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FOREST CERTIFICATION AS A GLOBAL ENVIRONMENTAL GOVERNANCE TOOL. WHAT IS THE MACRO-IMPACT OF THE FOREST STEWARDSHIP COUNCIL?

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Abstract: Sustainable Forest Management is a key challenge for local and global governance. The Forest Stewardship Council Forest emerged as one of the solutions to global forest deterioration and is generally regarded as the prime example of certification as a global governance tool. The paper examines the impact of certification on halting deforestation and the development of forest governance institutions. The paper finds that macro-impact on halting deforestation is still limited due to a stuck-at-the-bottom problem of developing countries, which are kept out the certification process and the market-driven nature of certification initiatives. There is neither a clear impact of forest certification on development of sound governance in developing countries, a crucial precondition for halting deforestation. However, the paper does find significant variation in certification uptake between countries pointing to the potential of this policy tool for global sustainable forest management governance, especially in the context of combating climate change.

Key words: Effectiveness, Forest Stewardship Council , Global Governance, Non-State Market Regulation, Private Standards

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Introduction

Promoting sustainable forest management (SFM) is regarded as one of the main key global environmental challenges for the future, both with regard to mitigating climate change as well as with regard to the protection of biodiversity. The Food and Agriculture Organisation (FAO) refers to SFM as an approach that balances environmental, sociocultural and economic objectives of management in line with the "Forest Principles" adopted at the United Nations Conference on Environment and Development (UNCED) in 1992 (FAO, 2008). A key issue in SFM is halting deforestation. Deforestation is the conversion of forest land to other land uses, thereby decreasing forest area. Change in forest area is driven by several factors. Forest area can decrease due to deforestation or natural disasters and can increase due to reforestation, afforestation and natural expansion (FAO, 2005). The causes of deforestation are multiple and complex and vary from country to country (Geist & Lambin, 2002). Deforestation is driven by several interacting physical, biotic, abiotic, demographic and socio-economic factors which include a significant increase in the international trade in timber goods, urban sprawl, the conversion of forests to agricultural land both for commercial and subsistence use, mining and oil exploitation (Geist & Lambin, 2002; Mena *et al.*, 2006; Rudel, 2007). A calculation based on the statistical database of the FAO reveals a net loss of forest area in the period 1995-2007 of 92.577.150 ha or a decrease of 2,29%.

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The sustainable management of forests poses a significant challenge for global governance. Some observers have been sceptical about the ability of states or international organizations to tackle the problem of deforestation (Van Waarden, 2009). Other observers, by contrast, argue that the protection of forests is increasingly taken up by private actors and non-state market governance mechanisms (Cashore, 2003). One of the most prominent of these non-state market governance mechanisms is third-party certification, *i.e.* independent accredited organisations which grant certificates *(infra)*. During the last decades many of these systems have proliferated.

Several authors see globally operating third-party certification schemes as a means to strengthen transnational and global regulation (Abbott & Snidal, 2009; Conroy, 2007) and even ratcheting up social and environmental standards on a global scale (Sabel *et al.*, 2000; O'Rourke, 2003, 2005). Some of the schemes have been studied extensively (Mattli & Woods, 2009; Brown & Woods, 2007; Vogel, 2005). However, as David Vogel (2008, p. 275) notes, most studies have focused on the emergence of these new governance initiatives and the governance structure of these initiatives (see for example Bartley, 2003, Cashore *et al.*, 2004). Less attention has been paid so far to the macro-impact of these schemes with regard to the governance of forests (for an exception see Auld *et al.*, 2008). However, as Cashore *et al.* (2004 p. 247) observe "[*t*]*he ability of forest certification to be part of this solution* [SFM] *is a question that needs to be carefully researched and analyzed so that those in a position to make strategic choices in this regard are able to make the most well-informed and environmentally sensitive choices."*

This paper aims to contribute to research on the macro-impact (*cf.* country level) of forest certification and assess the potential of forest certification to contribute to SFM including halting deforestation by focusing on the Forest Stewardship Council (FSC) which is generally regarded as the most effective and legitimate system (Diamond, 2005; Cashore *et al.*, 2005; ÉEM, 2007; Milieudefensie *et al.*, 2006). The paper analyzes two types of macro-impact. On the one hand, the paper assesses the degree to which certification contributes to halting deforestation as a key component of SFM by analyzing the differences in uptake of FSC certification between countries. On the other hand, the paper assesses the macro-impact of certification on governance since

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this directly refers to key principles outlined by the FSC (principles 1 to 3) and is relevant in the context of Forest Law Enforcement and Governance (FLEG) and emerging global forest carbon schemes to halt deforestation and forest degradation (*i.e.* REDD).

A dataset was compiled consisting of data from the FAO Land Use Database[1], the Human Development Index[2], the FSC[3] and the Worldbank Governance Indicators (Kaufman *et al.*, 2009). The dataset contains data on 221 countries. The paper first introduces and discusses certification and the FSC. In a second part the paper analyses the macro-impact on deforestation and explores potential explanations for the result with a specific focus on socio-economic dimensions and ownership. The third part looks at the macro-impact of certification on governance. The fourth part discusses some of the main issues. The paper ends with a short conclusion.

Certification as a global governance tool

Certification as a non-state market regulatory mechanism

In order to address global issues such as SFM several multilateral, national and private policy initiatives have been developed. The most prominent private initiative has been forest certification. Forest certification is widely regarded as **"***one of the most innovative and startling institutional designs of the past 50 years"* (Cashore *et al.*, 2004) for addressing and promoting SFM in particular and global environmental governance in general (Van Brusselen *et al.*, 2008). Cashore (2003) refers to these new institutions as "non-state market-driven" (NSMD) governance systems because rule-making comes from private actors. Forest certification, according to Meidinger (2003), "*is a process through which transnational networks of diverse actors set and enforce standards for the management of forests around the world*." (Meidinger, 2003) In other words, certification initiatives aim to set and implement standards for the sustainable management of forests and communicate this to the external world. Certification is an informational tool which structures market interactions. It is a market mechanism with market access, price premiums and reputation as potential incentives. Market access materializes through demand for certified products higher

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up in the supply-chain. Price premiums may result from consumer demand which is willing to pay more for sustainable products. In some cases certification is used as a reputation and risk management tool for dealing with external stakeholders (Marx, 2008). These certification schemes draw on conventional technical standard setting and certification techniques such as ISO-standards to establish market-leverage (Meidinger, 2007).

Several certification systems exist, ranging from first-party certification to third-party certification (Gereffi *et al.*, 2001). First-party certification basically implies that an organization defines the standards and assesses whether it conforms to these standards or not. Only one party is involved in the certification process. The most typical examples are codes of conduct by firms. Second-party certification implies that two parties are involved in the certification process, namely a party who defines the standards and assesses whether another party, who demands the certificate, conforms to the standards. Typical examples include industrial sector organizations which develop certificates. The Responsible Care program in the chemical industry is a leading example. In second-party certification it is often unclear whether the two parties are truly independent of each other. For this reason authors refer to first- and second-party certification as forms of self regulation, where third party certification is considered as a form of independent non-state market regulation (Cashore, 2003).

In third-party certification, the first party defines the standards included in a certificate, the second party demands a certificate for conformance to these standards and a third party assesses whether the second party conforms to these standards (conformity assessment). The first party accredits the third party to perform the conformity assessment. All parties operate independently of each other (Meidinger *et al.*, 2003). In the context of forest management several types of certification initiatives exist including the FSC, SFI (Sustainable Forest Initiative, USA), the Lembaga Ekolabel Indonesia (LEI), the PEFC (Programme For the Endorsement of Forest Certification Schemes), Malaysian Timber Certification Council (MTCC), Certificación Florestal (CerFlor Brazil) and the CSA (Canadian Standard Association). The main difference between FSC certification and the others is that the FSC is the only genuine multi-stakeholder third-party certification initiative, while the

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others basically employ a form of self-regulation (Abbott & Snidal, 2009). The FSC is generally considered the most effective forest certification system since it is completely performance-based and not only system based and operates on a global scale (Diamond, 2005; Cashore *et al.*, 2005; ÉEM, 2007; Milieudefensie *et al.*, 2006).

