes that are most sensitive to market and social legitimacy pressures.

Internationally, voluntary forest certification has evolved since its inception in the 1980s, and now embraces a range of systems in operation which are in competition. Among these, the principal labels include:

- **Forest Stewardship Council - FSC**, is an international non-governmental organisation, founded in 1993, which accredits certifiers throughout the world, guaranteeing the certified parties obey strict quality norms. Certifiers undertake a methodology based on the FSC Principles and Criteria (P&C; see listing in Annex), adapting themselves to the reality of each region or production system. The FSC has decentralised into a number of national or regional initiatives, which have developed their own respective P&C, adapted to local technical conditions, forest resources and legal context.
- **Programme for the Endorsement of Forest Certification Schemes - PEFC** (originally Pan European Forest Certification). The PEFC Council was created in June 1999, also of voluntary nature, based on its own criteria defined in the Helsinki and Lisbon Conferences of 1993 and 1998, respectively, on European Forest Protection. A primordial objective of this system is the recognition of different systems operating in the European Community. However, PEFC schemes embrace those adopted in other regions as well. For example, the Brazilian Cerflor system (see below) has received provisional recognition by PEFC.
- **A range of diverse national systems** (Sweden, Finland, Norway, Germany, the UK, United States, Canada, South Africa, Indonesia, Malaysia, New Zealand, Chile, Austria, Ghana, Belgium and others).
- In Brazil, the **Cerflor** system – the Brazilian Programme for Forest Certification, was conceived by the Brazilian Silvicultural Society (SBS) in 1996, though it only began to operate nearly a decade later. Cerflor was created in partnership with sectoral associations, research and training institutions, NGOs and with the support of several government agencies, including the national standards institute. It differs from the Brazilian FSC standard in some respects, having somewhat more relaxed criteria for social concerns. However Cerflor enjoys considerable credibility in part due to its PEFC recognition.

According to Purbawiyatna and Simula (2008) 'almost two-thirds (65%) of the world's certified forests (in 22 countries) carry a PEFC certificate, while the FSC's share is 28% (in 78 countries); the remaining forests are certified solely under national systems. Most of the certified forests in the tropics are FSC-certified.' The FSC had more than triple the number of products under chain-of-custody certification in 2007 as compared to PEFC certifiers.

Approximately 8% of global forest area has been certified under a variety of schemes (FAO, 2010) cited in ETFRN (2010). One recent estimate suggests that approximately one quarter of global industrial roundwood now comes from certified forests. Most of these advances have occurred outside the tropics: less than 2% of the forest area in African, Asian and tropical American forests are certified. Most certified forests (82%) are large and managed by the private sector (ETFRN, 2010).

1.3 The forest certification process

Certification is a voluntary process through which a forestry enterprise is evaluated by an independent organisation – the certifier – permitting that the firm's compliance with environmental, economic and social concerns is verified in accordance with the P&C of the particular certification system being applied.

The process can be broken down into its principal stages:

- **Initial contact** – the forestry operation enters into contact with the certifier
- **Evaluation** – A general analysis of management, documentation and field appraisal. Its objective is to prepare the operation to receive certification. In this phase public consultations may be arranged, so as to obtain feedback from stakeholders.
- **Adaptation** – After evaluation, the forestry operation should adapt non-conforming practices if these appear.
- **Certification of operation** – the forestry operation receives the certification. In this stage the certifier prepares and makes available a public summary.
- **Annual monitoring** – After certification the operation is monitored at least once each year to maintain the certification.

1.4 Actors involved in forest certification processes

Usually the actors involved in certification processes represent timber producers, civil society organisations, researchers, industries and, to varying degrees and with varying roles, also government authorities. When there is a community forest management plan, the local government is involved. The graph below shows how the actors are distributed within two distinct types of forest certification applied in Brazil: FSC and Cerflor. In general, the objective of the group is to develop P&C that fit each region for native forest management or forest plantations. Public consultation and the involvement of local communities are also part of the process of certification.

