Article

Impact of European Union Timber Regulation on Forest Certification Strategies in the Finnish Wood Industry Value Chain

Jani Holopainen *, Anne Toppinen and Sini Perttula

Department of Forest Sciences, University of Helsinki, P.O. Box 27 FI, Helsinki 00014, Finland;
E-Mails: anne.toppinen@helsinki.fi (A.T.); sini.perttula@pefc.fi (S.P.)

* Author to whom correspondence should be addressed; E-Mail: jani.m.holopainen@helsinki.fi;
Tel.: +358-503-766-392; Fax: +358-919-158-100.

Abstract: The aim of this explorative study is to find out how the EU Timber Regulation (EUTR) has affected the forest and chain of custody (CoC) certification strategies and practices among the Finnish wood industry companies. We are especially interested to find out whether more integrated strategies and collaborative networks have emerged for enhanced communications throughout the industry value chains. This qualitative interview study included both EUTR *ex ante* and *ex post* analysis, based on three rounds of managerial and expert interviews during 2011–2015. The results indicate that the EUTR appears to have enforced the supplier–client relations in the Finnish wood industry value chain. The sector still lacks integrated communication strategies with better understanding of customer and stakeholder values, which could contribute to more cohesive communication and marketing efforts reflecting the values of the whole industry. The certification practices are fairly spontaneously implemented following the traditional industry culture, which is not supportive of innovations and gaining competitive advantages in the broader material markets. Furthermore, the existence of two parallel forest certificates (Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC)) seems to hamper the effective communication and building of an image of sustainable wood products among customers and end consumers, groups that are also exposed to more general environmental communication, e.g., in the building material markets.

Keywords: markets for certified forest products; forest certification strategy; environmental communication and marketing; EU Timber Regulation (EUTR)

1. Introduction

Forest and chain of custody (CoC) certifications have been blamed for being unable to capture substantial market shares, or bringing in competitive advantage or price premiums, e.g., [1,2]. This is particularly the case for downstream consumer markets, despite consumer perceptions towards certification and sustainable forest management practices being fairly positive [3–5]. Overall, studies have shown that there is a lack of certification communication and marketing strategies targeting end consumer markets. Basically, no explicitly stated strategies exist, as Chen *et al.* [6] suggested in the North American case. In the Nordic case, strategies have been adopted only at the primary production level to mainly target industrial customers [2,7].

Changes in the institutional environment can be seen as opportunities to enhance implementation of strategies, to improve the cohesiveness of the entire value-network, and tapping into new market opportunities [8–11]. The wood industry companies, and their certification strategies, have also evolved over time as a result of changes in the institutional environment [12–15]. However, still, a characteristic of the wood industries and certified forest products is the lack of strategies throughout the value chain aimed at building end-consumer awareness on sustainable forest certification *vs.* non-certified or other material products.

The most recent example of institutional influence on forest and CoC certifications is the emergence of the EU Timber Regulation No. 995/2010 (EUTR), which came into force 3 March, 2013. The EUTR is the first reform in the EU aimed at prohibiting the trade and import of illegally harvested timber and timber products [16]. Operators who place timber and timber products on the EU market for the first time are required to attest to the legality and origin of the timber and exercise "due diligence". All subsequent traders throughout the supply chain are additionally obligated to identify the operators or traders that have supplied the timber and timber products and, where applicable, the traders to whom they have forwarded the timber and timber products. Operators already using existing supervision systems under national legislation or any voluntary CoC mechanism that complies with the requirements of the Regulation are not required to set up new systems [16], but to exercise "due diligence". Certification and other third party verification that applies public standards and on-field monitoring (e.g., forest and CoC certification of the Programme for the Endorsement of Forest Certification (PEFC) and the Forest Stewardship Council (FSC) are recognized as risk assessment and mitigation elements of due diligence systems [17]. Consequently, the EUTR as a new institutional regulative element [9–11] can be seen as an opportunity to enhance diffusion of markets of forest and CoC certified products. Alternatively, the EUTR requirements for "due diligence" and other legality verification systems may partly act as a substitute for forest and CoC certifications.

The aim of this explorative qualitative interview study is to determine how the EUTR has affected the certification strategies and practices among the Finnish wood industry companies. Especially we are interested to find out whether more integrated strategies and collaborative networks have emerged due to

introduction of EUTR for enhanced communications throughout the industry value chains. This analysis is done on three value-chain levels including primary-, value-added, and retail/wholesale—levels in order to better understand the collaborative nature of the whole value-network. Managerial interviews are executed *ex ante* and *ex post* the EUTR. To draw more comprehensive understanding, the analysis includes expert views about the EUTR impacts on the forest and CoC certification strategies and practices. Based on the analysis, we are able to make some managerial implications for further developing sustainability management and communication in the value chain and in certification organizations, supporting the creation of more collaborative and cohesive value-networks.

2. Literature on Markets for Certified Forest Products and EUTR

According to Schepers [18], customer demand has inherently been the major driver for the uptake of (FSC) forest certification. Schepers [18] suggests that the demand for forest and CoC certification originates from wholesalers and retailers and, as a form of corporate responsibility, in the large-scale pulp and paper product companies (*i.e.*, business-to-business demand). Public procurement and other policies [14,19,20], in addition to pressure from non-governmental organizations (NGOs) [13,21,22] or investors [23], have similarly contributed to the uptake of forest certification. Moreover, small and medium-sized enterprises (SMEs) likely behave differently in terms of certification and other corporate responsibility practices compared to the large-scale pulp and paper industry [24].

Van Kooten *et al.* [25] used comprehensive data from 117 countries concerning consumer behavior and perceptions, especially those involved in international markets, and found it to have stimulated the uptake of forest certification. In the early 2000s, Kärnä *et al.* [26] found, from a marketing perspective, the greenness level of European forest product companies to be associated with the perceived importance of forest certification. Owari *et al.* [2] suggested that wood product supplier companies do not fully exercise their right to use certification labels, but rather use minimal cost and effort to demonstrate their environmental responsiveness by focusing on the environmentally sensitive United Kingdom and German markets. According to Räty *et al.* [7], forest certification at the product level is currently not recognized as an ecolabel by end consumers in comparison to, e.g., "the Nordic Swan" [27], suggesting that both end consumer demand and forest and CoC certification markets continue to be of limited scope.