In addition, FSC certification is increasingly becoming an instrument in public policy-making. One can identify three ways in which public policy-makers are using the FSC in public policy-making. First an increasing number of governmental bodies are applying for FSC certification for forests which are under their ownership (*supra).* Secondly, in certain cases, the new laws with regard to forest management require that forest owners or concession-owners apply for certification. Bolivia's 'New Forest Law 1700' for example requires that private forest owners and concession holders apply for third-party forest certification. (Carey & Guttenstein, 2008). Thirdly, certification is increasingly used in public procurement policies in European countries. Many countries and local governments are increasingly using sustainability criteria when purchasing goods. Certificates, such as FSC, provide in one label all the information with regard to these criteria and hence are often used when governments have to decide on buying specific goods. Although public procurement laws and rules cannot include references to specific certificates the result is often that FSC-certified products are bought (Meidinger, 2007; Mechel *et al.,* 2006).

The Forest Stewardship Council

The first concept of voluntary forest certification, the FSC was established in 1993 following the Rio declaration of the UNCED in 1992 as a response to the slow process of formal discussions on the promotion of SFM. The FSC is a multi-stakeholder membership-based organization with a governance structure consisting of a general assembly in which the members are represented, a board of directors and an executive director. The General Assembly of FSC members is the highest decision-making body in FSC and is a tripartite chamber structure (environmental, social and economic), which are further split into sub-chambers North and South. The purpose of the chamber structure is to maintain the balance of voting power between different

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interests without having to limit the number of members (FSC, 2010). Standards are developed on the basis of 10 principles which are of equal importance. Specific standards, for the purpose of certification, are developed by National Standard Working groups and reviewed internationally via a two-tier consultation process.

Forest management (FM) certification is the cornerstone of the FSC system and refers to the certification of forests. Chain-of-custody certification (CoC), a supply-chain tracking system, refers to the fact that the product with the CoC-certificate is made out of products which originate from an FM-certified forest. Consequently, in order to analyze the macro-impact of FSC certification one should focus on the amount of certified forest via FM certification.

The Macro-Impact of the Forest Stewardship Council on Halting Deforestation

The FSC is the most globally distributed certification system worldwide. The surface area of FSC-certified forests grew steadily during the first decade of its existence to reach 40 Mha (million hectares) of certified forests in 2003. From 2004 onwards growth accelerated and almost tripled between 2004 and 2008. Measured on the basis of the on-line database of FM-certified forests (www.fsc-info.org), accessed in August 2009, the FSC has certified 116.274.127 ha (hectares) of forests worldwide distributed over 942 forests including large, middle-sized and small forests. The 116 Mha of forests certified constitutes 2.9% of total forest surface area worldwide[4]. As a result, although the growth over the last 15 years has been impressive, the overall impact of FSC certification remains modest.

In order to explore the relationship between certification and deforestation/reforestation a dataset was created which contains country level data on the degree of deforestation/reforestation and the proportion of forest in a given country which are FSC-FM-certified.

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Table **1** provides an overview of all countries which have FSC-certified forests and ranks the countries according to the percentage of the forest that is FSC-certified (density of FSC certification which is calculated by dividing # ha FSC-FM-certified forests / Total # ha of forest for a given country).

Table 1: Ranking of countries according to FSC density

Rank	Country	FSC Density		Rank	Country	FSC Density
1	Croatia	94,46		42	Czech Republic	2,01
2	Poland	75,67		43	Indonesia	2,00
3	Uruguay	68,59		44	Belgium	1,99
4	Ireland	64,73		45	Solomon Islands	1,88
5	United Kingdom	54,99		46	Congo, Republic	1,43
6	Latvia	54,70		47	Panama	1,29
7	Switzerland	49,21		48	Sri Lanka	1,24
8	Estonia	47,08		49	Mexico	1,15
9	Lithuania	46,63		50	Brazil	1,14
10	Netherlands	41,29		51	Japan	1,13
11	Sweden	35,34		52	Malaysia	0,99
12	Slovenia	30,30		53	Greece	0,96
13	Belarus	28,01		54	Argentina	0,95
14	Uganda	26,63		55	Peru	0,91
15	Denmark	21,87		56	Honduras	0,83
16	Luxembourg	21,70		57	Spain	0,51
17	Swaziland	21,34		58	Nicaragua	0,49
18	South Africa	17,79		59	Italy	0,48
19	Ukraine	15,44		60	Morocco	0,46

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20	Romania	14,40		61	China	0,45
21	Hungary	12,57		62	Surinam	0,44
22	Guatemala	11,95		63	Nepal	0,40
23	New Zealand	11,82		64	Mozambique	0,37
24	Canada	8,95		65	Australia	0,33
25	Gabon	8,61		66	Norway	0,31
26	Serbia	8,10		67	Ecuador	0,31
27	Belize	6,35		68	Venezuela	0,30
28	Portugal	5,84		69	Papua New Guinea	0,21
29	Bosnia-Herzegovina	5,64		70	Colombia	0,16
30	Namibia	4,37		71	Austria	0,13
31	Cameroon	4,22		72	Thailand	0,13
32	Germany	4,04		73	France	0,11
33	USA	3,85		74	Zimbabwe	0,11
34	Bolivia	3,15		75	Tanzania	0,11
35	Ghana	2,85		76	Laos	0,08
36	Bulgaria	2,80		77	Paraguay	0,07
37	Chile	2,78		78	Viet Nam	0,07
38	Russian Federation	2,49		79	Dominican Republic	0,07
39	Guyana	2,46		80	Kenya	0,07
40	Costa Rica	2,19		81	Finland	0,04
41	Korea, Republic of	2,08		82	India	0,00

Source: on-line FSC database data collected from 982 separate forest specific files (Aug 2009).

The degree of deforestation and reforestation was calculated on the statistical database of the FAO. The calculation reveals a net loss of forest area in the period 1995-2007 of 92.577.150 ha or a decrease of 2,29%. This net loss is not distributed evenly across countries. A significant variation exists between countries.

Table **2** ranks the countries with both more than 5% forest loss or more than 5% forest gain in the period 1995-2007. The table additionally provides information on

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the total surface area for forest (*cf.* forest coverage - FC) in 2007 and the percentage of forest area on total country surface area for 2007 in order to put the change into perspective of magnitude.

Table **2** shows that several countries with huge forests are confronted with alarming rates of deforestation going up to more than 30% forest loss in 12 years time. Other countries, in contrast, have gained many hectares of forests during the same period.

Error! Reference source not found.a plots, on country level, the change in forest area (deforestation / reforestation) in relation to the degree of certification (certification density – *supra*). The figure shows that both in countries which are confronted with significant deforestation and reforestation FSC FM certification is either present or absent. Secondly, the figure shows that the presence of FSC FM certification is neither a necessary nor sufficient condition for halting deforestation in a given country. Thirdly, the figure shows that there is a slight positive correlation between reforestation and certification. This trend is slightly more outspoken if one only focuses on the countries which have FSC FM certification (see **Error! Reference source not found.**b).

