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ENVIRONMENTAL SUSTAINABILITY IN THE LATVIAN FOREST INDUSTRY

Authors: Marta Fišere
Kristīne Paegle

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Marta Fišere

and

Kristīne Paegle

Supervisor: Xavier Landes

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Abstract

The purpose of this thesis is to find the key criteria for environmental sustainability in the Latvian forest industry and research whether there are clear differences between the state-owned enterprise and three private forestry companies in terms of these criteria. In this thesis, we apply a qualitative comparative research design with content analysis and semi-structured interviews in two parts. By combining literature and results from interviews with experts, we find eight criteria that we use to evaluate and compare the companies in terms of environmental sustainability. From content analysis and interviews with company representatives, we find that there are no clear differences regarding environmental sustainability practices between the state-owned enterprise and private companies. Additionally, we find that there are transparency issues and lack of public understanding about the forest industry in Latvia. This thesis highlights the importance of the forest industry in Latvia, identifies the key environmental sustainability aspects within the forest industry, and concludes that the state-owned enterprise does not set a benchmark for the whole industry.

1. Introduction

Corporate social responsibility [CSR] has been a subject of debate for several decades, and the importance of it has only increased over time in line with concerns of social justice and environmental protection. Environmental sustainability is a vital part of CSR (Babiak & Trendafilova, 2011), and companies receive perhaps the most scrutiny in this area. Thus, it is crucial to analyze and understand, what are the practices and strategic plans of owners regarding specific actions and objectives to be implemented in the company's daily operations. We will view environmental sustainability as the "maintenance of natural capital" (Goodland, 1995, p.10).

Nowadays society understands the risks of air and water pollution caused by companies. Therefore, it is vital to adopt environmental sustainability practices to decrease the negative impact to a level that allows the environment to absorb the pollution created (Hoffman, Frederick & Schwartz, 2014). Additionally, being environmentally sustainable is becoming more and more necessary for forestry companies in this century as they are managing a renewable resource. This resource has a direct link to climate change, mostly through carbon absorption, and in turn, climate change has a direct impact on flora (Lindenmayer, Franklin & Fischer, 2006).

We will focus on environmental sustainability practices in the forest industry in Latvia due to several reasons. Firstly, the forest sector in Latvia is one of the largest national producers and exporters in the economy, contributing 20% to Latvia’s exports (Investment and Development Agency of Latvia, 2014). Moreover, there are different types and sizes of companies in this industry, including state-owned and privately-owned wood producers and forest management companies. Secondly, the state-owned enterprise [SOE] Latvijas Valsts Meži [LVM] owns around 49% of all forests in Latvia (Ministry of Agriculture, 2018) so it plays a vital role in shaping the rules, regulations, and practices in forest management and forest development. Thirdly, the practices of sustainable forest management are an issue of high importance and debate in Latvian society as well as in politics (LSM, 2017). The debate is caused by the forest owner and firm union that seems to disagree with some of the regulations regarding sustainable forest management (Latvian Forest Owners' Association, n.d.). There are also environmentalists who disagree with the forest management methods that are adopted by policymakers and used by forestry companies (Forest Newspaper, 2013; Pētersone, 2019).

By reviewing the available literature on environmental sustainability and its key components and by conducting interviews with experts from the forest industry, we have identified eight key environmental sustainability criteria for the forest sector in Latvia. These criteria are environmental governance system, environmental policy, impact on the surrounding environment, environmentally friendly procurement, environmental audits, forest management strategy, silviculture methods, and biodiversity. These criteria will help us to assess the overall situation of the forest sector in Latvia and critically analyse forestry companies.

Using in-depth analysis approach, we compare the state-owned enterprise LVM and three most significant (by forest land) private companies – Sodra Latvia, Latvijas Finieris and IRI Investments – in the forest sector in Latvia. The comparison is done according to the eight criteria mentioned above. We have found that there is lack of literature on this topic and most of the research in this area is done quantitatively. We believe that it is beneficial to look at this issue from a qualitative perspective, conducting interviews with company representatives because environmental sustainability is often regarded as a non-quantifiable measure (Norman & MacDonald, 2004). Comparative research design has been chosen due to inconsistent views about which of the two types is more environmentally friendly and the view of some researchers that state-owned enterprises in some cases can be highly inefficient and can have higher levels of pollution (Shleifer & Vishny, 1997).

By interviewing industry experts, conducting content analysis, and interviewing company representatives, we answer the following research questions:

1. **What are the key criteria for environmental sustainability in the forest industry in Latvia?**
2. **Does environmental sustainability differ in state-owned and private Latvian forestry firms?**

The paper is structured as follows. In section 2 we review the existing literature on the key components of the paper and explain the background of the forest industry in Latvia. In section 3 we describe the methods used in the paper. Additionally, in this section we answer our first research question. In section 4 we summarize the results from content analysis and interviews with company representatives as well as answer the second research question. In section 5 we describe the limitations of the thesis. In the final part of the paper we conclude our findings and add additional remarks about the forest industry.

2. Literature review

In this paragraph, we describe the structure of the literature review. We start by explaining the importance of CSR and the reasons why companies choose to be responsible. From this, we derive environmental sustainability as the most important aspect of CSR, which we then define and analyse in detail. Then we move on to explain the importance of forests and how they are linked with environmental sustainability. Afterward, we describe the forest industry in Latvia and the relevant parties involved. As certificates are a crucial part of the forest industry, we dedicate a section to explain what certificates are and how they work in Latvia. Lastly, we describe the role of SOEs and review the available literature on SOE and private company comparisons.

2.1. CSR

In recent years, corporate social responsibility [CSR] has become an essential part of business, changing the way companies are being managed and pressuring them to have more responsibilities. CSR over time has received a variety of definitions (Carroll, 1979; European Commission, n.d.; Stanwick & Stanwick, 2014; The University of Edinburg, 2017). Although the credibility and relevance of these and many other definitions may differ, the foundation about the view on CSR remains. In simple terms, CSR means that companies are responsible for the impact they have on society as a result of them managing their business. Although CSR provides financial benefits like long-run revenue increase, cost reduction, risk and uncertainty management, and social approval to operate (Crane & Matten, 2016), implementation of these practices in business models is somewhat forced.

Companies are finding themselves under public scrutiny due to some issues that previously were not even considered as part of the company's responsibilities. These issues can range from pollution (e.g., Shell Oil sinking Brent Spar) to lousy working conditions (e.g., the case of Nike in the early 1990s when media pointed out that some of its Indonesian suppliers had poor working conditions) (Porter & Kramer, 2006). However, it is not only public pressure that drives companies to adopt CSR practices in their business.

Porter and Kramer (2006) argue that more and more shareholders are searching to invest in socially responsible companies and pressuring the management to adopt these practices in their business model. The reason for this trend is the belief that socially responsible companies have higher returns. This belief is backed up by Deutsche Bank's (2012) analysis comparing performance and environmental, social and governance [ESG]

ratings. They find that there is a positive relationship between ESG ratings and financial performance. Oppenheimer Funds (2017) describe that this evidence and the increasing amount of information about ESGs will convince more investors to invest in socially responsible companies in the future.

The pressures from both sides (society and shareholders) have even escalated to a jurisdictional level, and governments are implementing new regulations regarding CSR, pressuring companies to adopt these practices even more. Due to all these pressures, companies nowadays have to find new ways how to benefit society and environment while still improving the underlying business. Although the importance of CSR is now known, companies are slightly confused on how to solve these problems, and the extensive amount of literature that is available on this subject does not necessarily provide practical solutions. This confusion can be seen in firm annual reports which quite often do not have a CSR strategy in place and the information provided is usually about a specific part of the business, and does not reflect the overall effect companies have on society and the environment (Porter & Kramer, 2006). Therefore, it is essential to understand what CSR is and what it means in a company.

There are three main components of CSR: social, economic and environmental sustainability. The reason for mentioning these as the three key components of CSR can be linked to triple bottom line that states that the business should not only focus on their financial performance or economic bottom line but also on environmental and social bottom lines to improve company's performance (Elkington, 1997). Triple bottom line studies show that there is a positive correlation between social and financial sustainability. It is evident that social sustainability can improve financial sustainability as well as be a result of it, especially if the general public is well informed about environmental and social problems (Orlitzky, 2005). Moreover, social sustainability is strongly linked to environmental sustainability as society determines the rate at which environmental incentives are implemented by companies (Goodland, 1995).

2.2. Environmental Sustainability

Morelli (2011) in his article examines environmental sustainability definitions and writes that environmental sustainability can be defined "as meeting the resource and services needs of current and future generations without compromising the health of the ecosystems that provide them" (p. 6). Goodland (1995) provides a more elaborate description of environmental sustainability and how it links to social and economic sustainability. He writes

that environmental sustainability can be viewed as the "maintenance of natural capital" (Goodland, 1995, p.10) and provides three rules that explain this principle: output rule, input rule, and operational principles (see Appendix A for a detailed description of the rules). Throughout the paper, we will view environmental sustainability as described by Goodland.

Babiak and Trendafilova (2011) examine the reasons for environmental sustainability becoming increasingly popular amongst firms. They find that several reasons contribute to organizations choosing to be environmentally friendly. Among the most popular are: following legal requirements and expectations in turn receiving government benefits; believing that the reputation of being a "good citizen" and being outspoken about environmental issues is highly beneficial for the company; being environmentally friendly now was considered as a social norm.

However, there are more pressing reasons for implementing environmental sustainability in a company. Air and water pollution, as well as exhaustion of natural resources, has become increasingly important as it can worsen climate change and create new diseases. The role of companies in this context is that historically they have been one of the causes of pollution or contributors to it, and nowadays we realize that nature cannot absorb it. Therefore, companies need to implement environmental sustainability practices to account for the damage they have done and reduce their negative impact on the environment (Hoffman, Frederick & Schwartz, 2014).

One of the instruments of promoting environmental responsibility in a company is transparency, which is frequently linked with "more accountable, legitimate, effective and democratic governance" (Gupta, 2010, p.1). An example of how transparency can influence companies and push them to be more environmentally aware and responsible is provided by Bennear and Olmstead (2008). They analyze how regulations regarding disclosure of information about drinking water violations impacted companies. The authors find that when the companies started disclosing more information about their operations, consumers had the chance to report more drinking water violations. In turn, the companies were pressured to be more responsible and abide by the law, resulting in fewer drinking water violations.

2.3. Importance of Forests

The importance of forests can be described from different perspectives that are all of high value. First of all, our daily lives are influenced by products from the forest, for example, raw materials used in manufacturing for production of a large variety of products (Tietenberg, 2006), different types of paper products that are still heavily used for printing,

household and sanitary purposes. In regions like Asia-Pacific and Africa, wood fuel is a big part of the forest industry, and the production of wood fuel, especially charcoal, is only increasing (Food and Agriculture Organization of the United Nations [FAO], 2017).

Another important aspect is that the use of land for afforestation (i.e., turning non-forest land into a forest (Nabuur et al., 2007)) brings many benefits to wildlife and other organisms. It is estimated that forests provide a home to approximately 80% of all species in the world (FAO, n.d.a). Furthermore, afforestation limits the loss of nutrients and organic substances by controlling the water runoff, improves the quality of soil, reduces the volume of toxic substances and pests, improves the microclimate and overall scenery of the land, and improves the efficiency of solar power use by trees (Daugaviete, Bambe, Lazdiņš, & Lazdiņa, 2017).

Moreover, an increasing emphasis is put on the cultural and social aspects of forests. Tabbush (2010) finds that the embodied and objectified cultural capital of forests are associated with creating benefits like health, personal pride, education, inspiration and spiritual well-being to people. The cultural values that embody the forest are especially important in places like West Africa, where forests are used for spiritual and social events, and they bring a sense of belonging to the communities situated there (FAO, n.d.b).

Lastly, forests are an essential part of the overall climate and help improve the quality of air by absorbing CO2 and producing oxygen through decomposition. Forests and trees also play a vital role in other gas concentrations in the atmosphere, water flow, and the quality and stability of soil. For example, if an area is being heavily flooded due to changes in the climate, trees can help not only to mitigate the climate change but also preserve the state of the land and control the water flow (Bravo, LeMay, Jandl & Gadow, 2008).

To summarize, forests are crucial in our daily lives, they bring many benefits to the surrounding environment and species, help mitigate climate change, and have a high cultural and social importance.

2.4. Environmental Sustainability and Forests

It is crucial to emphasize that the importance of forests is strongly linked with environmental sustainability. It starts with the main view of environmental sustainability as sustainable management of natural resources that are available to us (Goodland, 1995), and as forests are a natural resource, they need to be managed to achieve sustainable results.

Lindenmayer, Margules, and Botkin (2000) outline that preventing the loss of biodiversity is one of the main goals of sustainable forest management. They suggest that the

best way to monitor biodiversity is for managers to adapt their approach continuously. Forest managers need to indicate which species are essential to the landscape, and which are abundant in the specific region by experimenting and coming to conclusions, rather than implementing a static strategy.