While the existing forest CoC certificates are an acceptable measure for the legality verification of timber products, *ex ante* impact assessment studies [28] suggested that only some minor additional operator costs would likely be incurred after making these systems fully compatible with EUTR requirements. Brown and Bird [29] additionally suggested that the areas of certification, such as system governance and supplier accreditation, are already well-managed in private forest certification schemes, and thus implementing forest certification as an assurance for timber legality would contribute to reduced costs and administrative work for operators required to establish due diligence systems according to the EUTR. More recently, Cashore and Stone [18] proposed that public policies such as the Lacey act in the US and the EUTR with their various legality verification forms may potentially have a positive effect on the uptake of certification especially in countries where forest certification has failed to achieve widespread support. Additionally, some other policy assessments on the EUTR exist, e.g., [30] analyzing the meanings, accomplishments, and obstacles for the implementation. Trishkin *et al.* [31] analyzed a

case company's due diligence system and forest CoC certification (FSC) and found them to comply with the EUTR requirements, while the law enforcement in the EU member states was found immature.

There are also some early signs of changes in global trade flows. For example, according to the United Nations Economic Commission for Europe (UNECE) [32], the first year of EUTR implementation indicates a shift in consumption to more reliance on wood harvested and manufactured in the EU, and firms appear to have moved away from sourcing from high-risk countries. In the case of the EU Forest Law Enforcement Governance and Trade—initiative, Giurca *et al.* [33] found spillover of high-risk timber to non-EU countries and they anticipated same to happen as a result of introduction of the EUTR.

Despite several early impact and policy-assessments, there is a lack of studies showing how operators and forest industry companies have with the emergence of EUTR changed their strategies and practices in the European markets.

3. Conceptual Framework

According to the institutional theory in organization studies, changes in the institutional environment have implications on company practices [34], as well as strategies and relationships [35]. Institutional structure typically consists of three main elements; regulative, normative and cultural-cognitive, while changes in one element may affect the other elements and thereby effect on the institutional logic [11]. This study introduces a framework to analyze impact of a new institutional regulative element on organization strategies and practices in the case of forest and CoC certifications.

Following the institutional theory in organization studies, e.g., Grewal and Dharwadkar [36], the normative element includes strategies, while the cultural-cognitive element covers single actions and practices (e.g., the adoption of certificates, -standards, -environmental management, and -legality systems, public and communication campaigns). The conceptual framework (Figure 1) helps us to analyze the impact of one regulative element on the certain concepts of normative and cultural-cognitive-elements, *i.e.*, it helps us to describe the institutional logic in organizations *ex ante* and *ex post* the EUTR. In addition, our framework considers three value-chain levels including primary-, value-added, and retail/wholesale-levels in order to better understand the relationships and collaborative nature of the whole value-network.
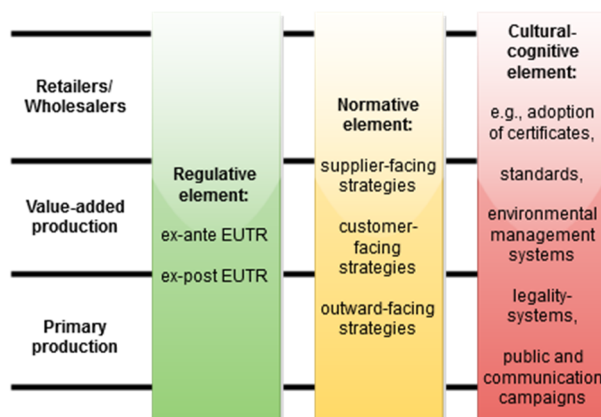

Figure 1. The conceptual framework considering the institutional elements of forest and CoC certification strategies and practices. The analysis is implemented *ex ante* and *ex post* the EUTR and at the different stages of value chain.

4. Materials and Methods

We apply the categorization of the supplier-facing, customer-facing, and outward-facing strategies in the analysis of the normative element and different certification strategies adopted by the companies. Supplier-facing strategies are usually adopted in the industry's total quality management (TQM) [37,38], while more state-of-the-art customer-facing strategies are adopted in customer relationship management (CRM), e.g., [39–41], can lead to more product and service innovations and improved infrastructure to enhance customer value perceptions and strengthen customer engagement and loyalty [42]. Finally, companies link with both suppliers and customers, through their outward-facing strategy [43] and also with other stakeholders [44] by integrating more generalized strategies for different production levels with transparent and revealed stakeholder value focus in order to improve the cohesiveness of the entire value-network and the business performance of the overall value chain [8]. This also contributes to the better understanding of companies about how stakeholder-value and social capital can influence value creation and long-term profitability [44].

The cultural–cognitive element represented by actions, practices, and functions (e.g., the adoption of certificates, -standards, -environmental management, and -legality systems, public and communication campaigns) can be either planned (implementing strategies) or spontaneous (steered by the industry culture) [45]. While up-to-date strategies, as well as planned actions and practices, deliberate the whole institutional environment, the spontaneous actions and practices are only considered within the cultural-cognitive environment. If this environment is aligned with the whole institutional environment, even spontaneous actions can be effective. However, if the spontaneous actions do not comply with the institutional order, they may disturb the institutional balance and cause ineffective or even negative outcomes [45].

Our study applies a case study approach and qualitative interviews to analyze the strategies and practices related to forest and CoC certification uptake at different levels of the Finnish forest industry value chain, *ex ante* and *ex post* of the EUTR. Finland is an example of an export dependent country with a high coverage of forest and CoC certification, as 95% of the total timber harvest and nearly all wood product exports to European markets are already certified under a PEFC certificate [46].

According to Yin [47], one of the strengths of conducting case studies is that their design enables the examination of contemporary events in a well-defined and restricted context by applying a wide variety of evidence, including, e.g., documents, artifacts, interviews, and observations. Following Yin [47], a case study design must include research question(s), propositions, unit(s) of analysis, and a determination of how to link data to the propositions, and finally criteria to interpret the findings. Another strength of case studies is gaining insights into meanings (*i.e.*, cognitive-culture and norms), which furthermore may give rise to emerging and critical issues rather than generalizable grand narratives [48].