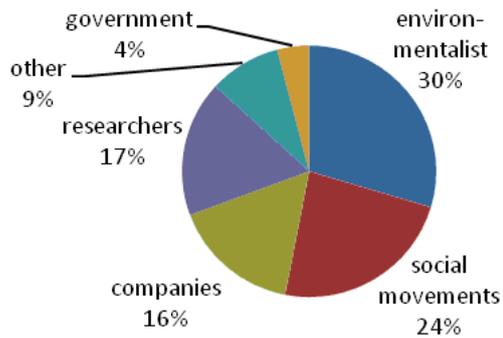


Figure 1. Actors involved in FSC certification

Source: adapted from Greenpeace (2002)

As is clear from the graph presented (Figure 1) the FSC process seeks to attain a balanced representation among social actors, with the exception of government, while Cerflor is heavily weighted toward corporate actors, researchers and government, with little or no representation of environmental or social civil society organisations (Figure 2). This pattern has been found to be typical in comparative research across many regimes where FSC competes with local schemes (Cashore et al., 2005).

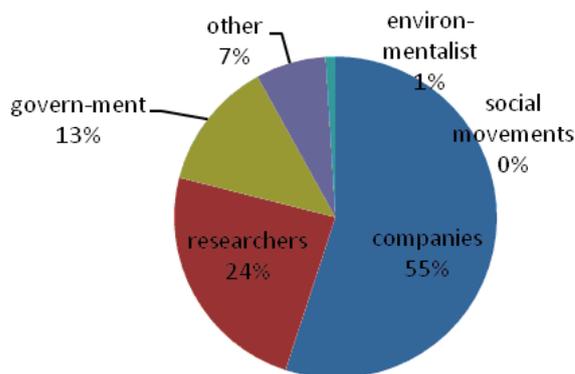


Figure 2. Actors involved in CERFLOR certification

Source: adapted from Greenpeace (2002)

1.5 Baseline

The certification process is generally progressive. The forest enterprises at first meet basic requirements and over time improve performance based on the auditor's recommendations.

Certification is also an adaptive and gradual process that permits certain flexibility of rules and criteria. As an example, FSC cites its adoption of the SLIMF (Small and Low Intensity Managed Forests) procedures for progressive adaptation to general P&C. The simplified SLIMF audit procedures can be used in enterprises, such as communities, small farmers and businesses that manage small areas or low intensity forests. It can also be applied to non-timber forest enterprises, provided they are not based on plantations. Using the SLIMF method, the audit process simplification reduces costs and time needed for evaluation. In this type of technical evaluation, although the same FSC standards and rules are applied, the simplification in the process enables small producers to participate in certification appropriate to their scale and special needs.

1.6 Monitoring, reporting and verification (MRV)

Verification is a key tool of socio-environmental responsibility initiatives; verification involves checking compliance of procedures with criteria. It covers inspections and tests performed at different points of the production chain or on the whole process.

The strictness of the verification phase ensures credibility of the initiative; the agency in charge of this should be independent with no financial and corporate ties to the initiative. Thus, the agency's independence ensures autonomy and impartiality of the verification process.

The transparency of verification is crucial. The information available should include: the methodology used, the points checked as well as the positive and negative results of implementation procedures and criteria.

Finally, a socially responsible verification should feature a conflict resolution mechanism that makes it possible for the players, regardless of whether or not they participate in the initiative, to denounce actions not complying with their commitment.

2 Performance of certification in environmental governance

2.1 Effectiveness for biodiversity conservation and the provision of ecosystem services

Forest certification should assure that the timber used in a given product originates from forests managed and processed in accordance with sustainability principles in a fashion that is simultaneously ecologically sound, socially just and economically viable. Additionally, conformance with standing legal codes is a universal certification requirement. In this way, certification entails both public and private regulation characteristics (Cashore et al., 2005; Potoski and Prakash, 2004).