Lindenmayer, Franklin, and Fischer (2006) point out that the decrease in biological diversity and amount of species mainly is a result of these species losing their habitat. Their suggestion is that managers can introduce five principles in order to solve this issue: (1) maintaining connectivity between different species, (2) maintaining water systems in the forest, (3) maintaining the architectural complexity of the forest landscape, (4) maintaining the spatial arrangement in the forest, and (5) maintaining the unnatural disturbances to the forest as similar to natural ones as possible.

Moreover, Eyvindson, Repo, and Mönkkönen (2018) prove that leaving enough dead wood (i.e., stumps or birch left after cutting the trees) can significantly decrease habitat loss for certain species. The more wood is harvested from the forest, the less dead wood is left there. Thus, species (i.e., different fungi and bugs) which are dependent on dead wood are at a higher risk of losing their habitat. For example, if the harvest rate is larger than 70% of the trees, many of the sampled species lose more than half of their habitat. When the harvest rate is moderate (less than 30%), the loss of habitat only affects less than 10% of the population of species. This means that forest companies should be cautious of clear-cutting (i.e., felling of every tree in a specific area) and should focus on diminishing the clear-cut rate and extraction of the birch and wood left after logging.

Another reason why forests are crucial for environmental sustainability is climate change mitigation. Forests can be a powerful tool towards mitigating climate change, and there are several ways in which it can be done. Firstly, by increasing the area of the forest using afforestation. Secondly, by increasing or maintaining carbon density (tonnes of carbon per ha). This can be done by reducing forest degradation (i.e., making sure the wealth of the forest does not decrease) and increased planting, site preparation, fertilization, and other practices. Lastly, by increasing the use of biomass-derived energy to substitute fossil fuels (Nabuur et al., 2007).

One other very important factor when considering the sustainability of forests is the harvest rate of trees. Hiron, Jonsell, Kubart, Schroeder, Dahlberg, Johansson and Ranius (2017) study the impact of increasing the harvest rate on income, habitat availability, carbon storage, deadwood availability and blueberry yield in the forest. The harvest rate in the paper is meant by what proportion of the maximum sustainable yield is harvested. In simple terms,

the maximum sustainable yield is 100%, meaning that the company cuts down as many trees as they plant and no more. In most countries, the policy is to harvest 100% of the maximum sustainable yield. By studying forest areas in the south of Finland, the authors find that, unsurprisingly, income and increase in the harvest rate have a positive relationship. However, contrary to what many forest companies claim, habitat availability significantly decreases when the harvest rate is increased and becomes unsustainably low when the harvest rate is at 100%. This study shows that harvesting all trees that are planted is not a sustainable strategy. Forest industry companies should plant more trees than they harvest to ensure sustainable forest management.

To summarize, the forest ecosystem helps to preserve the Earth's biodiversity, helps mitigate climate change and improve the surrounding environment altogether. However, in order for forests to have all these beneficial aspects, they need to be managed sustainably. Thus, we can say that forests and environmental sustainability are interconnected on many levels.

2.5. Forest Industry in Latvia

We focus on the forest industry in Latvia because it has a significant role for the country's economy. Out of all three Baltics countries, Latvia has the largest forest coverage with 52% (Ministry of Agriculture, 2018), Estonia's coverage is 51.4% (Statistics Estonia, 2018) and Lithuania's 33% (Kobuszynska, 2017). Around 27% of the manufacturing done in Latvia is connected to the forest industry. Moreover, the forest industry contributes 20% of the overall exports for the economy. It is also important to note that Latvian forests are of high value because of the good condition of the trees. It gives more added value to products made with Latvian forest trees (Investment and Development Agency of Latvia [LIAA], 2014).

Half of the forests in Latvia are privately owned, 49% are owned and managed by the state company Latvijas Valsts Meži [LVM], and the remaining 1% is owned by the local municipalities or other entities (Ministry of Agriculture, 2018).

There are around 135 000 forest owners, of which only one is the state. The rest is owned by either private companies, individuals or organizations (Ministry of Agriculture, 2018). The largest forest industry companies in Latvia by land are Sodra Latvia, Latvijas Finieris, and IRI Forest Assets Latvia. Many of the private owners and companies are a part of a non-governmental union (Latvian Forest Owners' Association) intending to educate forest owners and managers on environmentally and economically sustainable forest

management. Some of the other goals that the union strives for are improving state regulation, making the tax system more efficient for forest owners, removing unnecessary bureaucracy, and encouraging the regulators to assess the efficiency of normative acts (Latvian Forest Owners' Association, n.d.).

Latvia is considered to have one of the most stringent forestry regulations in Europe (Juozenaite, 2011). The Forest Law in Latvia outlines laws regarding management and logging of forests in the country, and it is the primary law for companies in this field (Forest Law of 1999). In addition to the Forest Law, there are laws regarding conservation of biodiversity and what constitutes as a highly valued habitat and needs preservation. There are also laws on hunting, which forest companies and owners can use to improve the health of their forest, laws regarding specific areas, like towns, and what is the appropriate distance from which felling can be done. Depending on the region where the forest land is located, several laws regarding national parks, nature reserves and biosphere reserves apply to these areas (Ministry of Agriculture, n.d.). Specific new regulations are introduced by the Minister Cabinet, and these regulations are developed by the Ministry of Agriculture and State Forest Service (National Woods Service, n.d.a).

The National Woods Service is a national regulatory authority under the supervision of the Ministry of Agriculture and is responsible for monitoring the compliance of normative acts, carrying out different support programs, and regulating the forest industry in Latvia on a closer level. The State Forest Service also issues any documentation to forest owners and managers, such as licenses, permits, and certificates (National Woods Service, n.d.b).

One of the most concerning factors about the Latvian forestry methods is the lack of sustainable practices in terms of high-value forests (i.e., forests of high environmental value) and protected species. In the Natural Habitat and Species Protection Evaluation Report to the European Commission most of the criteria are evaluated as unfavorable-inadequate and unfavorable-bad. More specifically, for 86% of the natural habitats, the protection status is unfavorable, and for 60% of the species, the protection status is unfavorable. Moreover, the prospects for protection status of natural habitats in forests are evaluated as unfavorable (Nature Conservation Agency, 2013). This shows that more attention should be brought to protecting high-value forests in the long and short term and that the natural state of Latvian forests should not be exploited for economic gains.

Another concerning fact is the lack of transparency and sustainability in Latvian companies. The most recent transparency study done in Latvia by the InCSR Institute shows a disturbing picture of Latvian companies in terms of transparency. Only 10% of the top 500

companies in Latvia can be considered transparent, and only one-third of all the necessary information for stakeholders is published by companies online or in other publicly available resources (InCSR, 2015). Of course, the situation might have changed over 4 years, but as Dace Helmane, Board Member at InCSR, (personal communication, March 29, 2019) explains, the situation has not improved significantly since this publication and companies in Latvia still have a long way to go in order to be more transparent and sustainable.

2.6. Certification

More recent literature on CSR and environmental sustainability emphasizes "self-implemented" restrictions on the company's central operations. One quite new and emerging "self-imposed" restriction is certification (Auld et al., 2008, as cited in Johansson, 2014).

Certificates were first introduced by environmental activists to encourage producers and consumers to purchase products from companies that have implemented sustainable forest management practices (Gunningham & Sinclair, 2002). This shifted environmentalist focus from policymakers to market as previously they targeted their campaigns toward government officials and society to stop deforestation, clear-cuts in high-value forests and promote the importance of protecting biodiversity (Rametsteiner & Simula, 2003).

Companies and forest owners typically choose to be certified due to outside pressures such as governments, suppliers/consumers and others. Although it may not be voluntary, certification provides many benefits for the forest companies. For example, companies can view certificates as guides for CSR practices in the company or as an advantage over their competitors (Niedziałkowski, & Shkaruba, 2018).

Certification is often considered as a form of transparency as the label on the wood products gives information to the consumer. However, this concept is inaccurate as there is little information conveyed through this label and consumers cannot make an educated decision as they are not familiar with the standards for receiving the label (Auld, & Guldbrandsen, 2010).

According to LIAA (n.d.), two types of certification schemes are used in Latvia - The Programme for the Endorsement of Forest Certification [PEFC] system and Forest Stewardship Council [FSC] system. 50% of Latvia's forests are certified using the PEFC system, and approximately 30% of forest land has been certified according to FSC system. Both certification schemes are highly similar as they strive for the same goals. However, they take slightly different paths to achieve those goals (see Appendix B) (PEFC, n.d.a).

Apart from forest certification, PEFC and FSC provide chain of custody certifications. These types of certificates ensure the end user that the forest product has been recognized throughout the value chain and comes from environmentally responsible companies (FSC, n.d.a; PEFC, n.d.b). In Latvia 50 businesses have adopted the PEFC chain of custody system, and 322 businesses have adopted the FSC system (LIAA, n.d.). FSC also has controlled wood system, which allows companies to take wood products from uncertified areas and mix them with FSC certified products and label them as FSC Mix if the uncertified wood meets the requirements (FSC, n.d.b).

In 2015 PEFC council in Latvia released national standards for PEFC certification. The purpose of this standard is to determine the framework and goals for evaluation of sustainable forest management and check whether forest management practices meet PEFC requirements. This standard does not set any minimum requirements and sets no range of compliance with forest management criteria and indicators. The forest owner or manager sets the requirements for their forest land. This standard applies to all forest areas in Latvia, regardless of the size of the land.

PEFC standard in Latvia has six criteria followed by indicators. Criteria determine goals and main forest management practices that, if chosen to be implemented, should provide sustainable forest management. Indicators provide measurements for the criteria that the auditor can use to assess compliance with the PEFC criteria (Association "PEFC Latvia Council," 2015).

FSC certification scheme has ten international principles, and for every principle, several criteria apply to any country and region (FSC, 2015). Additionally, a national standard for a specific country needs to be set for auditors to be able to evaluate forest management compliance with the FSC criteria in a specific region. However, currently, there is no permanent FSC standard for Latvia (FSC, n.d.c). The committee assembled to create the national standard for Latvia in December 2018 announced they have stopped working on the national standard due to disagreements and no further information on when or whether the national standard will be created has yet been made public (FSC, 2019). When we contacted Imants Krūze, forest program coordinator at FSC Latvia, he explained that in the week from March 25 to March 29 a delegation from FSC arrived in Latvia to discuss further steps on creating the national FSC standard for Latvia (I. Krūze, personal communication, March 25, 2019). Until the national standard is approved by FSC international board, temporary standards are used to evaluate compliance (FSC, n.d.c).

Apart from being more detailed and mandatory, FSC also takes into account more laws and administrative requirements then PEFC (FSC Latvia & Association "Latvian Forest Certification Council," 2013). Overall, PEFC is a softer and more voluntary form of certification comparing to FSC.

2.7. State-owned vs. Private Enterprises

According to the Organization for Economic Co-operation and Development [OECD] (2015), a state-owned enterprise [SOE] is designed to help society, and governments aim these enterprises toward reaching public policy goals, social incentives all the while producing goods and services efficiently. In many European countries SOEs are very active and of high importance to the overall economy of the country and regional development. For example, in Latvia SOEs account for close to 18% of the GDP, and 6% of the overall employment in the country comes from SOEs (European Commission, 2016). What is more, the majority of forests in the world are owned by states, regardless of the type of forest, and the proportion of state ownership increases with lower-income countries. However, it is important to note that this trend is diminishing, and throughout 1990-2010 more and more forests are owned privately (Whiteman, Wickramasinghe & Piña, 2015).

According to the Cross-Sectoral Coordination Center of Latvia (2018), the goals of SOEs in Latvia include (1) removing market externalities, (2) creating a financially beneficial environment for society, and (3) producing products and services of high quality at an affordable price. More specifically, the goals of LVM are as follows: to manage state-owned forests and other assets in economically, environmentally and socially sustainable ways; to bring in as much profit as possible for the state; implement state interests into the strategy of the company.

The differences between SOEs and private firms are researched mostly in the topics of efficiency and profitability, and as Megginson and Netter (2001) suggest, the studies mainly conclude that private firms are superior in those aspects. Nevertheless, these are not all factors that could determine the differences in these companies. The comparison of corporate social responsibility performance and more specifically environmental sustainability, in private and state-owned firms, has been done in a limited manner, and mixed conclusions have come from the studies carried out (Meyer & Pac, 2013).

Hsu, Liang, and Matos (2018) explain that one of the factors increasing SOE involvement in environmental protection and actions towards reducing the negative impacts of climate change is the availability of state resources and funding. Lack of resources can be

seen as an obstacle when it comes to creating long-term environmental changes. They studied the impact of state ownership in the environmental engagement of publicly listed companies, and the results showed that SOEs are actively engaging in environmental issues. More specifically, state ownership has a positive impact on environmental engagement in energy companies, as well as companies in emerging economies.

Earnhart and Lizal (2006) with empirical evidence from the Czech Republic suggest that SOEs produce fewer emissions and are superior to all other types, including private, in terms of environmental performance. They studied all types of ownership in Czech Republic companies, including state and private, and looked at the carbon monoxide and sulfur dioxide emissions as well as emissions of particulate matter and nitrous oxides.