Qualitative interviews formed the empirical part of the research and they were carried out in three stages. The stage 1 semi-structured interviews were conducted in 2011 *ex ante* the EUTR among 17 Finnish forest industry companies at different levels of the value chain (for more details, see Perttula [49]). The applied sampling method was purposive sampling [50,51], where the aim was to include the entire Finnish wood product value chain, including diversity in terms of company size, export activities, geographical location, and products at different levels of the value chain (*i.e.*, among primary producers, value-added producers including furniture and interior decoration, construction companies,

wood products wholesalers, and retailers). The interviewees were CEOs, marketing managers, environmental managers, or persons responsible for production or sales. The interviews were conducted face-to-face except one by telephone and they lasted between 30 and 60 min. The obtained data (see questionnaire in Appendix A) included information on forest and CoC certification and strategies to communicate with suppliers, customers, consumers, competitors, NGOs, and other stakeholders. Data on use of other certification and environmental management systems (e.g., Finnish Key Flag Symbol, Nordic ecolabel, Realwood, ISO14001, EMAS) were also obtained as they can facilitate the adoption of more specific forest and CoC certification criteria [17,19].

The stage 2 semi-structured interviews conducted in October–November 2012 focused on the expert views on how EUTR is going to impact forest and CoC certification and strategies among Finnish forest industries. The interviews were conducted on seven experts selected as being representative of a range of actors in the forest certification sector: timber legality verification, environmental performance measures (EPMs) and based on their involvement as stakeholder representatives in EUTR policy development and national implementation. These included two personal interviews with the certification associations (both PEFC and FSC), three certification/verification bodies, and representatives of timber producers (The Central Union of Agricultural Producers and Forest Owners) and wood industries (The Finnish Forest Industries Federation). Stage 2 interviews generally lasted for 60 min. The themes in the questionnaire for experts (Appendix A) assessed the general organization of Finnish stakeholders to meet the EUTR and impacts on forest and CoC certification. For this analysis, to be in line with stage 1 information, the experts were asked to consider the effects at different levels of the Finnish wood production value chain including raw material producers, primary producers, value-added producers, construction companies, wood products wholesalers and retailers, and consumers.

Stage 3 *ex post* EUTR interviews were conducted to reflect the impact of the EUTR on organizational strategies and practices regarding forest and CoC certification. The stage 3 interviews took place in March 2015, two years after the introduction of the EUTR, and with the same target group as stage 1. The questions (Appendix A) were set to gain updated information resulting from the EUTR and to also reflect possible tradeoffs between forest certification and legality verification. This was performed keeping in mind the proposition by Cashore and Stone [18] that legality verification requirements are most likely supportive of global certification and good forest governance initiatives. Stage 3 interviews were conducted via the telephone, with interviews lasting 10 to 30 min. A total of 15 Finnish forest industry companies at different levels of the value chain were reached during stage 3.

All interviews were conducted in Finnish, which was the native language for both interviewers and interviewees, and then translated into English. Due to the confidential nature of the interviews, the names of interviewees are not reported in our study. However, to ensure replicability, anonymously coded interview transcriptions are available from the corresponding author upon request. Since data collection was performed by conducting personal and phone interviews, as well as by collecting evolving EU legislation documentation over nearly a five-year time span, the process provided researchers the possibility of comprehensively reflecting upon the content, and the three stages also complete one another to fill the aims of the research. The results with saturated data [50] give valid and reliable insights into meanings (*i.e.*, role of cognitive-culture and norms) regarding the certification strategies and practices in the case of the Finnish wood industry value chain. However, our results cannot be generalized to other countries and contexts.

5. Results

5.1. Use of Forest Certification and CoC ex Ante EUTR (Stage 1)

The summary of the Finnish wood production value chain interviews (Appendix B) illustrates the use of forest and CoC certification and the environmental management systems, as well as different environmental communication strategies (strategy type, main message, planned/spontaneous uptake of certificates). The analysis is presented among different types of forest industry companies including the value-chain level, wood origin, exports share, and company size.

Large companies are primary level producers in the Finnish wood production value chain, while value-added producers are mostly SMEs. The companies representing the construction sector and wholesales and retailing in our sample are large. The exports share is large among the primary producers and also in most of the value-added companies, while wholesalers/retailers act in the domestic market. At least one sustainable forest management certificate (mainly PEFC) and environmental management system certificate (mainly ISO14001) was in use among the primary producers, while being used only by companies targeting export markets among the value-added producers. Certification practices were found to vary among the downstream value-chain actors (construction, wholesale/retail).

Based on our analysis, most of the Finnish wood industry companies in the sample had customer-facing environmental certification strategies. Through the certificates these companies aimed to convey information from their suppliers to their customers, mostly concerning wood origin and environmental sustainability. However, this was done without creating any competitive advantage over competitors arising from the certification. The interviewed managers seemed to be unaware of the broader value base of their customers or other stakeholders, and only believed their customers to benefit from certification mainly through market access and a larger market share, while price premiums for certified products were not expected. Companies, overall, did not share information or cooperate in environmental promotions with their suppliers, customers, or other stakeholders. Only one retailer mentioned the distribution of environmental information as an important channel for customer cooperation and product development. The uptake of certificates among these companies was seen to be spontaneous when dealing with emerging issues from their international clients or their actions were based on culture and habits, as well as imitating other companies. The following quote presents an example of industry logic and culture in steering the spontaneous actions: "End consumers in the Finnish market do not ask for certificates in timber products". Fulfilling the business-to-business demand from the export markets is not seen as an opportunity by primary producers to co-create value as the following quote shows: "PEFC is currently seen as mandatory and that is the reason why we have begun using it. We operate in business-to-business markets and forest certificates are important to our customers".

Only one value-added company had a supplier-facing strategy requiring the Finnish Flag (product manufactured in Finland)—certificate from its suppliers, but it had no actual strategy to meet customer demand if any were presented by the customers.