Effectiveness in forest certification refers to the amount of native forest that is managed and not clearcut or the proportion of forest managed according to sustainability criteria, but also refers to how local actors are engaged in the forest management enterprise.

Some authors (Brotto et al., 2010; Gullison, 2003; IMAFLORA, 2009; Price, 2003) agree that certification has helped to improve management practices and to conserve forest biodiversity within certified forests in the tropics as well as in other regions where state governance of forest management has faced challenges (Cashore et al., 2005; Keskitalo et al., 2009; Rametsteiner and Simula, 2003). However, the true extent of conservation benefits remains unknown due to a lack of rigorous and independent information. Many agree that certification is not equivalent to full conservation and point at the limitations of certification in reducing deforestation rates. Some examples of biodiversity assessment on forest certification are described below:

In 2009, IMAFLORA, the Institute for Forest and Agricultural Management and Certification, a SmartWood certifier based in Brazil conducted a study of the impact of FSC in a planted forest in southern Brazil and an extractive community in Acre state, which revealed that FSC Forest certification resulted in positive impacts regarding the environmental aspects assessed, such as natural resource conservation, forest

management, and its contribution toward conservation of flora and fauna and the water resources of natural ecological systems.

In its evaluation in Acre extractive communities where forest management is performed, positive impacts were found to have resulted from FSC certification actions. The survey found that the use of fire for clearing planted areas is a common practice in all Extractive Settlements areas studied. However, the findings indicated that slash and burn clearing is less harmful in the certified communities than in the non-certified ones due to the forest care requirements of the certification method. Hunting is widespread both in certified and non-certified areas. However, with respect to the care taken during this practice, the survey found a significant difference between the certified and non-certified groups: of the certified areas, 87% reported the use of measures for protecting wild animals, compared with only 44% of the non-certified groups. The measures cited by the certified communities were hunting only when food is needed and using no dogs in hunting. Beyond these measures, they also reported the use of some others, such as hunting season calendars, not killing animals nursing their young and preserving trees that provide food for such animals (IMAFLOA, 2008).

When analysing planted forests in southern Brazil, natural resource conservation was assessed by the following actions of the enterprises sampled: environmental licensing, legal reserve² registration, control of invasive species in Permanent Protection Areas (APP), reforestation with native species and studies of fauna and flora. Furthermore, IMAFLORA investigated signs of forest conversion in the enterprise (replacement of forest fragments for agricultural, livestock, forestry, etc.) and the proportion of native forest remaining on the property. Impacts of FSC certification on natural resource conservation in the enterprise studies were evident. The certified enterprises control weeds in APP, initiate and maintain fauna and flora studies and do not carry out any forest conversion aside from that necessary to observe effects in a control site.

Due to the constant changes in legislation, the certified enterprises presented mechanisms for monitoring the environmental legislation and securing or being in the process of obtaining environmental licenses and legal reserve registrations. IMAFLORA also examined evidence of riparian forest uses in APPs, as well as care in the forest management in the surrounding areas. According to the enterprise representative's testimony, there was certification impact on the different treatment given to the management of the areas close to APPs: sensitive natural area delineation, pre and post-harvest evaluation in the buffer areas, targeting the harvest and identification of trees for bird conservation.

The impact generated by the certification actions in extractive communities is low (IMAFLOA, 2008, 2009; TEEB, 2010). However, there is little quantitative evidence regarding the long-term impacts of certification on biodiversity and the environment. FSC certification positively impacts forest planning and inventorying, silviculture, biodiversity protection, and monitoring and compliance.

In a recent publication organised by EFRN (2010), biodiversity benefits from forest certification are explored. Below some examples are cited from this recent survey.