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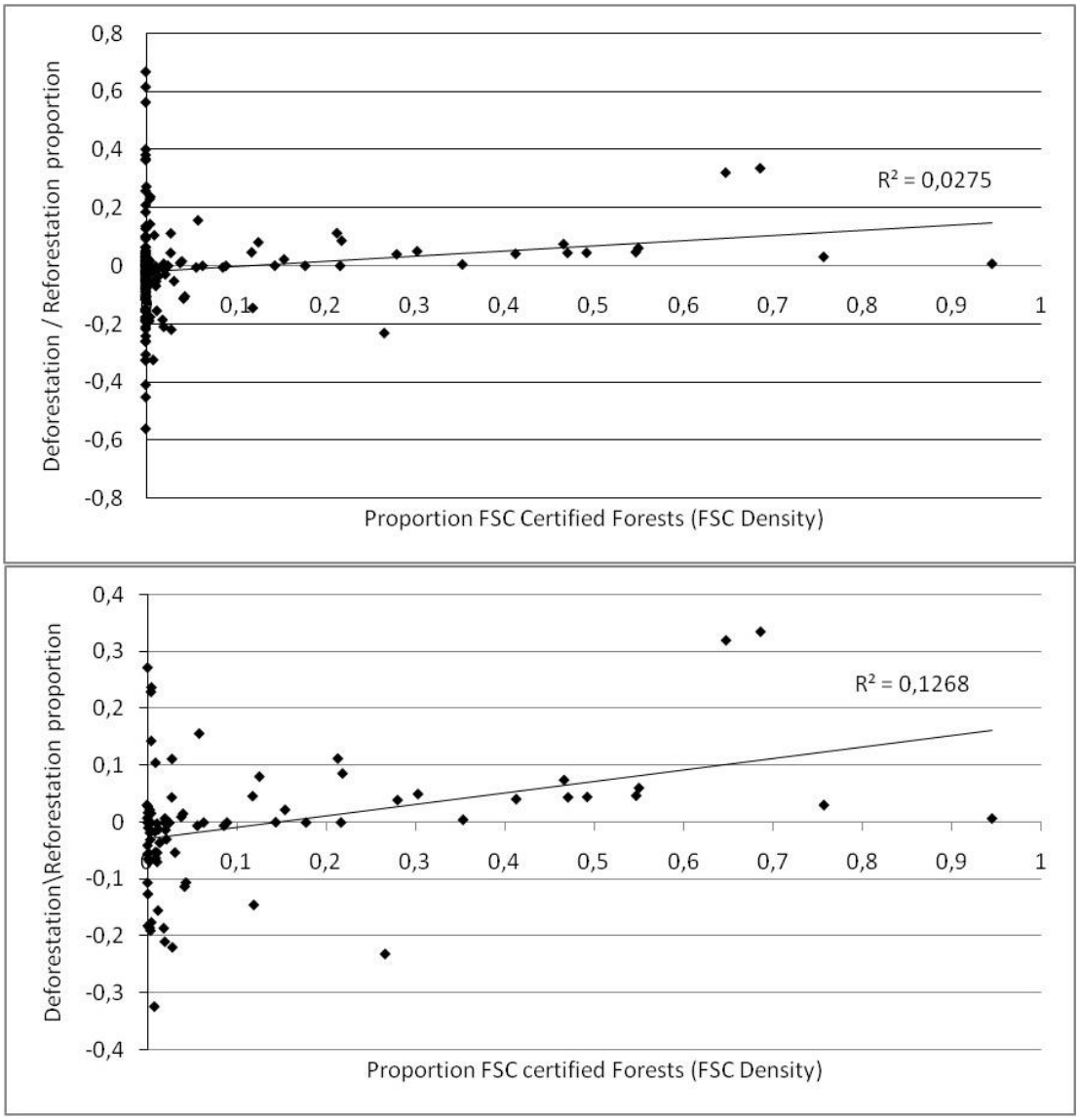

Figure 1: Relationship between deforestation-reforestation and forest certification for a) upper figure, all countries; and b) lower figure, countries with FSC-certification

The analysis shows that on the country level the relationship between certification and halting deforestation is limited. The issue is further explored and discussed.

Table **1** (FSC densities) reveals two interesting observations, namely (1) the number of countries which have FSC-certified forests is limited and (2) within the set of countries with FSC-certified forests there is significant variation between countries. Each is discussed at turn.

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First, FSC certifies forests in 'only' 82 countries out of 221 countries. Hence, in several countries the FSC has not yet been able to get forests certified. These include several developing countries with huge forests such as (ranked according to forest surface area) Sudan, Angola, Zambia, Myanmar, Central African Republic, DR Congo, Nigeria, Ethiopia, Mali, Madagascar, Botswana, Chad, Cambodia and Mongolia. Most of these countries are confronted with significant deforestation rates (see

Table **2**). The absence of FSC certification can partially be explained by the fact that many of these countries either are or have been very unstable, or hardly have any commercially interesting timber species and a deforestation that is rather caused by firewood gathering and less by logging for production purposes (most of the African countries). However, the underrepresentation of these developing countries in the ranking points to a possible inverse relationship between development and FSC certification. **Error! Reference source not found.** explores this issue further and plots the relationship between development, as measured by the Human Development Index (HDI), and the proportion of FSC-certified forests on total forest area (FSC Density) for 177 countries (for which a HDI was calculated and which includes all 82 countries in which FSC has certified forests). The analysis uses a fuzzy-set analytic technique developed by Charles Ragin (2000) in order to analyze the presence of necessary conditions (development level) for an outcome (presence of certification) to occur. A necessary condition (in this case high human development - X-axis) is a condition which is present in all (or almost all) instances of the outcome (certification – Y-axis) (Ragin, 2000, p. 203; see also Eliason & Stryker, 2009).

Table 2 : Deforestation and reforestation trends in selected countries

Deforestation					Reforestation			
Country	# ha forest	FC† (%)	% Change		Country	# ha forest	FC (%)	% Change
Comoros	4400,00	2,37	-56,00		Bahrain	500,00	0,70	66,67

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Burundi	133600,00	4,80	-45,13		Rwanda	534400,00	20,29	61,45
Togo	346000,00	6,09	-40,85		Iceland	49200,00	0,48	56,19
Mauritania	247000,00	0,24	-32,51		Lesotho	8400,00	0,28	40,00
Nigeria	10269800,00	11,12	-32,37		Kuwait	5800,00	0,33	38,10
Honduras	4335200,00	38,68	-32,34		Tunisia	1094800,00	6,69	36,68
Afghanistan	807800,00	1,24	-30,48		Egypt	70200,00	0,07	36,31
Philippines	6847200,00	22,82	-26,07		Uruguay	1544800,00	8,77	33,52
Benin	2221400,00	19,72	-25,92		Ireland	693000,00	9,86	32,00
Niger	1241100,00	0,98	-24,16		Viet Nam	13413400,00	40,50	27,21
Uganda	3454200,00	14,33	-23,09		Cuba	2824200,00	25,48	25,72
Ghana	5286200,00	22,16	-21,93		Spain	18506600,00	36,62	23,73
Pakistan	1816400,00	2,28	-21,76		China	205405600,00	21,40	22,95
Korea, DPR	5933400,00	49,22	-21,00		CapeVerde	84500,00	20,97	20,89
Indonesia	84752200,00	44,50	-20,95		Algeria	2329900,00	0,98	18,46
Liberia	3033600,00	27,24	-19,24		Portugal	3863000,00	41,93	15,62
Nepal	3530400,00	23,99	-19,00		Italy	10191800,00	33,82	14,32
US Virgin Islands	9100,00	26,00	-18,75		Samoa	171000,00	60,21	13,62
Solomon Islands	2092400,00	72,40	-18,57		UAE	312800,00	3,74	12,72
Ecuador	10458200,00	36,88	-18,48		Swaziland	550400,00	31,71	11,24
Cambodia	10009400,00	55,29	-18,25		Bulgaria	3725000,00	33,56	11,16
Zimbabwe	16914000,00	43,28	-18,17		Greece	3812400,00	28,89	10,50
El Salvador	287600,00	13,67	-17,71		S. Vincent Grenadines	10900,00	27,95	10,10
Nicaragua	4979000,00	38,19	-17,55		Lebanon	138700,00	13,34	10,08
Wallis Futuna Isles	4700,00	33,57	-17,54		Israel	173800,00	7,87	9,31
Armenia	274200,00	9,22	-15,76		Denmark	505600,00	11,73	8,61
Sri Lanka	1873400,00	28,55	-15,46		Hungary	2003600,00	21,54	8,07
Niue	13700,00	52,69	-15,43		Lithuania	2130600,00	32,63	7,47
Myanmar	31289200,00	46,25	-15,17		Uzbekistan	3328200,00	7,44	6,38