Three value-added companies seemed to have an outward-facing strategy for their certification, as one company representative's comment suggests: "We also want to be a truly ethical company and the labels help us prove this. From the marketing point of view, the labels' reputations are important and also that they are known so well". While these managers were reflecting their own company values

towards certificates, they were not very aware of their customer or other stakeholder values. In this regard, certification uptake was not seen to implement any strategy, but rather to be quite spontaneous action. One manager in a construction company additionally seemed to reflect an outward-facing certification strategy concerning its own company values, but not that of its customers or other stakeholders as the following quote shows: "The most important incentive [for obtaining certification] has been the values of the company. We want to act in an environmentally friendly manner and do more than the law requires of us".

Only one interviewee of a primary/value-added company expressed an outward-facing strategy with the intent of communicating to a larger audience. In addition to other outward-facing strategy companies, this company interviewee was also more aware of customer values through communicating and evaluating customers' environmental statements: "The company's customers are very environmentally aware, they use certified products, make their own life cycle assessment [LCA] calculations and detailed environmental statements". This same company interviewee also reported the company's aim of improving supplier understanding and NGO value bases, as the following statements suggest: "The company requires certificates from suppliers and we also make some inquiries concerning environmental issues." and "The company cooperates to a certain degree with the World Wildlife Fund [WWF] and Greenpeace. We aim to exchange information with them, but we do not invite input from them when making business decisions". As these comments also suggest, the evaluation and integration of different stakeholder values into strategies and processes remains challenging. In addition, this particular primary/value-added company with an outward-facing strategy seemed to strive for reflecting the company's values and meeting its stakeholders' requirements for corporate responsibility through certification, as the following quote suggests: "ISO 14001 is in use and our own strategy is the main incentive. The measures, standards, and auditing are rather expensive but this is also a relative concept. If you don't have them, it is impossible to do business". Therefore, in this one primary/value-added company only, the certification uptake seemed to be planned (implementing the chosen environmental strategy) rather than being solely spontaneous (implementing the industry culture).

5.2. Expert Perceptions on EUTR Affecting Forest and CoC Certification Strategies and Uptake (Stage 2)

The stage 2 semi-structured interviews (Appendix A) assessed the expert perceptions on EUTR impacts on forest and CoC certification and strategies. In stage 2, experts widely representing forest sector decision-makers perceived that no pressure for substantial additional requirements or for incurring additional costs resulting from the implementation of EUTR for the Finnish wood industry value chain would emerge. By implication, the status quo based on having a 95% certified timber harvest in Finland is likely to be sufficient to meet the basic requirements of EUTR. This is illustrated by a quote from a forest owner representative, referring to the implementation instructions issued by the Agency for Rural Affairs, which acts as the national authority for EUTR application: "The existing obligatory notification of forest use and measurement reporting would form the due diligence system for those Finnish timber producers that place timber on the EU market for the first time. This would be in accordance with the EUTR recognizing that any existing supervision systems under national legislation may be used as the basis of the due diligence system".

For imported timber, both the PEFC and FSC certification systems aligned their CoC standards in 2013 to comply with the EUTR requirements. PEFC introduced the 2013 PEFC CoC standard with its integral PEFC Due Diligence System (PEFC DDS) [52] and FSC published applicable national and local laws and regulations in relation to both FSC certification and FSC's standards on controlled wood (CoC) [53]. The FSC Controlled Wood Standard is a CoC system requiring the FSC certificate from all chain operators beginning from the raw material producer. PEFC contrastingly provides a standalone PEFC Due Diligence System, but only for timber legality verification purposes. There are also several existing codes of conduct (e.g. the Confederation of European Paper Industries' (CEPI) codes for legality assurance) used by companies in lieu of the legality verification/assurance of timber and timber products, which include such requirements as knowledge of timber origin, a preference for certified wood, and a prohibition of wood from unverified origins, protected areas, or intact natural forests. An industry representative notes the effect of the operation scale: "Such codes of conduct and traceability systems are currently mainly used by the large timber companies, but less so by the SMEs that focus on domestic markets".

The following comment was received from a certification company, when experts were asked whether they believe the EUTR will reduce the costs of attaining certification: "More work and expenses are required for the auditing process due to more requirements and documentations needed for the EUTR. However, this is only the case for operators that are obligated to exercise due diligence, whereas the certification costs at other, following levels of the value chain may be somewhat lower due to improved transparency".

The expert interviewees were next asked to assess whether the EUTR would require changes in company-level practices and strategies. The experts' opinions indicate an unanimous view that a strategic commitment to the EUTR is necessary among companies that place timber and timber products on the EU market for the first time and that have to fulfill the obligation of exercising due diligence. In the Finnish case, this particularly concerns timber and timber product importers at the beginning of the value chain, including the SMEs that traded without timber traceability systems prior to the EUTR. However, the experts perceived that a strategic commitment towards the consumer end of the value chain varies with product type and customer demand for certification.

According to Finnish wood industry representatives, the main obligation set by the EUTR for all traders throughout the supply chain is to demonstrate the legality of their timber products and also to establish a system for gathering information. They claimed that this requires the establishment of improved and harmonized procurement functions and more developed information systems, especially at the end of the value chain, while the information systems in place at the beginning of the Finnish wood production value chain were already perceived as sufficient.

While new practices and the establishment of costly information systems are required, particularly for SMEs currently without any existing systems, the industry representative, e.g., remained skeptical that these companies would adopt forest and CoC certification: "Certification is not expected to increase significantly among smaller companies due to the prohibitive certification costs that would be incurred. Thus the EUTR is not likely to promote the supply of certified timber product specifications".