Price (2010) describes research conducted in Bolivia and in the Brazilian Atlantic forest evaluating the impact of certification on those forests. Price concluded that the rate of forest loss in the FSC-certified

² *Legal reserve is the share of native vegetation rural properties in Brazil area required to preserve as part of the "social function" of property, in accordance with the national Forest Code. In the Mata Atlantica rainforest and in the savanna this share is 20%. In the Amazon biome, if the property is located in the forest this percentage is 80% and in the savanna 35%. The Forest Code is currently the object of efforts to undermine its protection of remaining private forestlands by rural landowners.*

forests was lower than that observed in some of the country's national protected areas. He pointed out that one reason for this is that FSC standards require compliance with legislation. This compliance, along with the remaining rigorous requirements of the FSC standards are more effective in conserving these native ecosystem remnants than the delimitation of protected area status, since often such delimitation only creates 'paper parks'.

Brotto et al. (2010) assessed certification's effectiveness on biodiversity conservation in the Peruvian Amazon, and the economic results arising from such certification. A relationship is drawn between certification and pressures for conversion of native forest into pasture or agriculture land. Since such pressures are high, the opportunity cost to maintain a forest is also high, while the cost for certification is double that of the opportunity cost of retiring land from agriculture. The authors conclude that where a REDD+ project is associated with forest certification, the impact on biodiversity conservation was higher because landowners received a premium on their products.

Gullison (2003), in assessing the overall international experience with FSC considers that certification can contribute to biodiversity conservation, but that the incentives offered by certification are insufficient to prevent deforestation, and the volume of certified forest products currently on the market is too small to significantly reduce logging pressure on High Conservation Value Forest (HCVF). He adds that FSC made great contributions to protection of native forests in temperate countries but in tropical forests very little progress has been made. He concludes stating that industrial logging can produce direct benefits such as avoiding deforestation or improving the value of managed forests, and also indirect effects such as providing alternative timber supplies to those from HCVF.

2.2 Economic and social impacts

In general, the most beneficial impacts found with regard to forest certification were economic and social in character, while the most negative refer to certification cost. Although global demand is growing for certified tropical timbers and other forest products, the intensity of investment, continued difficulties in licensing and transport, unclear land tenure as well as conflict with competing land uses at the frontier, imply that the overall effect of certification has not been to dramatically enhance sustainability at a sectoral level, especially in the Brazilian Amazon. Nevertheless, embarking on a certification strategy in most cases can consolidate the bargaining position of certified timber enterprises with their buyers, as well as providing potential economic advantages (May, 2006).

In general, forest management activities are costly in terms of financial and operational aspects and require those involved in the extraction sites to have high technical capacity in terms of forest inventory, cutting techniques, harvesting and skidding. For this reason, community forest management often must rely on external agencies and the effectiveness of forest management is limited. The cost of FSC certification is seen as exorbitant (US\$ 50,000 – 150,000 depending on enterprise scale), which is especially problematic in developing economies (Schepers, 2010). In general, certification can place insurmountable requirements and costs on communities and small-scale actors, and therefore increases the relative power of large scale operators (Klooster, 2005). With regard to the direct costs that result from forest management certification, there is evidence that certification in the tropics is more costly than in temperate or boreal forests for two reasons: First, non-tropical forests are less complex and thus require lower auditing time and preparation, and second, temperate and boreal forests often already have some well-established management procedures in place. Consequently, raising management standards to the required level is less costly. Investors from industrialised countries are usually accustomed to a dense and strict regulatory environment and hence it may be easier for them to comply with rigorous certification criteria (Pattberg, 2005). Considerable cost differences for certification

between developed and developing countries have been identified by Gullison (2003): certification costs for large forestry companies in the United States or Poland stand at US\$ 0.02 to 0.03 per cubic meter, compared to US\$ 0.26 to 1.10 in tropical countries and over US\$ 4.00 for small-scale producers in Latin America. With only 6-8% of global timber production entering international trade and environmentally sensitive markets only existing in Europe and North America, producers from developing countries have significantly less access to premium markets. As a consequence, timber imports from industrial countries increasingly originate from industrialised countries (Chan and Pattberg, 2008; Pattberg, 2005). In sum, certification tends to have the effect of systematically privileging northern companies in contrast to small-scale forest managers in developing countries and emerging economies.