However, according to Meyer and Pac (2013), who study sulfur dioxide emissions in private utility firms in Eastern Europe, private firms are more environmentally friendly than state-owned, and the difference in emissions is significant enough to be a concern to people who think that the privatization of firms has caused more pollution to their region.

Meyer and Pac (2013) show that there are no formal studies that explain the impact of privatization on company environmental performance. They do, however, conclude that since it has been proven that private firms are more productive at allocating resources, they should, in turn, be more environmentally sustainable as productivity positively influences environmental performance of the company.

To conclude, the results of studies about private companies and SOEs are contrasting and highly dependent on the industry specifics. Therefore, we believe it is crucial to investigate the forest industry in Latvia. Although the purpose of SOEs is one that should be focused on the benefit to society, it is not clear whether SOEs differ from private companies in terms of renewable resource management and sustainable forest management.

3. Methodology

In this research we apply qualitative comparative research design with content analysis and semi-structured interviews in two parts. The first part of the interviews was held with industry experts in order to fill the gaps in the literature about sustainability criteria. The second part of the interviews was held with forestry company representatives to assess the current environmental sustainability practices in Latvia, based on the criteria chosen.

We start by explaining the reasoning behind choosing to conduct this research qualitatively and comparatively as well as provide information on interview style and methods of analysis.

3.1. Research Design Description

We chose a qualitative research design for several reasons. First of all, usually similar studies use environmental sustainability indices to evaluate and compare the environmental performance and level of implementation in countries. One example of these types of studies is Sichea, Agostinhob, Ortegab and Romeiroc's (2008) comparative analysis where they compare three environmental indices methodologies (environmental sustainability index [ESI], ecological footprint [EF], energy performance indices [EMPIs]) across 12 countries. However, the methodology used in this paper cannot be used to look for differences in forest industry companies in Latvia. The reason is that in Latvia we only have a CSR index which is based on a self-reporting principle and all companies are categorized into four groups: platinum, gold, silver, and bronze (InCSR, n.d.). The problem with this index is that self-reporting might lead to false reports from companies that want to seem more socially responsible. Moreover, the four-group system does not say much about the companies, and it would be difficult to compare them.

Another reason for choosing qualitative approach is the difficulty to identify measurement units of environmental sustainability making it challenging to quantify it and, consequently, to compare the levels of environmental sustainability implementation across companies (Norman & MacDonald, 2004). Therefore, we need to conduct critical analysis of environmental sustainability criteria. Hence, we believe that semi-structured interviews and qualitative approach will give us more insight into forest industry companies, and the extent to which they implement environmental sustainability practices in their business.

3.2. Case-oriented Comparative Study

The case-oriented comparative method seeks to find similarities or differences between a few cases backed by theory, then showing how these differences are relevant to the common phenomenon, and finally concluding about the topic of interest, from the differences found in cases (Ragin, 2014).

For our goal to research whether there are any differences in environmental sustainability practices in Latvian SOE and private forestry companies, a case-oriented comparative method is used. As the literature shows, SOEs should be society-oriented, and their primary goals are closely connected to the social and environmental benefits of society, thus suggesting that SOEs should be excellent at renewable resource management and environmentally sustainable goal implementation (OECD, 2015). On the other hand, some studies suggest that environmental performance is better in private firms, rather than SOEs (Meyer & Pac, 2013). Thus, a conclusion can be drawn that a comparative study of the companies is appropriate to examine whether there are differences in environmental performance in the forest industry in Latvia.

3.3. Data Collection

The first part of the interviews was conducted with industry experts and policymakers (see Appendix C). From them, we gained a more detailed understanding about where the forest industry stands in terms of the global debate about environmental sustainability, how well forest industry companies are managing their forests, what are the goals for the forest industry in Latvia in general. What is more, the first part interviews helped us to shape the questions and topics for the second part, where the goal was to compare private companies and the SOE in the forest industry. Inside knowledge about the industry as well as trends and news regarding these companies helped to form a more accurate perspective on the forest industry in Latvia than just content analysis of Latvian forest publications and news. In this part of the interview process, we used more open-ended questions to allow the experts and policymakers to express their opinion with less bias from the interviewer side (Malhotra, Birks & Wills, 2012). See Appendix D for the full list of interview questions.

By combining the first interview results with the literature, we were able to evaluate whether there are any differences between the four companies in our sample: Latvijas Valsts Meži, Sodra Latvia, Latvijas Finieris, and IRI Investments (See Appendix E for the list of company representatives interviewed). The reasoning for such a sample size was based on the

information provided by Aiga Grasmane, Executive Director of the Latvian Forest Owners' Association (A. Grasmane, personal communication, March 6, 2019). There was no other credible source of information about the largest forest owners in Latvia. LVM comprises around 50% of the market and the three private companies comprise approximately 14% of the private forest sector by forest land.

Prior to interviews with company representatives, we conducted conventional content analysis of the publications and available reports from the sample companies. Hsiu-Fang and Shannon (2005) describe that the conventional content analysis is typically used in situations where there is lack of literature or theory on a certain topic and the initial goal is to "describe and more deeply understand a social phenomenon" (as cited in Selin, 2017, p.40). This description is similar to our research as we are trying to understand the meaning of environmental sustainability in the context of the forest industry and whether the SOE and private companies differ in the levels of its implementation.

We were interested in company sustainability reports or forest management plans, if they exist or are available, as well as any credible media publication to better assess and control for green-washing during the interviews. Green-washing is the "selective disclosure of positive information about a company's environmental or social performance, without full disclosure of negative information on these dimensions, so as to create an overly positive corporate image" (Lyon & Maxwell, 2011, p.9).

We were also interested in publications made by the sample companies either on their website or in other social media outlets that relate to environmental sustainability as we want to understand how these companies view environmental sustainability and what is their main focus in this topic.

We chose semi-structured interviews for company representatives because it allows for unforeseen changes in the conversation about environmental sustainability in forests and will help to outline the approach and opinion of managers and owners of the companies better than structured interviews. In the interviews with company representatives, it was crucial to avoid leading questions about their environmental sustainability approach as this topic tends to be embellished by managers to put their company in a better light than it is. The approach used for the interview questions is a funnel approach with general questions first and more specific ones later on in the interview (Malhotra, Birks & Wills, 2012) (see Appendix F).

Results from the second part of the interviews were analyzed using qualitative content analysis method. This approach enables us to focus on the key points that according to

literature and expert views are important for environmental sustainability and disregard the information that is not relevant to our research (Schreier, 2012).

To conclude, in this research we (1) define key criteria for environmental sustainability in the forest industry in Latvia from literature and interviews with the industry experts, and (2) qualitatively analyse the differences between Latvijas Valsts Meži and 3 other forest industry companies (Sodra Latvia, Latvijas Finieris, and IRI Forest Assets Latvia) in terms of their environmental sustainability practices.

3.4. Environmental Sustainability Criteria

In order to create meaningful criteria that we can use to analyse forestry companies in Latvia, we used environmental sustainability criteria created by WWF as guidelines for researching the specific criteria. The criteria from WWF are created for CSR in the forest industry and are broad enough to gain a general understanding of the key factors to analyse in forest industry companies, but also leave room for more research in the topic. (WWF, n.d.). The organisation has summarized the factors of environmental sustainability that are relevant for the forest industry and have identified two categories for environmental sustainability: forest management and environmental governance (WWF, n.d.). This framework provides a foundation for evaluating the level of environmental sustainability in a forest industry company. Then, a thorough literature review on sustainability criteria in the forest industry was done to list in detail what factors from these criteria are most important and why. When concluding the research, we found specific factors that are important for environmental sustainability in the industry and combined them with environmental sustainability criteria that WWF has created.

Afterward, interviews with experts helped to shape the criteria and to remove irrelevant factors. In this part of the paper, we describe what each criterion means in terms of the forest industry and Latvia specifically, as well as include the opinions of experts about the general situation in Latvia. The last paragraph in each section is a summary of each criterion.

3.4.1. Environmental Governance System

Lemos and Agrawal (2006) view environmental governance as “interventions aiming at changes in environment-related incentives, knowledge, institutions, decision making, and behaviors” (p.298). It should be noted that governance should not be confused with the government. It includes not only government actions but also other parties like society and companies.

In the forest industry certificates can be a useful tool to monitor environmental policies and they can even be considered as new types of governance (Niedziałkowski & Shkaruba, 2018). As already mentioned previously, 50% of Latvia's forests are PEFC certified and approximately 30% are FSC certified (LIAA, n.d.). Niedziałkowski and Shkaruba (2018) argue that the success of the FSC system is highly dependent on state and its involvement as well as the location. From mere observation of the certification scheme to using sovereign power to enforce compliance, the government can influence the gain companies can receive or in rare cases can even shift companies to adopt more "state-driven" certification schemes like PEFC.

From interviews with industry experts, we can conclude that successful environmental governance system should be created in a way that integrates the company not only into the forest area they are managing but also in the economy, environment, and society. Furthermore, it should be practical and with specific goals, taking into account assessment of possible risks, their integration into buyer and supplier relationships as well as constant monitoring of the progress of forest management.

Opposite to the theoretical background that suggests that governments help support forest certification schemes and can even go as far as help guiding successful implementation of the certificates (Niedziałkowski, & Shkaruba, 2018), from first part interviews with the experts, we found that Latvian government is not involved in certification schemes in the forest industry. Moreover, they are not integrated into the government and coherent with their goals. There seem to be some conflicting views among the industry experts on the importance and meaning of these certificates. Some suggest that companies choose to be certified for the sole reason of customer and supplier demands and access to markets (I. Prūse, personal communication, February 12, 2019). Others suggest that these certification schemes serve a commercial purpose and are useful tools for environmental sustainability, especially FSC certification, which has more strict environmental auditing and can even revoke certification if the necessary criteria are not met (J. Rozītis, personal communication, February 14, 2019).

To summarize, this criterion examines whether the company has an environmental governance system, what are the main aspects companies focus on, how they evaluate risks and integrate them into their governance system and how companies ensure that environmental governance system is implemented in practice. This criterion also examines certification schemes the company has and the reasoning behind choosing these certifications.

3.4.2. Environmental Policy

Environmental policy encompasses all government methods intended to evaluate the condition of environmental pollution, assess pollution compared to the danger it poses to society or ecosystems, and regulate polluting activities using the law, economic incentives. (Knoepfel, 2007). “Environmental policies contribute to wellbeing and the long-term sustainability of growth” (OECD, 2016, p.3) and their main goal is to reach “environmental objectives that markets fail to deliver” (OECD, 2016, p.3). These policies impact consumer and producer behavior by increasing the cost of environmentally harmful practices like pollution (OECD, 2016). We, however, are looking at environmental policies on a company level.

From an economic standpoint, companies do not have any incentives to reduce the cost of negative externalities (e.g., pollution) imposed on society. One reason for it could be that being environmentally friendly is costly for the company and adopting more environmentally cautious business strategies shifts away from profit maximization goals (Eisenstein, 2014). Also, in the forest sector lack of environmental incentives could mean careless forest harvesting, like the example of Kimberly-Clark, a paper good producer, which used to harvest high-value boreal trees in Canada. However, Greenpeace could not stand by and launched a campaign that started a fight between the two parties. The feud ended peacefully with Kimberly-Clark adopting more environmentally friendly practices (Gies, 2014). This goes to show that companies in the forest sector are not as free to act on purely economic incentives as companies in other industries. Therefore, environmental policies are essential as they pressure companies to reduce their negative impact on the environment by setting limits to their actions, or by increasing their internal costs to account for the environmental damage they are causing (Jaffe, Newell, & Stavins, 2005).

Leach and Fairhead (2002) argue that depending on whether it is a forestry company, a local community or an environmentalist, the view on what should constitute as a healthy and desirable forest differs. They highlight that it is crucial to facilitate society’s involvement in policy-making processes. It is also essential for media to better explain forest processes to the broader public as well as clarify false stereotypes about the forest industry so that the society can make educated decisions. Educating society can contribute to shaping and improving local environmental policies. Mori, Lertzman, and Gustafsson (2017) also argue that there needs to be more literature to inform society on how to protect biodiversity as the current literature on biodiversity conservation is incomplete.

As available literature mostly focuses on environmental policies on a country level and environmental policy tools governments can use to encourage environmental policy implementation, we asked expert opinion on environmental policy on a corporate level. More specifically, what could be the instruments companies can use to ensure environmental policy implementation within the company. We found that educating employees and society on environmental sustainability could be a valuable environmental policy instrument (I. Prūse, personal communication, February 12, 2019; N. Strūve, personal communication, February 25, 2019).

We also found that for forest management companies it is considerably easier to include high environmental values in their environmental policy, as they are at the beginning of the value chain and have more market power than other parts of the supply chain in the forest industry (J. Rozītis, personal communication, February 14, 2019).

In short, this criterion examines what are the main aspects when creating environmental policies and the tools companies use to ensure that environmental policies are implemented practically.

3.4.3. Environmental Audits

Generally, audits examine a set of activities (EPA Victoria, 2005). The European Industrial Gases Association AISBL [EIGA] (2012) describe environmental auditing as a governance instrument that contains "systematic, documented, periodic and objective evaluation of environmental performance, management systems, and equipment" (p.1). Environmental auditing goal is to improve the supervision of environmental practices and monitor conformity to legislation and environmental policies.