The interviewees were furthermore fairly unanimously skeptical that the EUTR would have any significant effect on increasing end consumer demand for certified timber products. On the other hand, some respondents stated that increase in demand may occur, which could be attributed to the increased

public visibility and knowledge of timber certification, generating business-to-business demand and some increased demand from end consumers, as the following quote by a certification organization shows: "There is hardly any end consumer demand for certified wood products in Finland. However, there are signs that the building industry is showing interest towards using certified products, which will create pressure on the wholesaler/retailer level to obtain certification. This can be attributed to our active marketing campaign that targets constructors and wholesalers, but there are also actors in these groups that are concerned about fulfilling the EUTR requirements". Although the progress in green building initiatives is fairly modest in Finland, some interviewees expressed the hope of a growing interest in certification from the construction value chain, where public investments and green procurement policies play an increasingly vital role (see Nikolakis *et al.* [23] for the North American market or Wang *et al.* [54] for the UK market).

The experts additionally unanimously voiced that the EUTR requires the establishment of due diligence systems for the extra EU-imported timber, and that to some extent this is likely to increase the supply of both certified softwood and certified hardwood timber imports. This could contribute to the improved availability of certified timber imports in European markets, as well as improved business-to-business demand and a more transparent value chain. The following comment from an industry representative revealed that the supplier-client relations in the Finnish wood industry value chain are well established and entrenched: "The entrenched supply relations will be forced to change only if suppliers are unable to fulfill the EUTR requirements. These relations may even be stronger with closer cooperation, if the current suppliers are seen to comply with the EUTR".

5.3. Use of Forest Certification and CoC ex Post *EUTR (Stage 3)*

The stage 3 *ex post* EUTR interviews (Appendix A) were conducted in early 2015 to reflect the impact of the EUTR on organizational strategies and practices regarding forest and CoC certifications and possible tradeoffs between forest certification and legality verification. The stage 3 interviews also included open discussions on strategies and practices integrating stakeholders and particularly targeting end consumer markets.

Since the stage 1 interviews, only one wholesale/retail company had adopted PEFC and one wholesale and one primary/value-added company had introduced FSC as their double-certification. In addition, one construction company was in the process of adopting a sustainable housing certificate (with no third party auditing required). These interviewees unanimously said that the uptake of these new certificates was not induced by the introduction of the EUTR, and because of their existing certificates there was no need for initiating additional procedures or establishing legality verification systems. Only one value-added SME without any certificates, environmental management systems, or legality verification systems was considering introducing a forest CoC certificate in the near future. However, according to their company representative, this would depend on whether the company was able to increase the production and processing of wood products and sign contracts with bigger wholesale/retail companies.

Regarding customer demand for explicit certificates or more accurate environmental/sustainability information, primary producers (such as sawmills) expressed an increase in inquiries arising from the processing industry and wholesale-/retail-level companies. For example, one wholesale company had received inquiries concerning the forest and CoC certificates from big construction companies initiating

sustainable construction projects, but otherwise the demand for certificates was generally found to be nonexistent. No indication of customer demand or a growing number of inquiries concerning wood origin and related certificates was also observed among the construction companies. This is clear from a comment given by a construction company representative: "Legality and origin are known but no one asks about them, which is frustrating in terms of maintaining such systems. Sustainability certificates have no added value in private consumer markets because quality issues are more of interest".

Based on our results, from the strategic perspective, no substantial changes among wood product suppliers have occurred resulting from compliance with the EUTR requirements. One wholesale/retail company noted that in 2014 the company systematically checked that all its suppliers comply with the requirements, but no changes were required. The representative of this company, however, noted the uncertainty concerning the different product categories: "The uncertainty of which products will be included [in the EUTR regulation] is still a problem, e.g., are the wooden handles of hammers also included? No one seems to know how extensively to deal with the EUTR requirements". The company interviewees had generally not recognized a need to increase requirements on behalf of their suppliers because of the sufficient quality of the existing verification systems. Only one primary/value-added producer was forced to quit the importing of sawdust from a South-American country due to non-existing legality verification and due diligence by the supplier. Some companies pointed out that the requirements for suppliers actually increased due to the updated PEFC and FSC standards searching for compliance with the EUTR.

The last question was set to analyze whether the EUTR transition period from stage 1 interviews in 2011 to stage 3 in 2015 had resulted in more outward-facing strategies in certification communication. Basically, no signs of interaction or increased synergies between the companies, their suppliers, customers, certification organizations, or other stakeholders were seen that would increase the publicity and awareness of sustainability issues and wood material certificates. The sample companies do not apply forest and CoC certifications as outward-facing strategy tools, but only reactively to secure their environmental claims, as indicated in a comment by one value-added company representative: "Forest and CoC certification information is for our own customers only, but otherwise we maintain a low profile concerning our certificates. Certification is introduced only when asked, but we do not overactively take initiatives to present our [PEFC] certification, because it still divides opinions in global markets [FSC *vs.* PEFC]". A representative of a large primary/value-added company enforced this view and also voiced the negative impact of certification in the larger construction material markets: "Public disputes of competing certificates [FSC and PEFC] negatively affect the image of sustainable wood products, while competing materials such as concrete and steel are already more popular price-wise and have no such public controversies".

6. Discussion and Conclusions

The results of our qualitative case study confirmed the existing literature that the business-to-business customer demand continues to be the major driver for the forest and CoC certification uptake [18]. Moreover, the demand for certified products in not inherently from the consumer markets [7,18], but the pressure comes from global corporations, governments, NGOs, and investors [13–15,18–22].

According to the results, the interviewed Finnish wood industry companies have currently in place customer-facing forest and CoC certification strategies. These companies, however, seem to be only conveying the certification information to their customers, without being more deeply aware of their customer values or communicating their own company values. Forest certificates seem to have been adopted fairly spontaneously by these companies and implementing the industry dominant culture without strategic planning or utilizing the certification in their own marketing and wider stakeholder communication. Only in a few cases companies had developed more outward-facing strategies, in which they would also use certification for marketing and communicating their company values or product-level environmental claims.

However, all companies in our sample provided information to their customers and stakeholders without knowing more explicitly what the actual value and use of this information is for their customers. In theory, a better understanding of customer value could contribute to more product and service innovations and improved customer engagement and loyalty, e.g., [39,42]. In general there was no cooperation between the companies and stakeholders to publicly communicate sustainability issues and wood raw material certification.

While the institutional changes are seen as good opportunities to integrate strategies and improve the cohesiveness of the entire value-network [8], the beginning of the implementation period of the EUTR has shown that the undergone changes in the overall Finnish wood industry value chain are so insignificant that the overall situation is likely to remain.