In FSC certification, most of the time, there is no premium or final price differentiation upon timber sales, but it is observable that certified timber is more easily accepted by the market. In some cases there is a premium, for instance, in the case of FSC certification in communities in Tanzania, where certification enables the communities to earn more than US\$ 19 per log, compared to a previous US\$ 0.08 (FSC, 2010). Central to the Tanzanian project's success is consumer demand for sustainably harvested timber (particularly in the international market), an important driver for future community wood production in the country.

Other surveys of changes encountered in certified areas have concentrated on the economic aspects of national markets, such as studies focused on Bolivia, Malaysia and the USA. On the whole, in such countries certification has promoted better access to the market and higher prices, especially for the most processed hardwoods (Kollert and Lagan, 2005; Nebel et al., 2005; Newsom et al., 2005).

In the northern hemisphere, the FSC is perceived as more ambitious in terms of environmental and social requirements than the national or supplier driven certification systems (Cashore et al., 2005; Gulbrandsen, 2004; Keskitalo et al., 2009; Rametsteiner and Simula, 2003). The pressure for developing more ecologically integrative and socially sensitive practices is more explicit in the more externally and internationally audited FSC system. In countries like Russia, requirements for conservation are significantly higher and more explicit in the FSC, whereas in the Nordic countries and the USA the conflict between the FSC and other systems centers more on who has authority than the level of conservation.

In general, the most positive aspects found were economic and social, while the most negative refer to the certification process and its cost.

2.3 Institutional context and requirements

It was observed that some institutions influence the success of certification in terms of biodiversity conservation both in national and international certification systems. Two categories can be mentioned: (a) formal institutional requirements; (b) cultural and social requirements. The following formal requirements support certification:

- effective formal institutional infrastructure and forest legislation;
- effective laws on property or land rights;
- institutional framework or governing structure that permits distribution of benefits in case of community involvement;
- verification for certifying timber quantity and certification of local impact and, if possible, biodiversity conservation analysis.

Case studies have shown that forest certification has been most successful in states which have a conducive forest governance framework which guarantees the enforcement of forest laws; and provide land tenure security (Ebeling and Yasué, 2009; Guénéau and Tozzi, 2008). Therefore, it was found that at present, there are few developing countries where forest certification is likely to achieve widespread success (Ebeling and Yasué, 2009). Actually, this may be one reason for the fact, that currently 87.75% of FSC-certified forests are situated in the temperate and boreal zone and only 12.75% in the tropics and subtropics (FSC, 2010). Tropical countries often lack the infrastructure to facilitate certification and without the assistance of states, incentives to join a private regulatory system may be too weak (Pattberg, 2005). On the other hand, certification is not in a position to effectively compensate for the shortcomings of public action. If illegal harvesters cannot be excluded from the resource, the incentive for legal harvesters to harvest at a sustainable rate is reduced, if not entirely eliminated (Schepers, 2010). Another aspect is that a large part of the interventions in forests occurs outside the market economy or within informal economic systems. This applies for instance for fuelwood collection. A large amount of wood is produced and consumed in developing countries; a high percentage of this is used for energy consumption (FAO, 2010). Therefore, forest certification is not able to address all aspects of forest protection (Guénéau and Tozzi, 2008).

Nevertheless, certification has indirectly contributed to defining sustainable forest management standards by helping to reach an agreement on the definition of the good practices that are introduced into national legislation (Guénéau and Tozzi, 2008; TEEB, 2011).

The cultural, social and economic requirements are related to consumer maturity in including considerations on sustainability and even the level of the country's economic development in consumer decisions. Vallejo and Hauselmann (2000) point out the importance of consumer activists who can promote forest management and certification. "Consumer organisations can play an important role in initiating and advocating change in consumption patterns, and have the means to provide consumers with information that allows them to make informed choices. Consumer organisations can play a role – and have the skills to do so – in encouraging governments and industry to adopt policies and methods that will promote sustainable consumption" (Vallejo and Hauselmann, 2000: 27). If governments (e.g. German Government, 2007) lead the way in adopting national procurement policies to purchase only certified forest products for construction purposes, they could give an example and accelerate a change in consumer behaviour (Schepers, 2010).