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Timor-Leste	775600,00	52,16	-14,77		Syria	427600,00	2,31	6,37
Guatemala	3830000,00	35,17	-14,47		UK	2865800,00	11,76	6,06
Tanzania	34432600,00	36,35	-12,56		Gambia	475000,00	42,04	5,20
Ethiopia	12718000,00	11,52	-11,74		Slovenia	1274500,00	62,88	5,00
Somalia	6977400,00	10,94	-11,66					
Zambia	41562400,00	55,22	-11,38					
Cameroon	20805000,00	43,76	-11,26					
Botswana	11706200,00	20,12	-10,82					
Malawi	3336000,00	28,16	-10,60					
Paraguay	18117800,00	44,54	-10,58					
Namibia	7512200,00	9,11	-10,54					
Equatorial Guinea	1601500,00	57,09	-10,24					
Sudan	66367700,00	26,49	-9,63					
Mongolia	10086800,00	6,45	-8,95					
Mali	12371500,00	9,98	-8,84					
Brunei Darussalam	274000,00	47,49	-8,82					
Haiti	103400,00	3,73	-8,09					
Sierra Leone	2715800,00	37,86	-7,87					
Chad	11762600,00	9,16	-7,48					
Guinea	6652200,00	27,06	-7,04					
Brazil	471492000,00	55,37	-6,93					
Venezuela	47137800,00	51,68	-6,82					
Dominica	45500,00	60,67	-6,57					
Thailand	14402400,00	28,07	-6,41					
Malaysia	20609600,00	62,50	-6,25					
Senegal	8583200,00	43,63	-5,92					
Laos	15986000,00	67,51	-5,54					
Papua New Guinea	29158800,00	63,00	-5,41					
Guinea-Bissau	2052000,00	56,81	-5,36					

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Mexico	63717200,00	32,44	-5,29					
Bolivia	58199600,00	52,98	-5,28					
Mayotte	5400,00	14,44	-5,26					
Argentina	32721000,00	11,77	-5,20					

†FC: Forest Cover (%) Forest area divided by total country area. Source: FAOStat

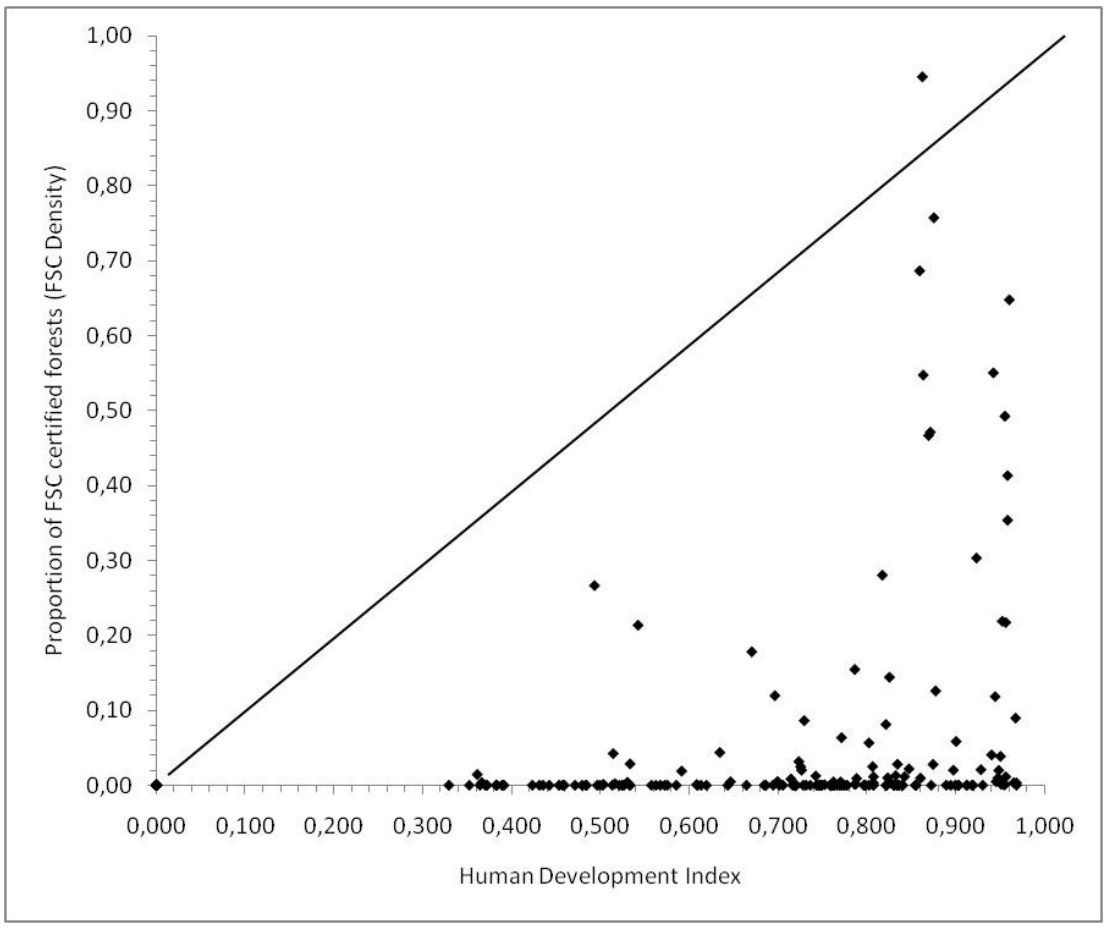

Figure 2: Relationship between certification and development

The analysis shows a strong link between the level of development and FSC certification in the sense that middle to high human development is a necessary condition for certification to occur as is visualized by the fact that all observations are below the diagonal. With a few exceptions, notably Swaziland (HDI-score of 0.542 – Proportion FSC score 0.21) and Uganda (HDI-score 0.493 – Proportion FSC score 0.26), most countries with FSC certification have a HDI of more than 0.60 ranking

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them in category 1 (high human development) or 2 (middle human development). The FSC certified forests in Swaziland and Uganda are plantations, set up by foreign investment (FSC, 2009). In Uganda certification was pursued in the framework of forest carbon sequestration projects (either as an additional income or as an add-on standard as a proof of sustainability), in Swaziland the plantation industry is a stronger driver. All Ugandan certificates are FM/CoC certificates for reforestation and plantations in the framework of carbon sequestration like Clean Development Mechanism Afforestation-Reforestation projects (CDM A/R) or voluntary market seeking CDM A/R certification. The certificate is a proof of sustainability towards the investors and the public interested in the initiatives as the first CDM A/R projects funded by the World Bank received a lot of criticism for being unsustainable (see www.sinkswatch.org). The major part (94%) of the certified area is occupied by recent plantations by the FACE foundation, a non for profit organization created by a consortium of 5 Dutch power companies (FACE Foundation, 2010; FAO, 2001). The FSC certificate is used as an add-on standard for sustainable forestry, next to the certification that proves carbon is sequestered. FACE foundation also holds FSC-certified plantations in other countries, in some cases also being among the first to establish FSC in developing countries (Ecuador and Malaysia). The FSC certificate is well known to the Dutch public and the certification fits in the overall strategy of delivering sustainable carbon sequestration. Therefore FSC in Uganda is rather used as an information tool, a proof for foreign investors that the plantations are sustainably managed. On the other hand the emergence of 2 initiatives of the kind proves that Uganda provides for an interesting framework to do it, although land tenure conflicts for one of the FACE projects in 2007 led to forest fires. All Swaziland FM/CoC FSC certificates are for plantations for conifers (*Pinus spp.*), *Eucalyptus spp.* and *Acacia mangium*. These plantations provide either feedstock for the pulp and paper industry or specific timber products from these species.