Our findings suggest that the EUTR is not likely to impact domestic timber producers and large importers with existing certification in Finland, while the impact will be on SMEs importing timber from outside the EU without any existing traceability systems and on downstream wholesale/retail companies providing a variety of wood products. These finding were in line with Toppinen *et al.* [24] and highly confirmative with Trishkin *et al.* [31], noting that SMEs in Russia are most likely to find it difficult to deal with the EUTR requirements and due diligence, because of lack acquired certificates as well as human and technical resources. The experts in our study were skeptical that these SMEs in particular would adopt forest and CoC certification instead of less costly legality verification systems.

Our results of the *ex post* EUTR analysis further confirmed that only SMEs without existing traceability systems have been forced to consider the establishment of new legality verification systems. Contrary to the expert opinions, forest and CoC certification are the preferred options for these companies instead of other legality verification systems, due to the forest certification requirements and demand from the larger wholesale/retail companies. This finding was also in line with Cashore and Stone [19], who suggested that public policies, such as the Lacey act in the US and the EUTR with requirements for timber legality verification may have a positive effect on the uptake of certification. These findings also give support for previous observation that only minor changes and costs are likely to occur for firms with existing forest and CoC certifications [28,29], but some shifts in international trade flows from more reliable sources are likely to happen [32].

The *ex post* EUTR results also confirmed that the EUTR has been unable to underpin any substantial end consumer demand for certified timber products and end consumer demand and markets for forest and CoC certification therefore continue to be of limited scope, as suggested by Räty *et al.* [7]. However, some interest for certification is originating from large-scale construction companies interested in green building projects and wholesale-/retail-level companies initiating certification schemes [54].

The EUTR appears to enforce the supplier-client relations in the Finnish wood industry value chain and also the supplier-facing certification strategies in addition to prevailing customer-facing strategies. However, the sector still lacks public and integrated outward-facing strategies to make added value from the forest certificates at each value chain level and eventually in broader material markets. In this regard, the existence of two parallel forest certificates (FSC and PEFC) seems to hamper the effective communication and building of an image of sustainable wood products among customers and end consumers, which are also exposed to general environmental communication, e.g., in the building material markets.

The implications for managers are that in order to gain competitive advantage from the certification, e.g., in the broader material markets, companies throughout the forest industry value-chain need to develop their environmental management and certification strategies [7,31,55]. The ideal strategy would be an outward-facing strategy, where the company values are communicated to customers and to other stakeholders and the company is also aware of their customer and stakeholder values. Only this way it is possible to integrate the certification strategies so that the certification communication and marketing is cohesive and reflecting the values of the whole value-network or industry. Moreover, enhancing the integration of shared value within the value-network could contribute to creation of service innovations and improved stakeholder engagement, building customer loyalty and improving overall financial performance [56].

The role of the certification organizations, in this regard, could be, thus, as facilitating the company cooperation and enhancing value integration also in accommodating more effective communication via existing and parallel forest certification schemes. The certification organizations can also enhance and coordinate their communication better in order to build deeper industry culture for sustainability around the forest and CoC certification in the new era of EUTR.

Author Contributions

Conflicts of Interest

The authors declare no conflict of interest.

Appendix

Appendix A

Stage 1. Questions for wood industry value chain members regarding forest and CoC certification *ex ante* the EUTR:
1. Which forest and CoC certifications are implemented in your company (with the year of adoption) and which are the most crucial? Why?

2. What are your focus groups for the adopted certificates, e.g., suppliers, customers, consumers, competitors, NGOs, and/or other stakeholders?

3. What is the origin of the raw material used by your company (local/domestic/international)?

4. What kind of environmental information do your customers demand? Do you know why?

5. What kind of environmental information do you demand from your suppliers? Why?

6. What is the environmental communication strategy of your company? How is it implemented within the company, who does it target, what are its main concepts and methods?

Stage 2. Questions for experts on forest certification and EUTR regarding the impact of EUTR on certification:

1. How have your organization/members prepared for the enforcement/implementation of the EUTR: e.g., what standards or codes of conduct have been developed? Has there been any other development that improves the credibility of your organization to meet the new EU requirements?

2. Will there be changes in the cost structure for attaining forest and CoC certification after the introduction of the EUTR and obligatory legality assurance in the Finnish case?

3. Will the EUTR require some changes in company-level practices and strategies in terms of forest and CoC certification?

4. What impacts on forest certification supply and demand on the different levels of the Finnish wood product value chain do you perceive to be likely through the implementation of the EUTR?

Stage 3. Questions for wood industry value chain members regarding forest and CoC certifications *ex post* the EUTR:

1. What is the origin of the raw material used by your company (local/domestic/international)?

2. Have you changed your raw material suppliers due to the EUTR? If yes, in what way? (what are the old and updated origins)?

3. Which certificates/legality verification systems/management systems does your organization hold? What changes have been implemented after the introduction of the EUTR?

4. How do your customers perceive the importance of forest certificates/legality verification systems, or other sustainability messages? If they are considered important, which customer/stakeholder groups in particular find them so? What changes have been implemented after the introduction of the EUTR?

5. What kind of environmental, sustainability, or legality information do you request from your suppliers? What changes have occurred after the introduction of the EUTR?

6. How would you define your organizations' attempts to increase public awareness and communication concerning sustainability issues in the end consumer market? What kind of new activities have resulted from the introduction of the EUTR?

Appendix B

Use of forest certification, CoC, and environmental management systems *ex ante* EUTR.