Environmental auditing is especially crucial in the forest industry, as there are many acts, policies, legislations, and rules in this sector. Although they are essential and mandatory to follow, alone these obligations do not protect forest areas from unsustainable management and deterioration of forests. Therefore, environmental auditing is necessary to help monitor and prevent forest degradation, help create better strategies and understand environmental needs (International Centre for Environment Audit and Sustainable Development [iCED], n.d.).

We found that environmental audits are implemented mostly only when a company has certified forests or products, and the audit is aimed to control whether the company is operating according to certification standards. The audits are done by independent auditors

and are mandatory for all companies that are certified (N. Strūve, personal communication, February 25, 2019).

For this criterion, the opinion of company representatives on audits is evaluated to understand how they view the auditing process and whether it contributes something to the company.

3.4.4. Impact on the Surrounding Environment

As an industry which directly manages a renewable resource, forestry significantly impacts the surrounding environment. For example, afforestation (turning non-forest land into a forest (Nabuur et al., 2007)) or reforestation (re-planting trees to revive forest areas (Sloan, 2008)) can absorb carbon from the atmosphere thereby mitigating air pollution. However, if a natural disaster (e.g., forest fire) strikes, the absorbed carbon is freed into the atmosphere, offsetting the positive impact on the environment and in some cases even worsening it. Therefore, it is vital that forest companies adopt safety measures to deal with natural disasters more efficiently and with as little negative consequences as possible (OECD, 2001).

Other ways how forests impact the environment have already been laid out in the literature review under chapter 2.4. Environmental Sustainability and Forests.

Although the literature suggests forest companies should create safety measures for natural disasters, our findings point out that these safety measures are included in the civil law, and there are certain standard procedures forest companies should follow to account for these risks (I. Prūse, personal communication, February 12, 2019). Apart from that, companies should still be proactive in terms of evaluating potential risks and factors related to their surrounding environment (J. Rozītis, personal communication, February 14, 2019). For example, some of the most damaging factors in Latvian forests are heavy snowfall and strong winds, which should be accounted for when evaluating risks to the forest ecosystem (Forest Newspaper, 2013).

This criterion examines how companies evaluate their impact on the environment and checks whether they have specific guidelines or rules to follow when they start felling in a new area.

3.4.5. Environmentally Friendly Procurement

Environmentally friendly procurement "encompasses all activities that aim to integrate environmental considerations into the purchasing process, from the identification of

the need, through the selection of an alternative, to the provision to the end user" (Erdmenger, 2003, p. 11). By thoroughly evaluating the need for the good and considering other alternatives, environmentally friendly procurement helps companies to acquire only the most necessary products. In case the company cannot avoid the purchase, green procurement suggests purchasing a more environmentally friendly option that equals or even exceeds the functionality and quality of the more typical choice of a product (Erdmenger, 2003).

Green technology attains pollution reduction at a marginally lower cost compared to conventional technologies that might not be as environmentally friendly. Therefore companies that need to oblige by environmental legislation can decrease their levels of pollution more efficiently (Jaffe, Newell, & Stavins, 2005).

We found that there are no specific requirements for forest companies regarding their purchasing habits, it is entirely the responsibility of the company to take more initiative towards more environmentally friendly machinery/tools/products (D. Vilkaste, personal communication, February 21, 2019; I. Prūse, personal communication, February 12, 2019).

This topic also raised contrasting views among experts. Some believed that green procurement is not as a relevant topic in Latvia as the goods, that forest company can purchase, follow EU regulations and have been tested by others (I. Prūse, personal communication, February 12, 2019). Others believe Latvian forest companies could do more in this aspect. They should look at emissions of their machinery, energy used to power their machinery and tools, and improve logistics (U. Rotenbergs, personal communication, December 27, 2018).

This criterion examines whether the company has any internal guidelines regarding green procurement besides the Latvian and EU regulation, and what is their opinion on green procurement in their company.

3.4.6. Forest Management Strategy

Environmental sustainability, in general, implies strategic planning of resource allocation for the future (Morelli, 2011), and sustainable development indicates that the planning should not have negative implications on future generations and their allocation of resources (The World Commission on Environment and Development, 1983). Therefore, sustainable forest management should be embedded in the strategy of forestry companies and specific guidelines for implementing strategic plans are necessary in order to achieve set goals.

As Jonsson, Jacobsson, and Kallur (1993) describe it, managing forests should rely on planning and using different methods in order to be able to react according to varying circumstances. By planning forest management and creating guidelines, we are able to not only react but also create the desired outcome for forest industry companies, society, and the environment. Nowadays, forest management is not only about the management of cutting and planting trees; it has developed many aspects and directions to follow, such as the social, economic and ecological landscape of the forest (Sturtevant et al., 2007).

The findings from expert interviews support literature on the topic of forest management strategy and guidelines. The most important aspects of a forest management strategy are to realize all the ways that the forest owners impact the ecosystem around, and not to focus only on the production of wood products. What is more, the strategy should be implemented on a landscape level rather than individual tree level (J. Rozītis, personal communication, February 14, 2019). For example, one fallen tree might be economically inefficient for the forest manager, but on a landscape level, it could create just the right environment for more biodiversity or seeding of new trees (D. Vilkaste, personal communication, February 21, 2019).

In this section, we examine how companies account for the surrounding environment when creating a forest management strategy. Additionally, the practical implications of the strategy and communication with the people living near felling areas are also evaluated.

3.4.7. Silviculture Methods

In recent decades silviculture methods have moved towards more ecologically sustainable practices and replication of natural processes (O'Hara, 2016). Close-to-nature silviculture is the management of cultivating trees in a way that best represents the natural state of the forest environment (Schutz, 1999). In close-to-nature silviculture methods, the focus is on the natural environment in the forest and the forest ecosystem as a whole, rather than focusing solely on the production of wood. O'Hara (2016) emphasizes that it is imperative to continuously adapt silviculture practices because the natural environment is changing quite quickly. The average world close-to-surface air temperature is changing drastically, surface temperature is increasing, as well as glaciers and sea ice are fundamentally changing. There is no question that nature is changing as well (Intergovernmental Panel on Climate Change [IPCC], 2013). Older techniques of forest management might not be considered natural anymore as the environment is being altered by other human activities. For example, one of the approaches in natural silviculture methods

can be disturbance-based management, that relies on simulating the patterns of natural disturbances that might occur to that particular forest area (Lafortezza, Chen, Sanesi, & Crow, 2008).

One of the key findings from experts regarding silviculture methods is that they cannot be changed in the short-term. The foundations of silviculture methods are similar throughout time, and in Latvia, they should start shifting toward more natural methods (I. Prūse, personal communication, February 12, 2019). J. Rozītis, an expert from the WWF, explained that in Latvia silviculture methods are too focused on the economic benefits of wood and wood products, and not enough on the natural state of the forest (Personal communication, February 14, 2019). Supporting literature on silviculture, experts emphasize the importance of integrating climate changes into the development of these methods.

This criterion examines how silviculture methods have changed over time, and on what bases these changes are made. Additionally, companies were asked whether they do clear cutting or selective cutting, and what is their opinion on selective cutting. This section also examines what companies leave in clear-cut areas and why do they leave these items there.

3.4.8. Biodiversity

Lindenmayer, Margules, and Botkin (2000) outline that preventing the loss of biodiversity is one of the main goals of sustainable forest management. They suggest that the best way to monitor biodiversity is for managers to continuously adapt their approach to indicating which species are essential to the landscape and which are abundant in the specific region by experimenting and coming to conclusions rather than implementing a static strategy. Lindenmayer, Franklin, and Fischer (2006) point out that the decrease in biological diversity and amount of species mainly is a result of these species losing their habitat. They suggest several strategies for ensuring continuous biodiversity in the forest, such as establishing continuous landscape reconstruction, protecting delicate species in the forest ecosystem, as well as including natural disturbance-based management that helps the forest to cope with human-inflicted disturbances.

From the expert interviews, we gather that an issue regarding biodiversity is the lack of knowledge in the topic (J. Rozītis, personal communication, February 14, 2019). For society, it is much easier to understand what is climate change and see the negative impact it brings to the environment around us. However, biodiversity is a crucial component in the Earth's ecosystems just like climate and should be regarded as so. Perhaps this is one of the

reasons why it is more challenging for governments to create requirements for biodiversity (D. Vilkaste, personal communication, February 21, 2019).

This criterion examines whether companies have a strategy for biodiversity conservation in their forests and whether they monitor biodiversity. Additionally, the company representative's opinion on whether biodiversity is a relevant topic in Latvia is asked to understand their stance on the conservation of different species.

4. Analysis and Discussion of Results

This chapter examines the results of the content analysis and interviews with company representatives. Here we answer the second research question on whether there is a difference between the SOE and private companies in the Latvian forest industry. In section 4.1. we analyse the available information about the companies and how transparent they are by criteria. In section 4.2. we summarize the results from the interviews with the representatives of the sample companies, also by criteria.

4.1. Content Analysis

In this section of the thesis, we analyse the content of sample company websites, reports, forest management plans, and media or blog articles about the companies. The focus of this analysis is around the criteria identified in the previous section. Even if there is no information available about certain criteria, we leave it in the content analysis for easier comparison. The goal of this analysis is to understand the main aspects these companies want to convey to the public in terms of their environmental efforts. As environmental audits are conducted by a third-party and all decisions regarding audits are made by the auditor, we do not include this criterion in the content analysis.

4.1.1. Latvijas Valsts Meži

LVM is a joint stock company and the Ministry of Agriculture of the Republic of Latvia holds 100% of its shares. It manages 1.6 million hectares of forest land. From all managed land, 20% are for nature conservation purposes; therefore, these areas are managed differently. LVM's primary source of income is forestry, however, they also grow seeds and plants, sell sand and other natural resources and do other activities (LVM, 2016).

Environmental Governance System

LVM has a mixture of FSC and PEFC certificates for different forest areas. Forest areas where FSC is implemented are certified by "SCS Global Services", "Soil Association Certification" and "SGS South Africa (Pty)." PEFC areas are certified by BM Trada Latvija and SIA "SGS Latvija Ltd". Additionally, they follow ISO 9001:2009, ISO 50001:2011, and ISO 17025:2017 standards regarding production and trade of forest plants, energy management system and construction materials mineral testing and research laboratory, respectively (LVM, n.d.a).

In 2016 LSM published an article about environmental activist concerns regarding LVM's environmental sustainability as half of the forest areas were no longer FSC certified. LVM argued that in these areas they will shift to PEFC certification as it is more adapted to Latvian legislation. However, environmental activists point out that this shift suggests LVM's inability or unwillingness to follow FSC's criteria (LSM, 2016).

Environmental activist, Edmunds Kance, expressed his concerns that there are too many clear-cuts in Latvian forests. He also voiced his opinion that apart from several activities, such as environmental education, placement of informative materials, LVM is far from being environmentally sustainable. He argues that their forest management lacks sustainable practices due to the government having short-term incentives (Forest Newspaper, 2013).

Environmental Policy

Every year LVM organizes Open Forest Days. It is a series of events across Latvia that take place in forests. The aim of Open Forest Days is to clean the forests while educating society on sustainable forestry (LVM, 2019a).

In January this year, LVM started a partnership with SIA "ZAAO". The goal of this partnership will be to educate society on environmental protection and sustainable resource usage by creating environmental education programmes (LVM, 2019b).

Impact on the Surrounding Environment

When choosing a new area for tree harvestation, LVM has specific guidelines that they follow. First, the area's structure is examined; forest planners assess the amount and quality of area-specific tree species and forest structure. If the results are higher than the benchmark set in the guidelines and there is a possibility that the forest area contains

biologically valuable forest stands, an environmental expert is called on. The expert then evaluates whether the forest area can be considered as a protected area. In case it is a protected area, the quality of the area is assessed and economic activity is either stopped entirely or planned in a way that preserves species and forest structure of the habitat. If the results from the first assessment comply with the benchmark, forest planner plans which trees to cut. To mitigate the impact on the environment, forest planner analyzes and marks the forest structure, water areas to protect, cultural and historical objects as well as other environmental objects that need preserving (LVM, n.d.b).

Regarding taking into account the opinion of others, LVM takes note of that and notifies nearby households about their plans of nearby clear-cuts. They even show the area where they are felling and ecological tree islands which they will leave, although not all of them are left at the end (Ķerus, 2019a).

Environmentally Friendly Procurement

No information was found regarding green procurement.

Forest Management Strategy

Forest management's primary goal is to ensure productive and vital high-value forest stand growth. To do that LVM in their forest management includes reforestation, maintenance, protection, fire-safety, drainage ditch maintenance, environment, and cultural object maintenance works (LVM, n.d.d). One of LVM's main goals when planning their forest management strategy is to protect biodiversity (LVM, n.d.c).