These results point to the fact that FSC certification only occurs from a certain level of development onwards. Consequently, many countries are, at least for the time being, excluded from the certification and standard-setting process with regard to

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forest management. These results indicate that the potential of ratcheting up of SFM standards on a global scale, via certification, has limitations. Most developing countries remain outside the standard-setting process and are in this respect 'stuck at the bottom' with regard to SFM standards. One plausible explanation for the 'stuck at the bottom' problem is that third-party certification is probably too expensive for many forest owners (mainly governments) in developing countries in a context where incentives to invest in SFM, mainly export markets and price premiums, are absent (*infra*). Little empirical data on FSC FM certification costs are available. Estimates range from 1 EUR per ha (Holvoet 2008) over 10 USD per acre (Cubbage *et al.,* SD) (*i.e.* approximately 24.5 USD or 17.2 EUR per ha) to 19.1 EUR per ha (SavCor)[5].

These figures indicate that the costs for FSC FM certification can vary significantly between forests depending on size, complexity and whether it concerns first-time certification or re-certification. First-time FSC certification is substantially more expensive since it often requires an extensive certification process which consists of several steps. First of all, the applicant of FSC FM certification invites an inspector who conducts a pre-audit or feasibility study on whether the forests under consideration can be certified. This pre-audit is data and time intensive. Principle 7 of the FSC requires for a forest management plan. Therefore the applicant needs to provide data on *inter alia* tree species and other plants through botanical inventories, age distribution, annual increment and growth projections, but also socio-economical data and projections. These data are often not readily available especially in developing countries. In a second step, a genuine audit is conducted which assesses the forest management against the standards and criteria. This audit also contains detailed corrective actions requests (CARs) which are necessary in order to get certified. Step three implies implementing the corrective actions and an assessment of the audit by the applicant. Step four is a new audit which often contains again corrective actions which need to be implemented. Step five finalizes the process by awarding the certificate, the first two years for one year, subsequently for five years. One of the major bottlenecks between step 2 to 5 is the lack of technical knowledge to address major deficiencies. The auditor does not play the role of a consultant. These

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roles are strictly divided in order to prevent any conflict of interest. In other words, the auditor points to deficiencies which need to be addressed by corrective actions, but does not say *how* they can be addressed. Forest owners often have to invest additionally to get this technical expertise from forest experts. As a result, first-time certification requires a consistent upfront investment and can be expensive, time-consuming and requires technical and informational expertise. Given the nature of the first time certification process it can be hypothesized that the 'stuck at the bottom' problem results from three interrelated hurdles related to financial, informational and technical issues.

This result between development and certification on the country/state level is highly relevant in a context in which most of the forests in these countries are owned by governments (see in Table 3 the figures for Africa, Asia and South America) which do not prioritize SFM.

Table 3: Distribution of ownership of forests across continents

Region	Forest Land		
	Public (%)	Private (%)	Other (%)
Africa	97.6	1.8	0.6
Asia	94.4	5.0	0.6
Europe	89.9	10	0.1
North and Central America	66.2	29.9	3.9
South America	75.9	17.3	6.9
Oceania	61.3	23.7	15.0

Source: FAO Global Forest Resources Assessment, 2005, pp. 202-207

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Second,

Table **1** and **Error! Reference source not found.** show that within the set of countries where FSC certifies forests there is a wide variation in the percentage of forests that are certified, ranging from almost nothing (0.00095%) in India to 94.4% in Croatia. This result indicates that there might be no upper-limit to the degree of forests which can be certified. A closer examination of the countries with a high density of FSC-FM-certified forests shows that probably two factors contribute to this result. First, FSC is widespread in countries where forests are mainly owned by public authorities and/or state-led companies. Secondly, FSC FM certification is high in countries where forests primary function is the production of wood and non-wood forests products or where production of wood and non-wood products is combined with other forest functions.

Concerning the first point, in Croatia the Croatian State Forest Enterprise, which owns almost all of the forest land, decided to apply for FSC FM certification. They received the FSC certificate in 2007. Also in Poland most of the forest land is publicly owned and mostly managed by regional forest directorates. The first regional authority was awarded a FM certificate in 2004. All other regional directorates (in total 18) consequently applied for certification and were awarded an FM certificate in 2008 and 2009. In Ireland most forests are owned and managed by Coillte Teoranta which is a state-sponsored company which is owned by the Ministries for agriculture and food land finance. Similar state-owned companies manage forests in the Baltic countries. In countries such as the United Kingdom (103 FM certificates), Sweden (20 FM certificates) and Uruguay (34 certificates) certification is demanded by a mix of public and private actors and the dominance of public driven certification is less prominent. In Sweden for example forests owned by major timber companies, Stora Enso and SCA, were FSC FM certified.

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Concerning the second point, in countries with high FSC FM certification density the primary function of forests is the production of wood or non-wood products. In Croatia 94.7% of the forest is primarily designated for production. In Ireland this is 90%. Sweden, Switzerland, Poland, Estonia and Lithuania designate more than 60% primarily for production. In Europe, in total, 73.1% of total forest is designated primarily to production (FAO, 2006). Also in the non-European countries with significant density of FSC FM certified forests such as Uruguay, Swaziland or Uganda a significant percentage of forest land is primarily designated for production. These forests provide the timber for wood and non-wood products which are higher up in the supply chain certified with FSC CoC certificates. The downward pressure from companies who apply for CoC-certification goes to forests which are primarily managed for production purposes. On a global scale, the FAO estimates that primary functions of forests are divided as follows: 34.1% for production, 9.3% for protection, 11.2% for conservation, 3.7% for social services, 33.8 for multiple purposes including production and 7.8% had no primary function or the primary function is unknown. The link between FSC certification and the primary function of forests highlights an additional aspect of the limits of FSC FM certification. Even if FSC is able to certify more forests in more countries, there will probably be an upper-limit to the forests which will be certified via FSC due to the differentiation in primary functions of forests. The FSC is only concerned with developing standards governing SFM with regard to forests which are managed for the production and trade of raw forest materials (see also Cashore *et al.*, 2004, p. 245). The designation of forests for protection and conservation, assuming they are really managed from a conservation point of view, also contributes to the aims of SFM and hence will not be a primary target for certification. Given the fact that deforestation in African countries is only partially driven by logging and timber export (*i.e.* related to the production function of the forest) but also by subsistence agriculture, mining and the harvest of wood for fuel the potential for FSC certification is limited to the forests which are managed for production purposes.

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The relationship between certification and governance development

The second macro-impact assessment focuses on the relationship between certification and governance institutions since certification might contribute to SFM via the promotion of sound institutions for the governance of forests (Blair *et al.*, 2008). This is recognized in the first principles of the FSC which stress compliance with all applicable laws and international treaties as well as emphasize the importance of enforcing rights. As illegal and unsustainable logging involves corruption (quite often by the forest administration and politicians themselves) corruption and illegal activities in the forest sector have a very high incidence especially in developing countries. Figure 3 presents the relationship between deforestation and corruption as measured by the Worldbank Control of Corruption governance indicator (Kaufman *et al.*, 2009) which captures different forms of corruption, as well as 'capture' of the state by elites and private interests. The figure shows a correlation between control of corruption and deforestation. The majority of countries which experience substantial deforestation also score (highly) negative on control of corruption (left bottom quadrant).