Value chain level, num. of companies	Primary, 1	Primary/Value added, 3	Value added (domestic markets), 3	Value added (export markets), 6	Construction, 2	Wholesale/Retail, 2
Labels	PEFC and ISO14001	FSC , PEFC, ISO14001, EMAS	None / Finnish Key Flag symbol	PEFC / Nordic ecolabel / Realwood and ISO14001	None / PEFC and ISO14001	PEFC / ISO14001
Strategy	Customer-facing	Customer-facing / Outward-facing	Customer-facing	Customer-facing / Outward-facing	Customer-facing / Outward-facing	Customer-facing
Main message	Origin	Sustainability / Company values / Stakeholder values	Origin / Quality	Origin / Quality / Sustainability, Ethics	Quality, Company values	Process efficiency / sustainability
Certification uptake	Spontaneous	Spontaneous / Planned	Spontaneous	Spontaneous	Spontaneous	Spontaneous
Wood origin	Domestic / Local	Domestic / Local	Domestic / Russian imports	Domestic	Domestic / Local	Domestic / Russian imports
Share of exports (%)	around 50%	more than 55%	less than 15%	more than 50%	20% / 60%	0 %
Company size	Very Large	Very Large	Small / Medium	Small / Medium / Large	Medium / Very Large	Very Large

References

1. Bond, B.; Lyon, S.; Munsell, J.; Barrett, S.; Gagnon, J. Perceptions of Virginia's primary forest products manufacturers regarding forest certification. *For. Prod. J.* **2014**, *64*, 242–249.

2. Owari, T.; Juslin, H.; Rummukainen, A.; Yoshimura, T. Strategies, functions and benefits of forest certification in wood products marketing: Perspectives of Finnish suppliers. *For. Policy Econ.* **2006**, *9*, 380–391.

3. Aguilar, F.X.; Cai, Z. Conjoint effect of environmental labeling, disclosure of forest of origin and price on consumer preferences for wood products in the US and UK. *Ecol. Econ.* **2010**, *70*, 308–316.

4. Cai, Z.; Aguilar, F.X. Consumer stated purchasing preferences and corporate social responsibility in the wood products industry: A conjoint analysis in the U.S. and China. *Ecol. Econ.* **2013**, *95*, 118–127.

5. Cai, Z.; Aguilar, F.X. Meta-analysis of consumer's willingness-to-pay premiums for certified wood products. *J. For. Econ.* **2013**, *19*, 15–31.

6. Chen, J.; Tikina, A.; Kozak, R.; Innes, J.L.; Duinker, P.; Larson, B. The efficacy of forest certification: Perceptions of Canadian forest products retailers. *For. Chron.* **2011**, *87*, 636–643.

7. Räty, T.; Toppinen, A.; Roos, A.; Nyrud, A.; Riala, M. Environmental policy in the Nordic wood product industry: Insights into firms' strategies and communication. *Bus. Strateg. Environ.* **2014**, doi:10.1002/bse.1853.

8. Lukkari, P.; Parvinen, P. Pharmaceutical marketing through the customer portfolio: Institutional influence and adaptation. *Ind. Mark. Manag.* **2008**, *37*, 965–976.

9. DiMaggio, P.J.; Powell, W.W. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *Am. Sociol. Rev.* **1983**, *48*, 147–160.

10. DiMaggio, P.J.; Powell, W.W. (Eds.) *The New Institutionalism in Organizational Analysis*; University of Chicago Press: Chicago, IL, USA, 1991.

11. Scott, W.R. *Institutions and Organizations*; Sage: Thousand Oaks, CA, USA, 2001.

12. Cashore, B. Legitimacy and the Privatization of Environmental Governance: How Non-State Market-Driven (NSMD) Governance Systems Gain Rule-Making Authority. *Governance* **2002**, *15*, 503–529.

13. Gulbrandsen, L.H. Creating markets for eco-labelling: Are consumers insignificant? *Int. J. Consum. Stud.* **2006**, *30*, 477–489.

14. Overdevest, C. Comparing forest certification schemes: The case of ratcheting standards in the forest sector. *Socio Econ. Rev.* **2010**, *8*, 47–76.

15. Matilainen, A. Forest companies, corporate social responsibility, and company stakeholders in the Russian forest sector. *For. Policy Econ.* **2013**, *31*, 44–49.

16. European Commission. Regulation of the European Parliament and of the Council laying down the obligations of operators who place timber and timber products on the market (EU No. 995/2010). Available online: http://ec.europa.eu/environment/forests/timber_regulation.htm (accessed on 21 March 2013).

17. European Commission. Implementing Regulation on the detailed rules concerning the due diligence system and the frequency and nature of the checks on monitoring organisations (EU No. 607/2012). Available online: http://ec.europa.eu/environment/forests/timber_regulation.htm (accessed on 21 March 2013).

18. Schepers, D.H. Challenges to Legitimacy at the Forest Stewardship Council. *J. Bus. Ethics* **2010**, *92*, 279–290.

19. Cashore, B.; Stone, M. Can legality verification rescue global forest governance? Analyzing the potential of public and private policy intersection to ameliorate forest challenges in Southeast Asia. *For. Policy Econ.* **2012**, *18*, 13–22.

20. Johansson, J. Why do forest companies change their CSR strategies? Responses to market demands and public regulation through dual-certification. *J. Environ. Plan. Manag.* **2014**, *57*, 349–368.

21. Bartley, T. Certifying Forests and Factories: States, Social Movements, and the Rise of Private Regulation in the Apparel and Forest Products Fields. *Politics Soc.* **2003**, *31*, 433–464.

22. McNichol, J.H. Contesting Governance in the Global Marketplace: A Sociological Assessment of Business-NGO Partnerships to Build Markets for Certified Wood. Ph.D. Thesis, Department of Sociology Berkeley, University of California, Berkeley, CA, USA, 2002.

23. Nikolakis, W.; Cohen, D.H.; Nelson, H.W. What matters for socially responsible investment (SRI) in the natural resources sectors? SRI mutual funds and forestry in North America. *J. Sustain. Financ. Invest.* **2012**, *2*, 136–151.

24. Toppinen, A.; Cubbage, F.; Moore, S. Economics of forest certification and corporate social responsibility. In *Handbook of Forest Resource Economics*; Kant, S., Alavapati, J., Eds.; Routledge: London, UK, 2014; pp. 444–458.

25. Van Kooten, G.C.; Nelson, H.W.; Vertinsky, I. Certification of sustainable forest management practises: A global perspective on why countries certify. *For. Policy Econ.* **2005**, *7*, 857–867.