Forest management emphasizes the importance of forest road construction and tree harvesting planning as these practices impact the environment the most. Forest managers also have to figure out where to put islands and leave green corridors to allow species to move across the forest areas. Here old forests (more than 70 years) are important as they provide this function; therefore one of the main challenges in forest management for LVM is to provide that each forest felling area is planned in a way that leaves at least 30% of total forest area with old forests. Moreover, by preserving old trees and habitats, LVM can provide a balance between forest management and protection of biodiversity (LVM, n.d.b).

Silviculture Methods

In 2015 LETA wrote an article about LVM and their plans of replanting 14600 hectares of forests. Trees were mainly planted in clear-cuts and areas that were damaged by

frosts, diseases, insects or animals. To maintain biodiversity and proportions of different species, five different tree species were planted (LETA, 2015).

Viesturs Ķerus, Chief Executive Officer of Latvian Ornithological Society (LOB), throughout the years has been voicing his thoughts on the negative impact of clear-cuts and LVM's forest management in his blog. In one post he writes that there is no ecological argument for clear-cuts. The often mentioned argument that it replicates natural disturbances is invalid as in these cases fallen trees are left in the forest. The fallen trees then serve as hiding, feeding and nesting places for the forest inhabitants and are highly important for the forest ecosystem. He also argues that the laws on forest felling that determine the placement of clear-cuts to avoid large clear-cut areas are quite soft. A new area can be felled next to a clear-cut if the replanted trees have been there for only three years. Taking into account that trees grow very slow, almost no difference can be seen between a clear-cut and a newly reforested area if they are right next to each other (Ķerus, 2019b).

Ķerus (2019b) also writes that LVM goes beyond the law and instead of the required five ecological trees per clear-cut hectare, they leave ten. Although the number should be much higher, it is good that they leave these ecological trees together in groups, creating little islands that minimize the risk of fallen trees. Also, some of the ecologically valuable fallen trees LVM leaves at the clear-cut. However, forest machinery has damaged some of these trees, therefore, lessening their ecological value to the forest.

Biodiversity

As already mentioned in the section about forest management, biodiversity is LVM's main goal when planning their management strategy. More than 16% of total forest areas and more than 20% of total areas managed by LVM are protected. No clear-cuts or forestry practices are planned there; instead, LVM focuses on maintaining protected species and improving the quality of the habitat in these areas (LVM, n.d.c).

Although part of the protected forest areas are mandatory by law, LVM acknowledges protected habitats also above the law. Under their forest management plan, LVM has created specific eco-forest management guidelines for areas where there is a high concentration of protected species habitats, protected habitats and culturally essential areas (LVM, n.d.c).

LVM's shift from FSC certification to PEFC certification raises a concern about the future of Latvian forests as currently, all protected forest areas are in bad condition and LVM has admitted that their policies on protection of habitats are ineffective. Additionally, several populations of forest bird species have decreased over the years, mainly due to felling in the

bird nesting season (LSM, 2016). LVM has taken some initiative, reducing felling in the nesting season to 1% of the forest area they manage, however, LOB (Latvian Ornithological Society) has expressed that it still is not enough as it still means over 50 000 bird nests are damaged every year, highlighting that damaging bird nests is illegal in itself (Ķerus, 2018).

To summarize, LVM has extensive amount of information on their website. There even is an infographic that makes finding out information about the company more interesting for the reader. The information put out on the website is detailed and informative and explains their actions and procedures. The company also appears a lot in the media, and although the mentions of the company are usually in a positive context, there are also publications that raise concerns and questions the validity of the information published by the company.

4.1.2. IRI Investments

IRI Investments group owns three companies in Latvia: SIA "IRI Asset Management", SIA "IRI Investments Latvia" and SIA "IRI Forest Assets (IRI Asset Management, 2018). The company IRI Investments Group is essentially a part of the IKEA Group, and the ownership of forests in Latvia is a strategic choice to facilitate production in the long-term for IKEA Group (LETA, 2018a). The amount of forest land these companies own all together is ambiguous, as different sources provide different answers. In the website of IRI Investments Latvia, it is said that the company owns around 75'000 hectares of forest land in Latvia, which is managed by SIA "IRI Asset Management" (IRI Investments, n.d.). However, IRI Forest Management SRL public relations manager Raluka Buzja commented that with the new deal of buying Foran Real Estate, IKEA group all together now owns 90'000 hectares of forest land in Latvia (LETA, 2018b). In the summer of 2018 IRI Investments became the sole owner of Foran Real Estate, thus becoming one of the largest private forest owners in Latvia (IRI Asset Management, 2018).

Since the companies acquired the forest land in Latvia quite recently, there is not much media coverage related to their strategy regarding sustainable forest management or experts' take on their environmental sustainability practices. One of the primary sources of information on IRI Investments and their approach to forest management and environmental sustainability is their Forest Management Plan for 2018-2020 (IRI Asset Management, 2018).

Environmental Governance System

IRI Investments forests are FSC certified, and SCS Global Services do the certification. IRI Investments mention that they make sure to integrate all the participants in their supply chain with their forest management strategy. The management of the company provides forest managers with information and materials on how to manage environmentally protected areas as well as natural forest habitats. To identify natural forest habitats as well as other environmentally important areas and objects the company uses a handbook created by the Latvian State Forest company or other guidelines created by the Latvian Biomass Association. IRI Investments forest managers closely follow natural forest habitat guidelines, and if a forest is checked and fits the criteria of natural forest habitat, appropriate experts are included to carry out stocktaking of species (IRI Asset Management, 2018).

Environmental Policy

The company IKEA, which essentially is directly related to IRI Investments, does have sustainability reports, yearly summaries on their activities, and sustainability strategy documents (IKEA, n.d.). In the sustainability strategy the company points out three drivers of change for their business: (1) inspiring consumers to be more sustainable, (2) be resource and energy independent, and (3) help communities improve life conditions. It can be seen that investing in Latvian and other country forests is a crucial aspect for them, as they hope to have long-term renewable assets, and not be dependent on fossil fuels (IKEA, 2014).

IRI Investments does not have specific documents on their environmental or sustainability policies. Although, it is important to note that IRI Investments regularly holds informative and practical training sessions for their internal employees as well as outside contractors. This shows that education is also an important tool they use to implement environmental policies (IRI Asset Management, 2018).

Impact on the Surrounding Environment

The company states that when they are planning forest management procedures and land reclamation processes, they evaluate all the possible risks related to flora and fauna protection and preserving environmental quality. When the risk assessment is made, the forest managers take steps in order to reduce or compensate for the negative impact on the environment.

IRI Investments conducts yearly high-value forest monitoring in order to evaluate the impact different factors have on these high conservation value forests. What is more, the company documents the impact their activities have on the surrounding environment in their Forestry Activity Assessment documentation. After the assessment of the impact on the environment, changes in logging, planting and logistics are made to improve their activities. Also, written guidelines and yearly training sessions for employees and outside suppliers are done to make sure the environmental strategy is implemented (IRI Asset Management, 2018).

Environmentally Friendly Procurement

No information was found regarding green procurement.

Forest management Strategy

The company states that no less than 10% of the forests they own in Latvia are kept only for environmental protection and nature conservation. In conservation areas and protected areas as well as representative sample areas (areas with specific geographical characteristics) there is no clear cutting (felling of all trees in the area) done.

IRI Investments uses outside suppliers and service providers to do planting, logging, and other basic forest management activities. They conduct yearly training sessions with the service providers in order to ensure that every forest management action complies with the company's and FSC requirements. In order to reduce the negative impact of forestry on the surrounding environment, the company uses hand-held power tools as much as possible in the forest management process. However, there is little information on any guidelines the company has on machinery emissions or their logistics strategy in order to reduce emissions and fuel consumption (IRI Asset Management, 2018).

Silviculture Methods

The company reports that the majority of the trees in IRI forests are up to 20 years old, and only around half are older than 20 years. The company describes that in order to keep track of tree growth as well as species in the forests, yearly monitoring procedures are conducted (IRI Asset Management, 2018).

Biodiversity

Species conservation and biodiversity is vaguely described in the Forest Management Plan document; the only numbers provided for comparison are the hectares devoted to bird species conservation. Forest Ecological functions are also described in vague terms, on the basis of Latvian forest SOE planning documents. What is more, the purpose of the forests is divided into economic, environmental and social aspects, which are very vaguely described without any examples or specific steps to be taken (IRI Asset Management, 2018).

To summarize, the company has a thorough forest management plan with concrete steps posted on their website, however, some topics are described in vague or general terms. From analysing the Forest Management Plan, biodiversity and species conservation seem to be less of a concern for the company's forest management planning. Taking into consideration what the company has posted for the public to read, it is also important to note that IRI Investments mention that the full information of their forest activities is available upon request by different stakeholders. Thus, the analysis of the Forest Management Plan can only partly show the company's stance on the topic of environmental sustainability in the forest industry in Latvia.

4.1.3. AS Latvijas Finieris

Latvijas Finieris is a Latvian wood product manufacturer that also owns and manages forest land (8'000 hectares) in Latvia. It was founded in 1873 under the name "Latvijas Bērzs" and has been operating since. During the years of the Soviet occupation, the company was owned by the state but eventually was made private by a group of employees. Latvijas Finieris mostly produces and sells plywood products, machinery, and other wood products. Latvijas Finieris has production facilities in all Baltic states as well as Finland, and their produced wood products are exported to more than 60 countries. The company also has product development and sales offices in other countries in Europe, Japan, North America and others (Latvijas Finieris, n.d.a).

Environmental Governance System

Latvijas Finieris is PEFC certified and has FSC Chain of custody certification. The company also follows ISO 9001, ISO 1401, CE (EN 13986) and CARB Phase 2 certification (Latvijas Finieris, n.d.b).

Environmental Policy

On their website, the company has little information about its incentives regarding environmental policy. The only documents publicly available are different policies the company has issued, e.g., their Environmental Policy document that vaguely states its objectives regarding the environment. They touch upon ensuring environmentally friendly forest management, safe chemicals used in production, sustainable energy supply and re-using wood by-products as fuel. The company has also issued a Policy of Sustainability in which they mention points such as having environmentally friendly management, stimulating sustainable use of resources and other social and economic aspects of sustainability. It is worth noting that these documents were issued in 2011 and have not been updated since. The company's website is more focused on distributing information about their logging services, transportation of wood, purchase of holding and other services they sell to forest owners. Less of a focus is made on the environmental sustainability practices in the company (Latvijas Finieris, n.d.a).

However, it is worth to mention that in 2017 Latvijas Finieris launched an energy efficiency project in one of their production sites. The project was launched with the help of EU funding, and it aims to facilitate usage of energy resources, decrease energy consumption and to increase consumption of renewable energy in manufacturing (LETA, 2018c). What is more, the company has deployed a more innovative paper manufacturing technology that helps to improve energy efficiency by capturing emissions from wood product processing and re-using them in wood drying (LETA, 2016).

Impact on the Surrounding Environment

The only information publicly available about their efforts to minimize the negative impact on the environment was described in previous sections. On their website, they vaguely describe their efforts to be sustainable (Latvijas Finieris, n.d.c).

Environmentally Friendly Procurement

In their Procurement Policy document, the company describes the efforts to have the most efficient and responsible partners and suppliers. Moreover, they write down specific steps to focus on, e.g., the best quality products, socially responsible companies, transparency of their procurement process. However, no further information is mentioned about having environmentally friendly products and partners (Latvijas Finieris, n.d.c).

Forest Management Strategy

Latvijas Finieris has not published its forest management plan or any guidelines it has regarding planning its forest operations.

Silviculture Methods

Latvijas Finieris has not disclosed information about its silviculture methods to the public.

Biodiversity

The company does not have any specific information on its biodiversity strategy and opinions on biodiversity

To summarize, the information on many of the criteria are not published on the company's website or any other materials. Information about the sustainability practices in Latvijas Finieris is limited, nevertheless, they can be found very easily. However, the information in the media is mainly positive or informs the public about the company's financial situation and production development (LETA, 2016; 2018d).

4.1.4. Sodra Latvia

Sodra Latvia is owned by the Swedish company Södra, who recently bought two of the biggest forest companies Bervik Skog and Ruda with all employees and forest land, which is around 80'300 hectares. With this deal made, Södra became the biggest private landowners in Latvia. Sodra Latvia Forest Management Director indicated that there will not be any significant changes in forest management and environmental strategy of Bergvik Skog since bought by Södra (Ž. Bacāns, personal communication, March 25, 2019). Thus, when conducting the content analysis, it is worth to look at both Bergvik Skog and Sodra Latvia in media and their websites. Currently, Södra owns around 95 thousand hectares of forest land in Latvia, and Latvian forests are the primary source of raw wood materials for Södra Group (Södra, n.d.).

Södra buys Bergvik Skog forests

Ķirsons (2018) reports that there are two aspects of this 324 million deal to consider. Firstly, it is viewed positively that a Swedish company is buying this much forest land in

Latvia and some experts view it as a signal that the quality of the forests is high and the forest management practices will continue to be sustainable. On the other hand, the Latvian Forest Owner Association chairman Māris Lopa comments that this shows the truly high value of Latvian forest land and that the Latvian government should be careful to try to preserve most of this value for the Latvian economy.