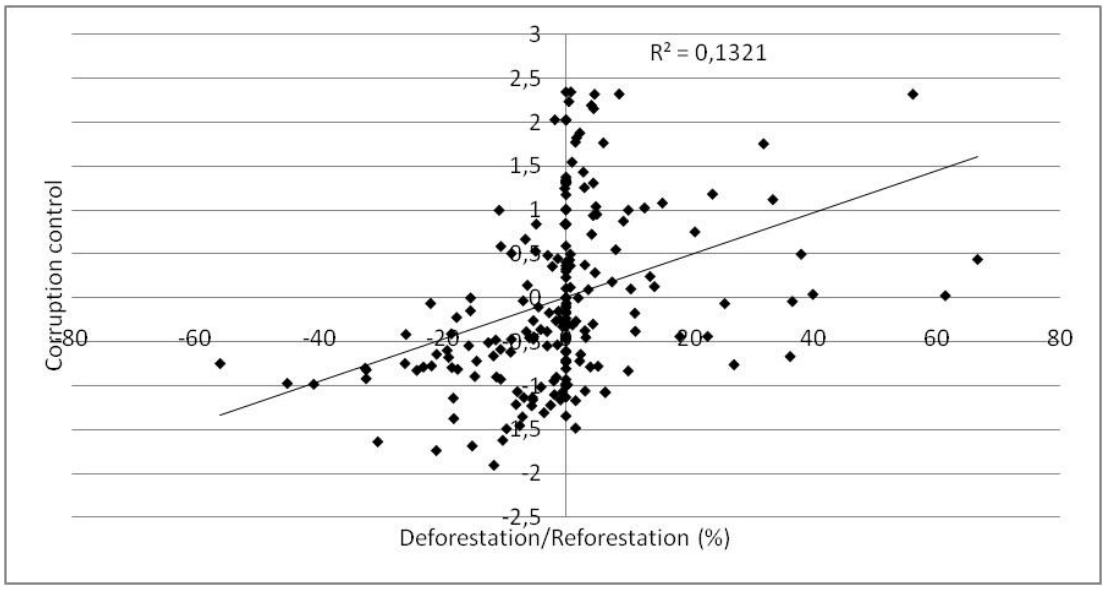

Figure 3: relationship between deforestation and corruption

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Tackling illegal logging was duly recognized as an important activity by the G8 in 1998 (G8, 1998) and crystallized in regional FLEG (Forest Law Enforcement and Governance) activities funded by international bodies. Approaching the issue from the perspective of the certification initiatives it can be hypothesized that the emergence of certification initiatives may help to impose norms and rule of law values such as contract enforcement, transparency and accountability in weak states and in this way contributes to the development of sound institutions (see for example Blair *et al.*, 2008). In addition, one could argue that forest owners or concession holders who obtained certification have an incentive to force competitors to abide to local or national rules and hence promote the development of legal institutions and the enforcement of legal rules in these countries. Therefore global private non-state market regulatory initiatives such as forest certification might generate spillover effects with regard to the development of legal institutions as is recognized in the principle outlined by the FSC. This potential macro-impact or spillover effect can be a motive for development co-operation projects. It is a Trojan horse strategy in which local governance enhancing projects are supported with the aim of forcing existing national institutions to become more effective and less corrupt.

Given these tendencies one could expect a relationship between certification and the presence of sound regulatory institutions as measured by governance indicators such as indicators on the application of the rule of law. This issue is further explored making use of the Worldbank governance indicators on rule of law (Kaufman *et al.*, 2009). Rule of law in this context refers to the quality of contract enforcement, property rights, the police, and the functioning of courts and is calculated on the basis of yearly data from different independent sources. (Kaufman *et al.*, 2009).

A preliminary assessment, plotting the relationship between certification and the Worldbank rule of law indicator (Kaufman *et al.*, 2009) shows no correlation between certification and the institutional set-up of a country (see **Error! Reference source not found.**a). It could be argued that this result is influenced by the fact that many

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countries only have marginal FSC density or none at all. However, even if one focuses on the countries with more than 5% of forest area certified and with more than one organization applying for the certificate (indicating a more widespread use) the result remains roughly the same (see **Error! Reference source not found.**b).

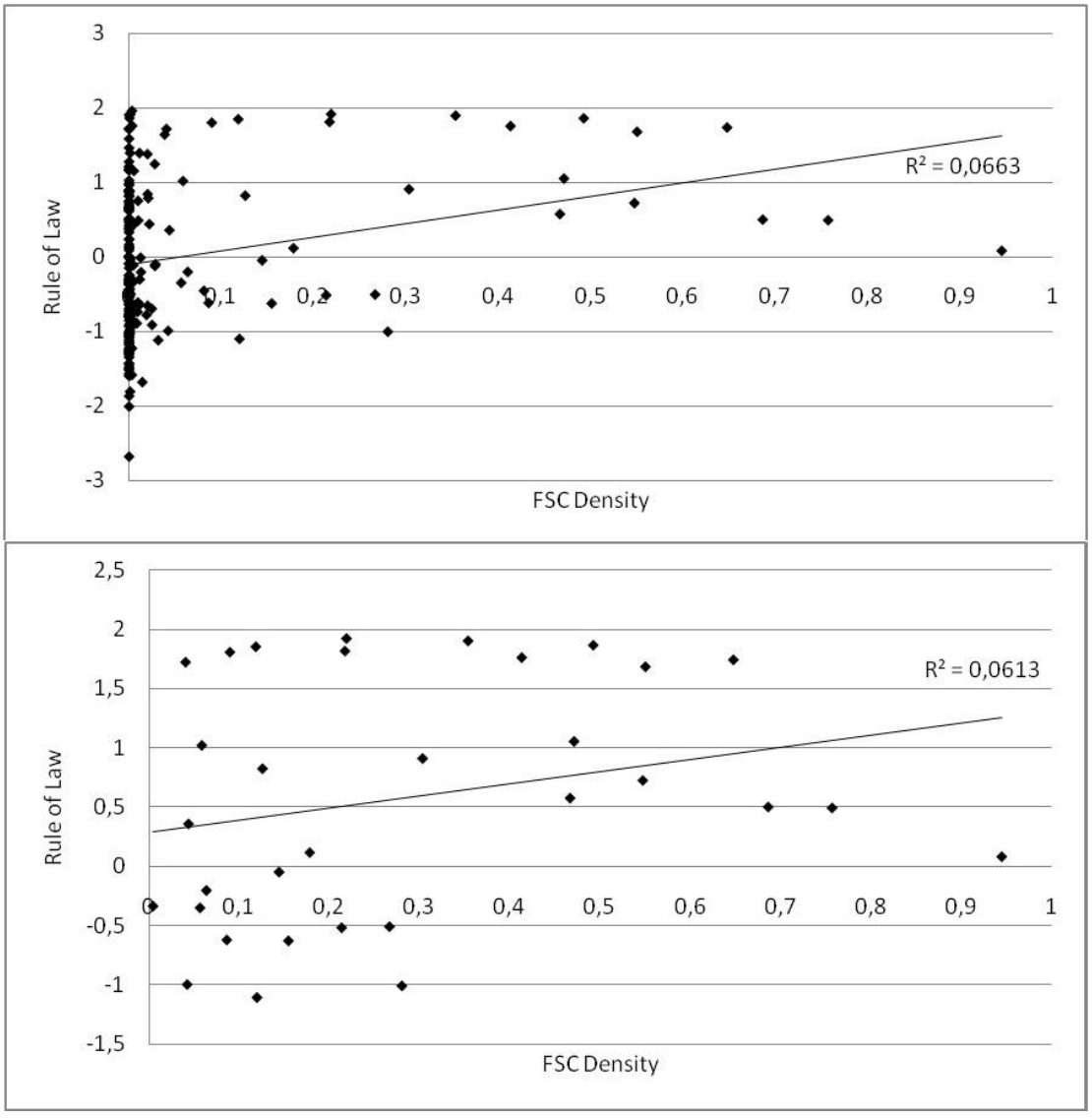

Figure 4: Relationship between certification and rule of law; a) upper figure, all countries; and b) lower figure, countries with significant FSC density

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Also an analysis over time does not result in an indication of a relationship between governance and certification. If one focuses on the countries with a more than 5% of forest area of certified and a negative score on the rule of law and control of corruption indicators (see **Error! Reference source not found.**) one does not find a trend towards a better performance on governance indicators such as rule of law or control of corruption between 1996 and 2008.