26. Kärnä, J.; Hansen, E.; Juslin, H. Environmental activity and forest certification in marketing of forest products—A case study in Europe. *Silva Fenn.* **2003**, *37*, 253–267.

27. Leire, C.; Thidell, Å. Product-related environmental information to guide consumer purchases—A review and analysis of research perceptions, understanding and use among Nordic consumers. *J. Clean. Prod.* **2005**, *13*, 1061–1070.

28. European Forest Institute (EFI); the University of Padua; Indufor. Support study for development of the non-legislative acts provided for in the Regulation of the European Parliament and of the Council laying down the obligations of operators who place timber and timber products on the market. Final report. Available online: http://ec.europa.eu/environment/forests/pdf/EUTR-Final_Report.pdf (accessed on 21 March 2013).

29. Brown, D.; Bird, N. 6. Convergence between Certification and Verification in the Drive to Legality Assurance: Assessing the Pros and Cons; VERIFOR Briefing Paper February 2007. Available online: http://www.odi.org.uk/resources/docs/96.pdf (accessed on 9 November 2012).

30. Overdevest, C.; Zeitlin, J. Assembling an experimentalist regime: Transnational governance interactions in the forest sector. *Regul. Gov.* **2014**, *8*, 22–48.

31. Trishkin, M.; Lopatin, E.; Karjalainen, T. Exploratory assessment of a company's due diligence system against the EU timber regulation: A case study from Northwestern Russia. *Forests* **2015**, *6*, 1380–1396.

32. United Nations Economic Commission for Europe (UNECE). *Forest Products Annual Market Review 2012–13*; Geneva Timber and Forest Study Paper 33; United Nations Publications: Geneva, Switzerland, 2013; p. 115.

33. Giurca, A.; Jonsson, R.; Rinaldi, F.; Priyadi, H. Ambiguity in timber trade regarding efforts to combat illegal logging: Potential impacts on trade between south-east Asia and Europe. *Forests* **2013**, *4*, 730–750.

34. Kostova, T. Transnational transfer of strategic organizational practices: A contextual perspective. *Acad. Manag. Rev.* **1999**, *24*, 308–324.

35. Peng, M.W. Institutional transitions and strategic choices. *Acad. Manag. Rev.* **2003**, *28*, 275–296.

36. Grewal, R.; Dharwadkar, R. The role of the institutional environment in marketing channels. *J. Mark.* **2002**, *66*, 82–97.

37. Dean, J.W.; Bowen, D.E. Management Theory and Total Quality: Improving Research and Practice through Theory Development. *Acad. Manag. Rev.* **1994**, *19*, 392–418.

38. Bessant, J. *Managing Advanced Manufacturing Technology: The Challenge of the Fifth Wave*; Basil Blackwell: London, UK, 1990.

39. Grönroos, C. *Service Management and Marketing: A Customer Relationship Management Approach*; Wiley: Chichester, UK, 2000.

40. Storbacka, K.; Lehtinen, J.R. *Customer Relationship Management: Creating Competitive Advantage through Win-Win Relationship Strategies*; McGraw-Hill: Singapore, 2001.

41. Law, M.; Lau, T.; Wong, Y.H. From customer relationship management to customer-managed relationship: Unraveling the paradox with a co-creative perspective. *Mark. Intell. Plan.* **2003**, *21*, 51–60.

42. Lee, L.S.; Fiedler, K.D.; Smith, J.S. Radio frequency identification (RFID) implementation in the service sector: A customer-facing diffusion model. *Int. J. Prod. Econ.* **2008**, *112*, 587–600.

43. Frohlich, M.T.; Westbrook, R. Arcs of integration: An international study of supply chain strategies. *J. Oper. Manag.* **2001**, *19*, 185–200.

44. Teti, E.; Perrini, F.; Tirapelle, L. Competitive strategies and value creation: A twofold perspective analysis. *J. Manag. Dev.* **2014**, *33*, 949–976.

45. Parvinen, P.; Lukkari P. Marketisation and the orchestration of healthcare networks in Finland. *J. Manag. Mark. Healthc.* **2010**, *3*, 208–223

46. PEFC Finland (Programme for the Endorsement of Forest Certification). PEFC Suomi - Suomen Metsäsertifiointi ry:n toimintakertomus vuodelta 2012 (In Finnish). Available online: http://www.pefc.fi/media/PEFCSuomi/PEFC_Suomi_TOIKE_2012.pdf (accessed on 27 April 2015).

47. Yin, R.K. *Case Study Research: Design and Methods*; Sage: London, UK, 1994.

48. Stake, R. Case studies. In *Handbook of Qualitative Research*; Denzin, N., Lincoln, Y., Eds.; Sage: Thousand Oaks, CA, USA, 1994; pp. 236–247.

49. Perttula, S. Environmental Performance Measures in Finnish Wood Product Companies. Master's Thesis, University of Helsinki, Helsinki, Finland, 2012.

50. Glaser, B.G.; Slrauss, A.L. *The Discovery of Grounded Theory: Strategies for Qualitative Research*; Aldine: New York, NY, USA, 1967.

51. Lincoln, Y.S.; Guba, E.G. *Naturalistic Inquiry*; Sage Publications: Newbury Park, CA, USA, 1985.

52. PEFC Finland (Programme for the Endorsement of Forest Certification). Available online: http://www.pefc.org/certification-services/eu-timber-regulation (accessed on 27 April 2015).

53. FSC (Forest Stewardship Council). Available online: https://ic.fsc.org/ensuring-compliance.493.htm (accessed on 27 April 2015).

54. Wang, L.; Toppinen, A.; Juslin, H. The use of wood in green building: A study of expert perspectives from the UK. *J. Clean. Prod.* **2014**, *65*, 350–360.

55. Tuppura, A.; Toppinen, A.; Puumalainen, K. Forest certification and ISO14001: Current state and motivation in forest companies. *Bus. Strateg. Environ.* **2015**, doi:10.1002/bse.1878.

56. Li, N.; Puumalainen, K.; Toppinen, A. Managerial perceptions of corporate social and financial performance in the global forest industry. *Int. For. Rev.* **2014**, *16*, 319–338.