The main media coverage about Sodra Latvia in the past year is mainly regarding the deal made when buying Bervik Skog forests. The purchase of forest land made by the company was one of the biggest in the industry in Latvia, and several companies were looking to buy the forests (DB.lv, 2018; LSM, 2018). It was also reported that the SEO wanted to buy Bergvik Skog, however, the price of the deal was too high for LVM to purchase the land (LETA, 2018e).

Environmental Governance System

Prior to the interview with Sodra's Forest Management Director in Latvia, we were directed to Bergvik Skog's Forest Management Plan for 2017 (Brālis, Deglis & Bacāns, 2017), as this was the most relevant document describing their current strategy in forest management and the environment. In the following paragraphs there is a summary of their initiatives regarding environmental sustainability in their company, thus also now in Sodra Latvia.

One of the most important points in the document is relevant and current information. They have extensive data on their forest properties in Latvia, so they put effort into gathering as much information about species, forest ecosystem, types of forest growth conditions, the age of the trees. They regularly gather this information and update their database in order to make decisions about operations in the forest and to conduct analysis of their forests. It is important to note that the information they publish is also very detailed, for example, anyone can see what types of conditions are in the forests and what species dominate in which areas.

Environmental Policy

Sodra does not have explicit documentation on their environmental policies. The relevant information that could be considered similar to policies are the company's goals: (1) reduce costs and increase forest management efficiency, (2) optimal use of forest resources, (3) ensure rational forest circulation, (4) optimal use of land resources, and (5) biodiversity preservation (Sodra Latvija, n.d.).

Impact on the Surrounding Environment

Sodra Latvia submits an application to Latvian State Environmental Service each time they are concerned about their actions having significant consequences on the surrounding forest environment. The main factors they look at is the health of the forest and biodiversity. More information on their impact on the forest environment is available upon substantiated request (Brālis, Deglis & Bacāns, 2017).

Environmentally Sustainable Procurement

No information was found regarding environmentally sustainable procurement.

Forest Management Strategy

Firstly, the foundation of the company's forest strategy is to develop and innovate their forestry methods to create efficient and sustainable economic use of forest resources. They also touch upon the importance of maintaining the forest ecosystem, preserving biodiversity in their forests, and supporting the social needs of the surrounding population. Sodra Latvia forests are FSC certified for Forest Management and Chain of Custody; they are certified by the Rainforest Alliance.

One of the main strategic points for the company is buying previously poorly managed forests in bad condition to improve the environmental and economic value of the forests by restoring and expanding the forest area. Moreover, they emphasize the importance of gathering information about the previous owner's activities and forest strategy in order to proceed with the best actions for the area (Brālis, Deglis & Bacāns, 2017).

Silviculture methods

Sodra Latvija describes their strategy on landscape felling, in which the main goal is to create esthetic value for the forests. This is done by cutting trees around culturally important objects or areas to clear the view and by creating a diverse forest scene (i.e., leaving as many different types of trees as possible). In their Forest Management Plan, they describe the importance of landscape felling, and point out that they do this type of felling according to Latvian legislation. Overall, the company has a strong focus on the forest landscape, which is a relatively modern approach to silviculture methods (Brālis, Deglis & Bacāns, 2017).

Biodiversity

Sodra Latvija has put more emphasis on the biodiversity of tree species than anything else. In the Forest Management plan, there is no information regarding other specific species or stocktaking of the species. The only exception is the description of animals that can be hunted in their properties (Brālis, Deglis & Bacāns, 2017).

To summarize, the company touches upon the main environmental and forest aspects in their Forest Management Plan and explains in detail the existing situation with their forests. However, less information is given about the specific steps they take to be more environmentally friendly and how they educate society about their operations in Latvian forests.

4.1.5. Concluding Remarks

LVM has extensive information posted on their website about their environmental sustainability practices and initiatives. However, there is also significant negative media coverage about their operations in Latvian forests from environmental specialists. For private forestry companies, on the other hand, the information is posted less and with less detail on the exact steps they take. Moreover, there is much less information in the media about their efforts to be environmentally sustainable or any scrutiny from the wider public.

4.2. Interview Analysis and Discussion

In this section, we analyse the results from the second part interviews with representatives of the sample companies. We then link the results from the interviews with literature and content analysis. Lastly, we compare the SOE with private companies on each of the eight criteria.

4.2.1. Environmental Governance System

When asked about their main environmental governance system, companies answered differently. Private companies answer that their governance system is certified and that the certification gives the company specific aspects to focus on. The SOE representative talks about their environmental governance system with a slightly different approach. They have chosen five topics to focus on when creating their governance system: sustainable wood flow, biodiversity, recreation possibilities, public participation, and mitigating climate change (A. Dudelis, personal communication, March 21, 2019).

Latvijas Finieris has a more decentralized approach to planning their environmental governance. They trust structural unit managers as experts in their specific field to make informed decisions regarding everyday environmental and forest management topics. The important decisions, of course, are approved by the board of directors. LVM, on the other hand, rely more on data and projections to make decisions. They have a very detailed procedure for analysing the available data and planning environmental governance in their organization.

LVM has PEFC and FSC certifications; the interviewee said that the reasoning is they want to minimize uncertainty and risk around FSC certification. Moreover, the interviewee said that FSC certification requirements are not as clear for Latvian forestry companies because there is no national standard for FSC in Latvia. FSC certification can be revoked at any time, which had happened previously, when LVM lost FSC certification in several forest areas they manage (A. Dudelis, personal communication, March 21, 2019). Environmental activists suggest that the LVM shift to PEFC may be a sign of unwillingness or inability to follow FSC criteria (LSM, 2016). When asked Latvijas Finieris about their choice of certification, the interviewee also claimed it is because PEFC is more adaptable to the Latvian conditions (P. Beķeris, personal communication, March 21, 2019). An interesting note is that Sodra Latvia representative explained that until there is no national FSC standard, Latvian companies follow international FSC standards, so there should not be any ambiguity regarding requirements (Ž. Bacāns, personal communication, March 25, 2019).

Sodra Latvia and IRI Investments are FSC certified, and so far they have not had any problems with forest certification or audits. In fact, both company representatives spoke highly about the strict requirements and long term goals of FSC certification (C. Bucur, personal communication, March 29, 2019; Ž. Bacāns, personal communication, March 25, 2019).

From the interviews and content analysis, it can be observed that certificates are one of the most essential tools to control and monitor environmental governance in forestry companies, which was also the opinion of industry experts (J. Rozītis, personal communication, February 14, 2019; U. Rotenbergs, personal communication, December 27, 2018) and Niedziałkowski & Shkaruba (2018). It was also observed that in Latvia certification is viewed as a great voluntary measure to be more environmentally cautious, however, also vital if the forestry companies want to be profitable and have good relationships with their suppliers, end-consumers and regulatory bodies.

To summarize, the SOE does have a more clear structure to their environmental governance system besides their certification. However, they are only partly certified by FSC, which creates concerns for environmental experts (LSM, 2016) as PEFC requirements are less stringent and more voluntary. Thus, it cannot be said that the SOE differs strictly from private companies in terms of their environmental governance and certification.

4.2.2. Environmental Policy

LVM mostly uses monitoring and control of actions in order to implement their environmental policies in practice. There are specific guidelines also for individual employee activities in the forest, where the forest manager needs to report their actions after each project (A. Dudelis, personal communication, March 21, 2019).

To implement environmental policy in practice, Latvijas Finieris focuses on educating their employees and creating company values in a way that creates a culture that incentivizes each employee to make environmentally friendly decisions in their daily tasks and forest management practices. Moreover, most shares of the company are owned by current or previous employees that have worked in the industry and the company for a long time. The interviewee claims that this gives the incentive to create an environmental policy that provides sustainable forests for future generations and work for the long term (P. Beķeris, personal communication, March 21, 2019).

Education is an important environmental policy tool that includes educating employees and educating the society about what are environmentally right decisions in the forest industry (Leach & Fairhead, 2002). LVM and Latvijas Finieris both mention this as an essential aspect of their operations. LVM invests a lot in informative materials as well as educational events (LVM, 2019a; 2019b), and Latvijas Finieris conducts regular seminars for their employees and, as the interviewee said, supports other organizations that help educate the broader public (P. Beķeris, personal communication, March 21, 2019).

The interviewee from Sodra Latvia mentioned that they follow the principles of FSC and that FSC audits are enough to control the implementation of environmentally friendly practices. IRI Investments representative also explained that FSC is the basis of their environmental policy. Moreover, without implementing sustainable economic, social and environmental operations, it is impossible for them to be certified (Ž. Bacāns, personal communication, March 25, 2019).

In summary, the SOE has its own internal environmental policy monitoring tools that they base their operations on. What is more, they put much effort into educating society and

creating different informational and marketing campaigns to show how their forest management contributes to the Latvian environment and society. The private companies that are fully FSC certified do rely more on the requirements of the certification, as FSC already has strict rules and monitoring guidelines. In this regard, it seems that the SOE performs better, as it not only monitors their practices in forests but also put effort into the education of their employees and society.

4.2.3. Environmental Audits

Overall companies view audits positively as a source of monitoring and a chance to improve their environmental and forest strategy. The interviewee from Sodra Latvia mentioned that the most critical element of the audits is the independence and objectiveness of the auditor and that the auditor should base all their evaluations on facts and not relationships with the company (Ž. Bacāns, personal communication, March 25, 2019). We also found that forest industry companies have no control over the auditing process or party who conducts the audit (A. Dudelis, personal communication, March 21, 2019).

For this criterion, it is difficult to make any conclusions about the differences in SOE and private companies as their certifications differ, and opinion on audits remains the same across all companies.

4.2.4. Impact on the Surrounding Environment

LVM has created guidelines to follow when planning a new felling area (LVM, n.d.b), which are also described in content analysis (see Chapter 4.1.1. under Impact on the Surrounding Environment). The process of reporting the impact on the environment is the same for each forest activity done, but the specific steps are tailored to each forest area. Additionally, when gathering all data for analysis and projections, they also gather data on their specific impact on the forest ecosystem (A. Dudelis, personal communication, March 21, 2019).

It is important to note that Latvijas Finieris also has launched some projects related to their impact on the environment, for example, their energy efficiency project and the launch of their new wood production facility that exceeds regulatory emission requirements by almost four times (P. Beķeris, personal communication, March 21, 2019).

The representative from Sodra Latvija explained that when the company considers their impact on a particular area significant, they evaluate this impact with the help of Latvian

State Environmental Service (Ž. Bacāns, personal communication, March 25, 2019). This coincides with the content analysis done previously (Brālis, Deglis & Bacāns, 2017).

IRI Investments also makes a lot of new forest land acquisitions, so their key point is to first identify all the essential measures before they start any new activities. Those measures include any high conservation value forests, any conservation networks and the assessment of the quality of the trees. In their opinion, the most important aspect is to make sure that the areas on which harvests can be done are checked multiple times for any conservation areas and endangered species. After the evaluation made by forest managers, an external expert double checks all the measures and gives his/her opinion on whether the land can be used for wood extraction (C. Bucur, personal communication, March 29, 2019).

To summarize, there are some differences between the SOE and privately owned companies. The most notable difference is in the transparency of the guidelines for evaluating the impact the company has on the environment. Although all the companies seem to be evenly concerned about their impact on the environment, the literature suggests that by being transparent, LVM could potentially be more environmentally responsible in this regard (Gupta, 2010). LVM has published its specific steps and procedures in publicly available sites and tries to convey this message also to society via different marketing campaigns. However, it is important to note that environmentalists and experts from the industry are doubtful whether LVM's efforts to plan these procedures are translated into real actions.

4.2.5. Environmentally Friendly Procurement

Only IRI Investments had any written guidelines regarding environmentally friendly procurement that are more than Latvian or EU laws (C. Bucur, personal communication, March 29, 2019). However, all interviewees mentioned that they do their best to buy more environmentally friendly technology and other products, and to choose wood alternatives to plastic. Moreover, the interviewee from Latvijas Finieris said that all more significant purchases related to machinery are monitored by upper management so as not to support the shadow economy, and they try to make their procurement decisions more forward-looking when it comes to environmental protection requirements (P. Beķeris, personal communication, March 21, 2019). Sodra Latvia interviewee claimed that their company is too small (20 employees) to make any written guidelines on green procurement (Ž. Bacāns, personal communication, March 25, 2019).

To summarize, compared to the private company IRI Investments, there is a clear difference with the SOE in efforts to have green procurement. However, if we look at the

companies more generally, IRI Investments seem to approach environmentally friendly procurement more seriously than all the other companies.

4.2.6. Forest Management Strategy

The same as with environmental governance, Latvija Finieris has a decentralized approach to their forest management strategy. The interviewee mentions that employees responsible for their area of expertise are counted on to make the right decisions and are not being monitored daily. They trust that they will make environmentally valuable decisions (P. Beķeris, personal communication, March 21, 2019).

LVM has invested in asset management planning technology with which they can create long term projections, on which they base their forest management strategy and guidelines (A. Dudelis, personal communication, March 21, 2019). Sodra also uses this technology from the SOE to create their forest management plans. However, the interviewee said the primary goal of their strategy is to gain financial profits in the long term. One of the most critical aspects for the company in their forest management strategy is to not decrease the harvest rate in their forest land, and to buy worn out forest land from other owners for the purpose of increasing the economic value of the land and wood (Ž. Bacāns, personal communication, March 25, 2019).