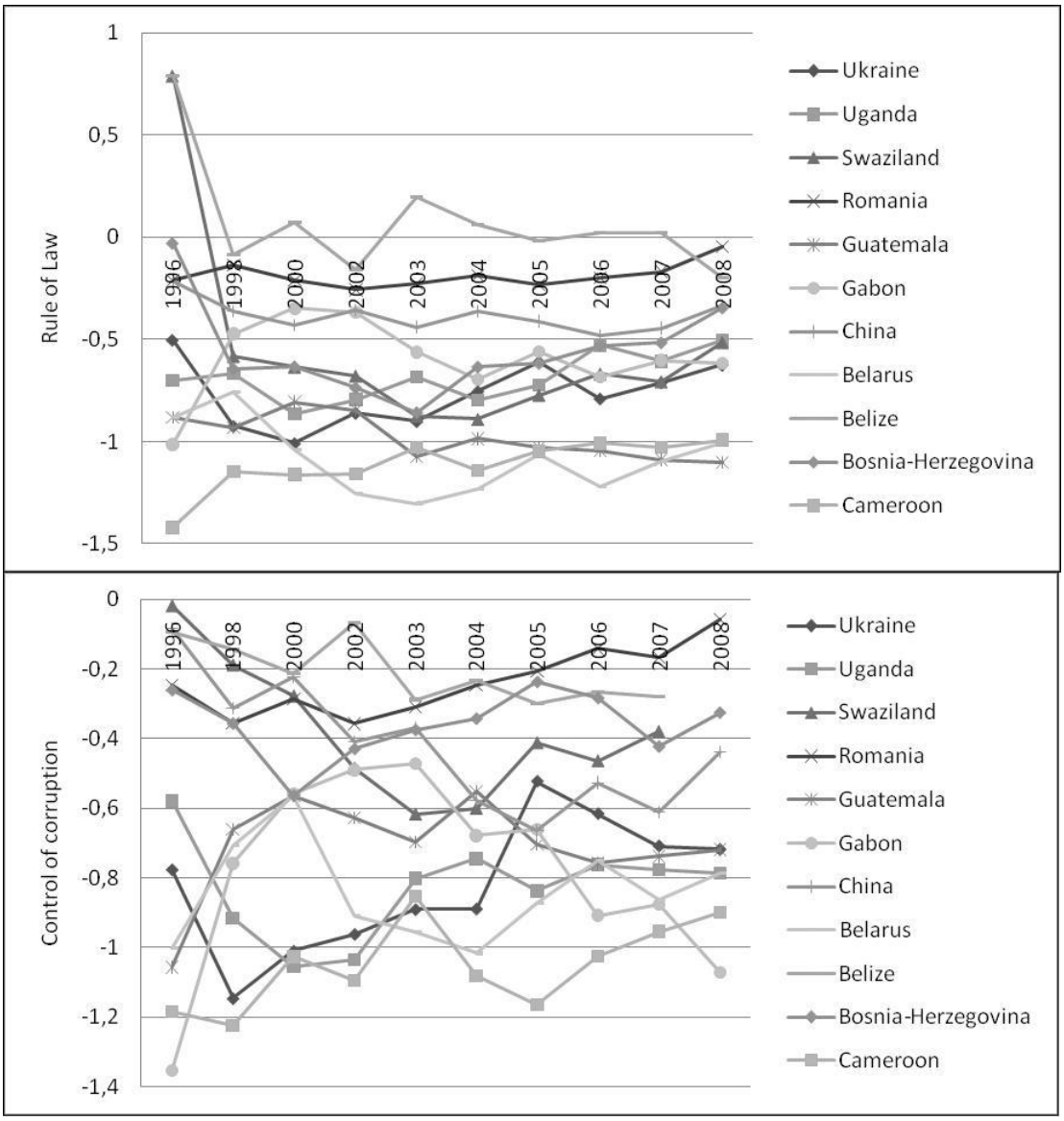

Figure 5: Development of (a) upper figure: rule of law and (b) lower figure: control of corruption in selected countries

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The interaction between certification and governance development might be more subtle then can be revealed by a simple correlation analysis on the basis of often marginal proportions of FSC density. In addition, it should be noted that in the countries with negative governance scores certification is of a recent date (mostly post 2005) making it difficult to assess on an aggregate level the direct macro-impact on governance. Hence, further case-study based research or disaggregated data-analysis is required. The Bolivian case is illustrative in this context. Governance indicators for Bolivia evolved very negatively between 1996 and 2008. However, Ebeling and Yasue (2009) report forest policy reform and stricter enforcement following certification which in turn positively affects the profitability and feasibility of certified forest management. In this case the enabling environment was limited to the institutional context in the forest sector which might not be reflected duly in overall governance indicators. On the other hand, it should be noted, that the effect of this reform is limited to the large formally established and certified companies producing mainly for export, leaving the small informal operators mainly producing for the domestic market uncontrolled pointing to potential limitations to spill-over effects.

However, the analysis does reveal an interesting additional point and indicates that there are no institutional preconditions for FSC certification to take place in a given country. Some authors (Cashore *et al.*, 2004) argue that the institutional context is paramount in understanding the adoption of certification schemes within countries. That analysis is mainly based on some Western developed countries. When one looks at the global distribution of FSC FM certification and links that to institutional governance indicators which are hypothesized to be almost necessary preconditions for making certification possible such as the presence of the rule of law and control of corruption one observes that even in countries with negative scores on governance indicators certification occurs. This implies that, from an institutional point of view, there are less obstacles for FSC FM certification adaptation. In other words, the analysis shows that certification is also possible in countries with a weak supportive institutional set-up. However, it is not yet possible to assess whether the institutional context affects the growth of FSC FM certification. It might very well be that

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certification is possible in a weak institutional context, but only to a certain degree and in isolated instances such as is suggested by the examples of Uganda and Swaziland (*supra*). In other words, as FSC certification is non-state driven, resistance can be experienced from the forest administrations because of sovereignty issues, the development of a more state-driven national scheme or even corruption networks. Forest administrations in many developing countries are involved in the widespread illegal logging and benefit from it.

This analysis further supports the observation that the stuck-at-the-bottom problem is mainly a financial, technical and data problem and less an institutional problem.

Discussion

Limits to certification as a forest governance tool

The analysis identifies several limitations of certification as a governance tool. These limitations are to a large extent related to the nature of certification as a governance tool. Certification is in essence a market informational tool and hence only operates for forests and timber which are brought on the market. Several observations are relevant.

First of all, the incidence of forest certification is limited to the forest sector itself. Only forests and timber coming from forested land appear to be certified when these forested lands are allocated as production forests (alone or among other functions). As such the tool applies to tackling forest degradation in forests with a production function more than it applies to tackling deforestation in general. Deforestation is also caused by drivers from outside the forest sector (Geist and Lambin, 2002). Although an incentive for the conversion of forest by a first land rent can be provided by

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stripping the forest from its commercially interesting species, the main exploitation of the forest lies in the use of the land for other purposes, mainly agriculture (for food, feed, bio-energy feedstock etc.) and livestock. A major cause for deforestation is now large-scale agriculture driven by domestic consumer demand as well as demand from abroad. In recent decades deforestation has shifted from a largely state-initiated to an enterprise-driven process (Rudel, 2007).

Secondly, as a market mechanism it is also limited to the existence of sensitive markets and access to these markets. The latter implies a well developed framework of policies, trade stability and demanded products (*in casu* at least the species asked for and a quality of logs or sawnwood). For developing countries the sensitive markets usually lie abroad, therefore an export market has to exist as well as stable contracts. In general exported timber volumes are only a fraction of the timber produced in these countries (Gullison, 2003; ITTO, 2009). The FAO (2000) estimated the total roundwood production in 1999 in developing countries at 2.042 million m^3 of which 1.592 million m^3 were fuelwood and charcoal, reducing industrial roundwood production to a mere 22% or 450 million m^3. From these 450 Mm^3 less than 10% was exported; comparable percentages exist for sawnwood and other timber products. This is also illustrated by the fact that the companies in developing countries running for certification or holding a certificate are usually the export oriented companies. Most FSC certified operations in Central Africa are concessions held by European international companies exporting mainly to Europe.