3 The role of forest certification in a policy mix

As we have seen above, the participation of the State is important to ensuring the efficiency and effectiveness of the certification process. Conditions for a contribution of forest certification to biodiversity conservation include a conducive forest governance framework and a certain level of land tenure security in the forest country. Certification needs the coercive power of governments to clamp down on illegal trading of forestry products (Schepers, 2010). The rise of certification systems has generated new challenges and opportunities for conventional state regulation as well as interaction between private and public regulation. These have, at best, produced more credible and effective governance structures, while they run a risk of mere legitimising of existing practices (Bartley, 2010; Cashore et al., 2005; Keskitalo et al., 2009; Potoski and Prakash, 2004). At worst, certification can actively compete with state regulation, undermining both standard setting apparatus. The presence of multiple norms within a given country or region (e.g., FSC and Cerflor in Brazil) may lead to confusion on the part of consumers, while it can also undermine compliance with the more rigorous standards. On the other

hand, it is not always desirable to enforce the most rigorous standards where it is important to show progress toward incorporation of a larger proportion of forests under certification norms. Adaptive and gradual adoption starting with less rigorous criteria, such as those adopted in the SLIMF system, enhance the prospects of system expansion.

Perhaps the most promising development that the certification schemes can provide for a policy mix, is the pressure to consider several different governance and control systems simultaneously and hence, to allow interaction across public and private boundaries. According to WWF (2010), certification alone cannot solve the challenges of sustainable forest management, stating: "[Certification] is a tool which works. It is time for governments and international institutions that aim to promote more sustainable management of tropical forests to make more and better use of it." (WWF, 2010: 30). It is up to all stakeholders to ensure that the tool is properly and effectively used in conjunction with other complementary tools and policies such as government regulation and consumer awareness.

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Annex 1. FSC certification principles

In the case of FSC, accredited institutions adopt the ten principles that should be applied to the forest management operation. They are:

1 – Compliance with FSC Law and Principles

The forest management should respect all laws applicable in the country where it operates, international treaties, agreements signed by the country and compliance with all FSC P&C;

2 – Responsibilities and Rights of Ownership and Land Use

The rights of ownership, long-term land use and forest resources should be clearly defined, documented and legally established;

3 – Rights of Indigenous Peoples

The rights and costumes of indigenous people to own, use and manage their land, territories and resources shall be recognised and respected;

4 – Community Relations and Worker Rights

The forest management activities shall maintain or enhance the long-term social and economic welfare of forest workers and local communities;

5 – Benefits from the Forest

The forest management operations shall encourage the efficient use of multiple forestry products and services to ensure the economic feasibility and a wide range of environmental and social benefits;

6 – Environmental Impacts

Forest management shall conserve ecological diversity and its associated values, water resources, soil and fragile and singular ecosystems and landscape and thus, maintain the ecological functions and forest integrity;

7 – Management Plan

The management plan, appropriate to the proposed operational scale and intensity, shall be written, implemented and updated. The long-term objectives of forest management and the way to attain them shall be clearly defined;

8 – Monitoring and Evaluation

The monitoring shall be conducted as per scale and intensity of Forest management to assess forest conditions, forest product yields, custody chain, management activities and social and environmental impacts;

9 – Maintenance of High Value Conservation Forest

The management of high conservation value forest shall preserve or enhance the attributes which define such forests. Decisions related to high conservation value forest shall be always considered with precaution;

10 - Plantations

The plantation shall be planned and managed according to the P&C Nos. 1 to 10. Taking into account that plantations can provide a wide range of social and economic benefits and contribute to meet the requirements for global forest products, it is recommended that they contemplate management, reduce pressures and promote the restoration and conservation of natural forests.

Source: FSC.

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