A more environmentally positive answer was received from IRI Investments. The representative stated their priority is to bring environmental and social aspects together in order to create a sustainable forest management plan. Moreover, he mentioned that if they can operate in a sustainable way, the economic benefits show that, because forest management is the long term management of nature's resources (C. Bucur, personal communication, March 29, 2019).

To summarize, all companies have specific and strict guidelines to follow when creating their forest management plan, as well as publicly available forest management plans, but not all of them have the same source of motivation. However, the SOE do not differ significantly in terms of their forest management strategy. Both LVM and IRI Investments seem to have more environment-based forest management.

4.2.7. Silviculture Methods

An essential aspect for all companies was the cooperation with scientific organizations and experts to develop and innovate their silviculture methods. For example, all

interviewed companies work together with Latvian State Forest Research Institute Silava to study sustainable silviculture methods and how these methods change the forest ecosystem.

As studies show that close-to-nature silviculture methods can be beneficial for the environment (O'Hara, 2016), we also questioned the interviewees on their opinion and strategy towards different wood felling methods. The two methods we examined were selective cutting and clear-cutting. The only company that does a significant amount of selective cutting is LVM. They do 45% selective cutting and 55% clear-cutting. LVM believes it is important to balance out these methods. They do not do only selective cutting because (1) it brings in 50% fewer profits, (2) it is more expensive, (3) it is more complicated to do so. The interviewee mentioned that one of the cons of doing clear cutting is the view and social aspect (i.e., people do not like it). LVM believes that the biodiversity aspect of selective cutting is debatable and has not been proved yet. He mentions that it highly depends on the area and other environmental aspects. LVM experts have studied that in the beginning, selective cutting is not better for biodiversity than clear-cutting, although, that may be true for the long run. One of the reasons he defends clear-cutting is that pine trees need much light to develop so selective cutting is not the best choice (A. Dudelis, personal communication, March 21, 2019).

The opinion of Latvijas Finieris interviewee was that it cannot be said that clear-cutting forests is terrible or that selective cutting is bad for the environment. He highlights that as with any complex industry, the experts are the ones to make that judgment when to do a clear-cut and when not to. Many factors go into the decision, and there is no right answer for all forests (P. Beķeris, personal communication, March 21, 2019).

A similar answer was obtained from IRI Investments representative, who said they try to balance selective cutting and clear-cutting. It is crucial for them to evaluate which are the areas that require selective cutting, and in which clear-cutting can do damage to the forest ecosystem. Their approach is based on constant climate and environment evaluation in the areas they own forests in order to make sustainable decisions (C. Bucur, personal communication, March 29, 2019).

The interviewee from Sodra Latvia does not support selective cutting and said the main reason is that it is financially wrong to do selective cutting for a forest management company. The company representative defends clear-cuts by saying that they would only have a significant impact on biodiversity if it were done for the whole Latvian forest area. Also, he mentions that it would damage the environment more if trees were cut several times over a few years as there would be more emissions from the machinery and more negative

impact on the soil from the machinery. He says that companies that choose to do selective cutting are focused only on the environment of forest use for recreation (Ž. Bacāns, personal communication, March 25, 2019).

When asked about what is left in the forest after the clear-cuts, all company representatives explained this from different aspects. The interviewee from LVM described it from a biodiversity perspective, explaining that it is beneficial for the species in the forest to leave as much as possible after clear-cutting the forest. Latvijas Finieris representative described it from a social perspective, saying that they leave more fallen trees and branches if there are people around who would want to use them as firewood. Sodra Latvia representative explained from the regulatory and certification side, claiming they leave the required amount of trees and other items. IRI Investments representative explained that they focus on keeping the original structure of the forests. All companies mentioned the same reasons for leaving trees and birches in the clear-cut area, but their initial thoughts differed.

To summarize, there is no apparent difference between the silviculture methods of the SOE and private companies. However, the interviewee from Sodra Latvia had drastically different opinions from the SOE and other private companies. Although the information in their Forest Management Plan seemed more aimed at maintaining a natural ecosystem (Brālis, Deglis & Bacāns, 2017), the company representative only expressed the economic benefits of their silviculture methods.

4.2.8 Biodiversity

When it comes to biodiversity, representatives from Sodra Latvia (Ž. Bacāns, personal communication, March 25, 2019) and Latvijas Finieris (P. Beķeris, personal communication, March 21, 2019) in their interviews firstly mention that they follow the law and their certification requirements. From the content analysis we can conclude that Sodra Latvia also did a stocktaking of habitats for the period 2012-2016 in order to preserve biodiversity in their forests. They mention that in the last years they have identified several new and rare species that are important for biodiversity in Latvia (Brālis, Deglis & Bacāns, 2017).

IRI Investments representative mentioned that biodiversity is a critical activity for the company as it directly impacts forests which is also what Lindenmayer, Margules, and Botkin (2000) argue for, saying that preservation of biodiversity is crucial for sustainable forest management. For this reason, IRI Investments in their high-value conservation forests does regular monitoring to ensure biodiversity preservation. For their commercial forests, they do

observations and track biologically valuable elements that they find. He explained that Latvia is one of the few countries in Western-Europe that still has biodiversity throughout all trophic levels of the ecological pyramid (i.e., food chain), therefore it can be considered that Latvia is doing well in biodiversity preservation (C. Bucur, personal communication, March 29, 2019).

In LVM species monitoring is done by seven certified internal experts. They monitor different bird species, herbs, and bugs. Before the Nature Protection Department did forest stocktaking, LVM did some species monitoring on their own. The only negative thing he mentions is that they could be doing more to leave more undergrowth when managing forest areas. Undergrowth is the part closer to the ground, where forest managers walk and need to get through, so they cut out much scrub in order to get through, that way they damage the habitat of many species (A. Dudelis, personal communication, March 21, 2019).

All companies mentioned that they are eager to hear more about the stocktaking of species that is currently being done by the Nature Protection Department in the Ministry of Environmental Protection. Overall it is difficult to compare the SOE company with private companies, as IRI Investments has a similar strategy towards biodiversity conservation as LVM. Both companies are more responsible in this aspect, and they have more guidelines and rules as opposed to Sodra Latvia and Latvijas Finieris.

General results

From the content analysis and interviews with company representatives, it is not possible to say that the SOE differs from private forestry companies in terms of environmental sustainability practices. The only criteria where there is some difference between state-owned and private companies is: (1) LVM has a different strategy than IRI Investments and Sodra Latvia in terms of environmental governance and environmental policy, (2) LVM is more transparent about their efforts to minimize their impact on the surrounding environment, although it may be due to green-washing, (3) there is a clear difference between the SOE and IRI Investments in terms of environmentally friendly procurement, (4) the opinion of the SOE regarding silviculture methods differs only from the private company Sodra Latvia.

5. Limitations

As we do not possess extensive knowledge of forest engineering, we could only analyse environmental sustainability in the companies on a strategic level. Our results and conclusions could be biased because we mainly base our judgement on theoretical knowledge

and expert opinions. Another bias could arise from the selection of the experts as we only interviewed six experts in the fields of forestry, environmental sustainability, and CSR. Their answers about sustainability criteria and the forest industry in Latvia could be subjective to their line of work. Additionally, we chose to interview one representative from each company, which could lead to an inaccurate representation of the company and their environmental sustainability practices. By interviewing employees in different positions, this bias could be eliminated. Moreover, due to lack of time and page limit, it was possible to analyse only three private forestry companies. This creates a sample selection bias, which could be eliminated by studying more companies in the private sector.

6. Conclusions

The thesis aimed to find the key criteria for environmental sustainability in Latvia and research whether there are clear differences between the SOE and private companies in terms of these criteria. Although from the literature and expert interviews we identified eight key criteria for environmental sustainability, the results show that not all of these criteria are relevant for the companies on their own. More specifically, environmental audits are directly related to the certification the company has, thus can be viewed as a part of environmental governance. Similarly to the existing literature on the SOE vs. privately owned companies, we arrive to inconclusive results. Although there were some differences in specific criteria, a conclusion can be made that the SOE does not do significantly more in terms of environmental sustainability, thus cannot be set as an example for private companies in Latvia.

Moreover, companies do not highlight their environmental policy separately from their forest management strategy. Two different conclusions could be made: (1) forest industry companies in Latvia do not take their environmental efforts besides managing forests seriously enough, or (2) they believe environmental policy is an inseparable part of forest management and should be integrated into the company's daily operations.

During the research, we found several more general conclusions about the forest industry in Latvia that we believe are important to discuss and that could impact company environmental sustainability.

Firstly, there is an issue of transparency in this industry that limits the researcher to make valid conclusions about the practical implementation of environmental responsibilities. As the interviewed experts and content analysis suggest, one of the main problems with forestry companies in Latvia is the lack of readily available materials that the public can

access to be informed about activities of the largest forestry companies. This would help society to make more informed decisions about different policy changes regarding forests and environmental sustainability as well as put more pressure on forestry companies to implement these practices in their daily operations. It is essential to mention LVM in this regard. They have been vocal about improving the transparency issue in the forest industry. However, the fact that they have extensive PR activities and the various environmentalist concerns in the media might suggest some form of green-washing.

Secondly, all interviewees mentioned that one of the main issues in the forest industry is society's lack of knowledge about forests and forest management. Therefore, it can be difficult to introduce changes in regulations (Ž. Bacāns, personal communication, March 25, 2019). This supports Leach and Fairhead (2002) argument that there needs to be more action towards educating society. A representative from InCSR also agrees, saying that due to society's lack of knowledge and the fact that most of the end-users are also companies, the forest industry in Latvia does not have any pressure to implement environmental sustainability (D. Helmane, personal communication, March 29, 2019). Due to this reason, it is quite simple for forestry companies to influence the opinion of the wider public and in turn legislation as well, because people trust these companies.

In Latvia, the forest industry relies on constant compromises and stakeholder integration. It is such a vital part of the process in the forest industry that the main disputes are amongst lawmakers, companies and broader society (D. Vilkaste, personal communication, February 21, 2019).

In conclusion, this thesis highlights the importance of the forest industry in Latvia for the wider public, identifies the key environmental sustainability aspects within the forest industry, concludes that the SOE does not differ from private forestry companies, and identifies the most pressing issues within this industry.

Further research in this field could take several directions. One could be to examine environmental sustainability on multiple levels of the company. This would help to understand whether environmental sustainability and its importance are acknowledged throughout the company. Another could be to research different ways how to spark society's interest in the forest industry and how to better convey information about forests and their management. Additional research could be done regarding Latvia's regulatory system and whether the policies that are adopted are enough to help the whole industry be more sustainable. The focus of additional studies should also be on public policy and education of

the public in the topic of environmental sustainability not only in the forest sector, but also in other industries.

In conclusion, many topics are not researched in this field in Latvia, and more attention drawn to this could help to improve the sustainable development of the forest industry in the country.

7. References

Auld, G., & Gulbrandsen, L. H. (2010, August). Transparency in Nonstate Certification: Consequences for Accountability and Legitimacy. *Global Environmental Politics, 10*(3), 97-119.

Babiak, K., & Trendafilova, S. (2011). CSR and environmental responsibility: motives and pressures to adopt green management practices. *Corporate Social Responsibility & Environmental Management, 18*(1), 11-24.

Bennear, L. S., & Olmstead, S. M. (2008). The Impacts of the 'Right to Know': Information Disclosure and the Violation of Drinking Water Standards. *Journal of Environmental Economics and Management, 56*(2), 117-130.

Biedrība „PEFC Latvijas Padome" (Association "PEFC Latvia Council"). (2015, August 18). *PEFC Mežu apsaimniekošanas sertifikācijas standarts Latvijai* (Latvian forest management certification standard). Retrieved March 24, 2019 from http://www.pefc.lv/images/PEFC_MA_standarts_2016.pdf

Bravo, F., LeMay, V., Jandl, R., & Gadow, K. (2008). *Managing Forest Ecosystems: The Challenge of Climate Change.* Dordrecht: Springer.

Brālis, R., Deglis, A., & Bacāns, Ž. (2017). *Meža apsaimniekošanas plāns* (Forest management plan). Retrieved March 1, 2019, from http://www.bergvikskog.lv/uploads/files/mezaapsaimniekosanasplans.pdf

Carroll, A. B. (1979, October). A Three-Dimensional Conceptual Model of Corporate Performance. *Academy of Management Review, 4*(4), 497-505.

Crane, A., & Matten, D. (2016). *Business ethics: Managing corporate citizenship and sustainability in the age of globalization* (4th ed.). Oxford: Oxford University Press.

Cross-Sectoral Coordination Center Republic of Latvia. (2018). *Public Report on State-owned Enterprises and Shares 2016.* Retrieved February 10, 2019, from http://www.valstskapitals.gov.lv/images/userfiles/gada_parskats_eng%281%29.pdf

Daugaviete, M., Bambe, B., Lazdiņš, A., & Lazdiņa, D. (2017). *Plantāciju Mežu Augšanas Gaita, Produktivitāte un Ietekme uz Vidi* (Plantation Forest Growth Cycle, Productivity and Impact on the Environment). Salaspils: Silava.