Thirdly the price premium expected has to exist. First of all buyers have to be willing to pay the premium and available evidence is somewhat contradictory on this issue (Gullison, 2003). On the cost-side timber products issued from certified operations, involving direct and indirect certification costs, in developing countries where illegal logging is common, still have to compete with illegally sourced timber (ITTO, 2008). This cost difference can be considerable. Gullison (2003) reports claims by a

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Brazilian Amazonian logging company of 30% higher logging costs than traditional practices.

Potential of forest certification as a governance tool

The analysis also shows that there is still significant scope for certifying forests both in the developed countries as well as the developing countries. There are many forests, designated for production purposes, which might apply for certification and make a switch towards more SFM given the increased attention for SFM in the context of combating climate change and the protection of biodiversity (*cf.* 2010 is the International Year of Biodiversity).

The attention for both the protection of biodiversity and combating climate change creates new momentum and incentives (including materializing price premiums) for the sustainable management of forests. Getting the incentives right will be of importance to further promote certification initiatives. Regarding deforestation, studies on the micro-impact of certification on deforestation are rare, but a study conducted by the Rainforest Alliance (Hughell and Butterfield, 2008) on the level of specific forests found significantly less deforestation and incidence of wildfires within the FSC certified forest concessions than in the remainder of the multiple use zone and the overall Mayan Biosphere Reserve (MBR) in Guatemala. The decision to grant forest concessions within the MBR used to be contentious but has since proven to be strategically astute for the long-term protection of forest cover. As such this case proves that in the case of the MBR certification has consolidated SFM. As such it has provided an economic incentive for forested land to remain forest. A management plan is a long term tool and as such a long term assurance for financial income.

In addition many initiatives are emerging which enable the valuation of externalities (ecosystem services such as carbon sequestration, erosion control, water regulation,

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etc.) and which can be (partly) internalized through payment for environmental Services (PES). Internalizing these costs might result in a situation in which the opportunity costs for forest use/management might be able to compete with other land uses. Many initiatives are arising in this context, mainly on carbon sequestration services. Some are market based, others fund based, some linked to the Clean Development Mechanism market (constrained to afforestation and reforestation) and other compliance and voluntary markets. Hence, the voluntary market for forest is growing fast and allows for many different concepts of payment for forest carbon. In the recent 'State of the Forest Carbon Markets 2009' Ecosystem Marketplace (2010) estimates historical forest carbon transactions at a conservative 67,8 Mt CO2 for voluntary and compliance markets. Most of the market value was generated only in the last 3 years due to higher volumes and prices. The overall weighted average selling price for a forestry offset by project developers was $7.12/t CO2 in 2008. Ecosystem Marketplace tracked $38,3 and $31,5 million in transactions for 2007 and 2008 respectively. Although the biggest share of forest credits is still the voluntary market (73%), the compliance market grew steadily too the last years. According to this survey around 2,1 million ha all over the world are influenced by forest carbon finance.

All but one of the CDM A/R projects registered were registered in 2009 and 2010 (UNFCCC, 2010) totaling an annual turn-over of 416.138 t CO2 at a selling price of around $5 per temporary certified emission reduction (temporary CER) or t CO2. A total of 9,5 million temporary CERs will be generated over the currently registered CDM A/R projects' lifetimes. The forest carbon markets increasingly utilizes third-party verification and certification, and the major share of the projects have been certified under one or more forest carbon standard schemes.

These are clear indicators that the forest carbon market, which uses SFM certification as an add-on standard, is growing substantially. As a result, a significant number of projects certified against the CCBA-standard are certified against the FSC standard

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(CCBA, 2010), for example SmartWood South America only audits for CCBA in combination with FSC and FSC has a Forest Carbon Working Group to feed the review of its Principles and Criteria to control carbon claims in relation to FSC certified operations (FSC, 2008).

Although the payment for carbon in forests received attention before, the attention gained momentum in 2005, when the issue of avoided deforestation was raised on the CoP of the UNFCCC. Since then the concept of paying developing countries for the protection of their forests gained more and more support. The mechanism is known as REDD+ (Reduced Emissions from Deforestation and Forest Degradation) and goes beyond avoiding deforestation and degradation and also includes forest management and more. Certification can constitute an interesting tool for SFM and avoiding degradation under a REDD+ scheme since the Measurement, Reporting and Verification (MRV) requirement is already partly done by third-party certification.

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Conclusion

Forest certification was created to address global forest deterioration, especially the deterioration of forests in developing countries or tropical forests. Contrarily, as shown above forest certification has primarily gained momentum in developed countries. Part of this is explained by the fact that firms that are not highly regulated by governments and have to compete with other non-regulated firms are much less likely to support certification, as it could lead to their demise (Cashore *et al.*, 2007). In developed countries forest law and its governance are further away from FSC standards than standards in developed countries, therefore raising the threshold. Regarding the domestic consumption being higher than exported volumes, companies in developed countries also have the advantage of producing for a bigger domestic sensitive market or closer to sensitive markets.

The paper found that the contribution of certification to halting deforestation presently is limited partially due to the stuck-at-the-bottom problem (*ie* the fact that certification occurs only from a certain level of development onwards) and its market-driven nature. However, the paper also showed that certification offers significant potential which is illustrated by countries with very high levels of FSC-FM certified forests. The paper also explored the macro-impact of certification on the development of sound governance institutions with a specific focus on rule of law. The paper found no relationship indicating that the presence of governance institutions which promote the rule of law government effectiveness or regulatory quality is not a precondition for FSC FM certification in a given country.

The paper also identifies several areas for further research. First, **Error! Reference source not found.** shows the relationship between development and certification. In this paper two interesting spaces in the graph were discussed: the upper right (high

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levels of development and certification) and lower left (low levels of development and certification). However, the lower right space (countries with high levels of development and low levels of FSC certification) constitutes an interesting space for further investigation. This case might partially be populated by countries with limited forest area, but also contains countries with significant forest coverage. This area possibly includes countries where other schemes are more widespread and supported, and constitute a competition to FSC. In addition, a longitudinal analysis of specific country cases on the upper right might reveal how countries achieve high levels of certification. This analysis can build on the work of Cashore *et al.* (2004) who addressed the issue for a small sample of countries. Secondly, the paper only analyzes the impact on the basis of country level data (cf. macro-impact) with regard to a limited set of impact indicators. This is a limited conception of analyzing impact and complements current micro-impact analyses on the level of forest management units which use a multitude of ecological, economic and social impact indicators (see Karmann & Smith, 2009). In addition, the analysis of impact can be broadened as is suggested by Auld *et al.* (2008) by including positive and negative unintended effects, spillover effects to other certification schemes and long-term and slow-moving effects mainly with regard to the impact on national and international rule-making. Thirdly, the link between certification, institutional/governance development and deforestation/reforestation needs further in-depth and case-based analysis. Finally, the paper only focused on the FSC since it is regarded as the most legitimate system, it operates on a global scale (is geographically better represented than other certification schemes) and makes, in a transparent way, data available for analysis. Subsequent analyses can take into account other systems.

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ENDNOTES

[1] FAO Land Use Database - http://faostat.fao.org (ResourceSTAT-Land (April 2009)). [Last accessed on 14 Aug 2009]

[2] Human Development Index - United Nations Development Programme (2009) http://hdr.undp.org/en/statistics/ [Last accessed on 16 Aug 2009]

[3] Forest Stewardship Council (registered certificates database) - http://www.fsc-info.org/

(based on 993 seperate files for each forest that is certified). [Last accessed on 17 Aug 2009]

[4] This figure was calculated by dividing the total amount of hectares certified by FSC (116.274.127 hectares) by the total amount of forest area worldwide (3.937.009.800 hectares) calculated on the basis of the data retrieved from FAO Land Use Database - http://faostat.fao.org (ResourceSTAT-Land (April 2009)). [Last accessed on 14 August 2009]

[5] Holvoet only refers to the audit costs (direct cost) while the other sources try to measure the real overall cost (direct and indirect) including personnel time, consultancy for the elaboration of management plans etc.

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