DB.lv. (2018, November 13). Bergvik Skog par 324 miljoniem eiro pārdevis savus Latvijas īpašumus (Bergvik Skog has sold its Latvian properties for 324 million euros). *Dienas Bizness*. Retrieved from https://www.db.lv/zinas/bergvik-skog-par-324-miljoniem-eiro-pardevis-savus-latvijas-ipasumus-481183

Deutsche Bank (2012, June). *Sustainable Investing: Establishing Long-Term Value and Performance.* Retrieved November 5, 2018, from https://www.db.com/cr/en/docs/Sustainable_Investing_2012.pdf

Earnhart, D., Lizal, L. (2006). Effects of ownership and financial performance on corporate environmental performance. *J. Comp. Econ*. 34, 11–129.

Eisenstein, C. (2014, January 8). Let's be honest: real sustainability may not make business sense. *The Guardian.* Retrieved from https://www.theguardian.com/sustainable-business/blog/sustainability-business-sense-profit-purpose

Elkington, J. (1997). *Cannibals With Forks: The Triple Bottom Line of 21st Century Business.* Oxford: Capstone.

EPA Victoria. (2005, May). *Environmental Auditing of Forestry: Overview of 2005 Program.* Retrieved February 5, 2019, from https://www.epa.vic.gov.au/~/media/Publications/990.pdf

Erdmenger, C. (2003). *Buying into the environment: Experiences, opportunities, and potential for eco-procurement.* Sheffield: Greenleaf.

European Commission. (2016, July). *State Owned Enterprises in the EU: lessons Learnt and Ways Forward in a Post-Crisis Context*. Retrieved November 3, 2018, from https://ec.europa.eu/info/sites/info/files/file_import/ip031_en_2.pdf

European Commission. (n.d.). *Corporate Social Responsibility (CSR).* Retrieved October 30, 2018, from http://ec.europa.eu/growth/industry/corporate-social-responsibility_en

Eyvindson, K., Repo, A., & Mönkkönen, M. (2018). Mitigating forest biodiversity and ecosystem service losses in the era of bio-based economy. *Forest Policy and Economics, 92*, 119-127.

Food and Agriculture Organization of the United Nations. (2017). *Global Forest Products Facts and Figures 2016.* Retrieved November 6, 2018, from http://www.fao.org/3/I7034EN/i7034en.pdf

Food and Agriculture Organization of the United Nations. (n.d.a). *Forestry Communication Toolkit: Biodiversity and Wildlife*. Retrieved November 2, 2018, from http://www.fao.org/forestry/communication-toolkit/93682/en/

Food and Agriculture Organization of the United Nations. (n.d.b). *The Cultural and Symbolic Importance of Forest Resources.* Retrieved November 6, 2018, from http://www.fao.org/docrep/t9450e/t9450e06.htm

Forest Newspaper. (2013, March). Heavy snowfalls have threatened birch plywood plantations. Retrieved March 30, 2019, from http://www.livani.lv/upload/faili/avizemarts.pdf

FSC Latvia & Association "Latvian Forest Certification Council". (2013, September). *National FSC Forest Stewardship Standard for the Republic of Latvia*. Retrieved March 13, 2019, from https://lv.fsc.org/lv-lv/fsc/fsc-latvija

Forest Stewardship Council [FSC]. (2015, July). *FSC Principles and Criteria for Forest Stewardship.* Retrieved March 13, 2019, from https://ic.fsc.org/en/document-center/id/59

FSC. (2019, January 18). *Pārtraukta FSC Nacionālā meža uzraudzības standarta Latvijai izstrāde.* (Development of the National FSC Stewardship Standard for Latvia is discontinued). Retrieved March 24, 2019 from https://lv.fsc.org/lv-lv/newsroom/id/24

FSC. (n.d.a). *Chain Of Custody Certification.* Retrieved March 27, 2019 from https://ic.fsc.org/en/what-is-fsc-certification/chain-of-custody-certification

FSC. (n.d.b). *FSC Controlled Wood.* Retrieved March 29, 2019 from https://ic.fsc.org/en/what-is-fsc-certification/controlled-wood

FSC. (n.d.c). *FSC Nacionālais Meža Uzraudzības Standarts Latvijai Pielāgo FSC prasības Latvijas apstākļiem.* (National FSC Stewardship Standard for Latvia adopts FSC requirements to Latvia's conditions). Retrieved March 24, 2019 from https://lv.fsc.org/lv-lv/fsc-sertifikacija/meza-apsaimniekosanas-sertifikacija/nacionalais-standarts/fsc-standarts-latvijai

Gies, E. (2014, September 8). Greenpeace and tissue giant Kimberly-Clark: from enemies to allies. *The Guardian.* Retrieved from https://www.theguardian.com/sustainable-business/2014/sep/08/greenpeace-kimberly-clark-kleenex-tissue-paper-canada-forests-ngo-corporate-collaboration

Goodland, R. (1995). The Concept of Environmental Sustainability. *Annual Review of Ecology & Systematics, 26*, 1-24.

Gunningham, N. & Sinclair, D. (2002, February). Voluntary Approaches to Environmental Protection: Lessons from the Mining and Forestry Sectors. Presented at the Conference on Foreign Direct Investment and the Environment, Paris, France.

Gupta, A. (2010, August). Transparency in Global Environmental Governance: A Coming of Age? *Global Environmental Politics, 10*(3), 1-9.

Hiron, M., Jonsell, M., Kubart, A., Thor, G., Schroeder, M., Dahlberg, A., Johansson, V., Ranius, T. (2017). Consequences of bioenergy wood extraction for landscape-level availability of habitat for dead wood-dependent organisms. *Journal of Environmental Management, 198*, 33-42.

Hoffman, W. M., Frederick, R. E., & Schwartz, M. S. (2014). *Business ethics: Readings and cases in corporate morality* (5th ed.). Malden, MA: Wiley Blackwell.
Hsu, P., Liang, H., & Matos, P. (2018, March). Leviathan Inc. and Corporate Environmental Engagement. *Darden Business School Working Paper.* Retrieved February 10, 2019, from https://ssrn.com/abstract=2960832
IKEA. (2014, June). *People & Planet Positive IKEA Group Sustainability Strategy for 2020*. Retrieved March 20, 2019, from https://www.ikea.com/ms/en_US/pdf/reports-downloads/sustainability-strategy-people-and-planet-positive.pdf
IKEA. (n.d.). *Read our materials*. Retrieved March 10, 2019, from https://www.ikea.com/ms/en_US/this-is-ikea/reports-downloads/index.html
InCSR. (2015, December 17). *Tikai katrs desmitais lielais uzņēmums Latvijā vērtējams kā atklāts* (Only every tenth big corporation in Latvia can be considered as transparent). Retrieved March 10, 2019, form http://ilgtspeja.lv/lv/opinion/tikai-katrs-desmitais-lielais-uznemums-vertejams-ka-atklats/
InCSR. (n.d.). *Ilgtspējas indekss* (Sustainability index). Retrieved November 11, 2018, from http://incsr.eu/lv/novertejums/ilgtspejas-indekss/
Intergovernmental Panel on Climate Change. (2013). *Climate Change 2013: The Physical Science Basis.* Retrieved February 12, 2019, from https://www.ipcc.ch/report/ar5/wg1/
International Centre for Environment Audit and Sustainable Development. (n.d.). *Forests—Audit guidelines.* Retrieved February 5, 2019, from http://iced.cag.gov.in/wp-content/uploads/2013/09/forests%20audit%20guidelines.pdf
Investment and Development Agency of Latvia [LIAA]. (2014). *Forest Industry in Latvia.* Retrieved October 25, 2018, from http://www.liaa.gov.lv/files/liaa/attachments/k_2014_forest_industry_in_latvia_1.pdf
Investment and Development Agency of Latvia [LIAA]. (n.d.). *Forest Industry.* Retrieved February 3, 2019, from http://www.liaa.gov.lv/en/trade/industry-profiles/forest-industry
IRI Asset Management. (2018, February 22). *Mežu apsaimniekošanas plāns 2018.-2022. gadam* (Forest management plan 2018-2022). Retrieved February 26, 2019, from http://iri-investments.lv/wp-content/uploads/2018/12/IRI_MAP_2018_2022_V2.1.pdf
IRI Investments. (n.d.). *About Us*. Retrieved February 26, from http://iri-investments.lv/index.php/par-mums/
Jaffe, A. B., Newell, R. G., & Stavins, R. N. (2005, August). A tale of two market failures: Technology and environmental policy. *Ecological Economics, 54*(2–3), 164-174.
Johansson, J. (2014, March). Why do forest companies change their CSR strategies? Responses to market demands and public regulation through dual-certification. *Journal of Environmental Planning & Management, 57*(3), 349-368.
Jonsson, B., Jacobsson. J. & Kallur, H. (1993). The Forest Management Planning Package. Theory and application. *Studia Forestalia Suecica 189.* 56 pp.
Juozenaite, E. (2011, September 28). UN mandate puts pressure on forestry management. *The Baltic Times.* Retrieved March 25, 2019 from https://www.baltictimes.com/news/articles/29675/
Ķerus, V. (2018, June 4). *Likumpaklausība ar 1% atlaidi* (Obedience to law with a 1% discount) [Blog post]. Retrieved from http://vkerus.blogspot.com/2018/06/
Ķerus, V. (2019a, January 28). *Kailcirte: kaimiņa skatījums* (Clear-cut: neighbor's view) [Blog post]. Retrieved from http://vkerus.blogspot.com/2019/01/
Ķerus, V. (2019b, March 11). *Kailcirte: vides aspekti* (Clear-cut: environmental aspects) [Blog post]. Retrieved from http://vkerus.blogspot.com/2019/03/
Ķirsons, M. (2018, November). "Sodra" kļūst par lielāko privāto mežu īpašnieku Latvijā. *Zeme un Valsts* ("Sodra" becomes the largest private forest owner in Latvia). Retrieved March 1, 2019, from https://www.zemeunvalsts.lv/-sodra-klust-par-lielako-privato-mezu-ipasnieku-latvija

Knoepfel, P. (2007). *Environmental Policy Analyses: Learning from the Past for the Future - 25 Years of Research.* New York: Springer-Verlag Berlin Heidelberg.
Kobuszynska, M. (2017, February). *Forestry and Wood Products in Lithuania.* Global Agricultural Information Network. Retrieved October 26, 2018, from https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Forestry%20and%20Wood%20Products%20in%20Lithuania_Warsaw_Lithuania_2-28-2017.pdf
Lafortezza, R., Chen, J., Sanesi, G., Crow, Th.R. (2008). *Patterns and processes in forest landscapes: multiple use and sustainable management.* (pp. 17-32). Nevada: Springer.
Latvian Forest Owners' Association. (n.d.). *About Us*. Retrieved November 10, 2018, from http://www.mezaipasnieki.lv/en/about_us/mission/
Latvijas Finieris. (n.d.a). *About Us*. Retrieved February 27, 2019, from https://www.finieris.com/en/company/about-us
Latvijas Finieris. (n.d.b). *Certificates*. Retrieved February 27, 2019, from https://www.finieris.com/en/downloads/certificates
Latvijas Finieris. (n.d.c). *Sustainability*. Retrieved February 27, 2019, from https://www.finieris.lv/lv/dokumenti/ilgtspeja
Leach, M., & Fairhead, J. (2002, January). Changing Perspectives on Forests: Science/Policy Processes in Wider Society. *IDS Bulletin, 33*(1), 1-12.
Lemos, M. C., & Agrawal, A. (2006). Environmental Governance. *Annual Review of Environment and Resources, 31*(1), 297-325.
LETA. (2015, May 21). «Latvijas Valsts meži» atjauno mežus, iestādot 22 miljonus dažādu koku stādu ("Latvijas Valsts Meži" renews forests by planting 22 million different tree seedlings). *TV NET*. Retrieved from https://www.tvnet.lv/5199616/latvijas-valsts-mezi-atjauno-mezus-iestadot-22-miljonus-dazadu-koku-stadu
LETA. (2016, October 27). «Latvijas Finieris» atklās jauno ražotni Rīgā ("Latvijas Finieris" will open their new manufacturing facility in Riga). *TV NET*. Retrieved from https://www.tvnet.lv/4624865/latvijas-finieris-atklas-jauno-razotni-riga
LETA. (2018a, July 20). "Ikea" grupas uzņēmums iegādājiem vienu no lielākajiem mežu īpašumiem Latvijā, LVM – bešā (IKEA group bought one of the largest forest properties in Latvia). *DELFI*. Retrieved from https://www.delfi.lv/bizness/biznesa_vide/ikea-grupas-uznemums-iegadajies-vienu-no-lielakajiem-mezu-ipasumiem-latvija-lvm-besa.d?id=50229503
LETA. (2018b, August 10). IKEA owns approximately 90,000 ha of forests in Latvia. *Baltic News Network*. Retrieved from https://bnn-news.com/ikea-owns-approximately-90-000-ha-of-forests-in-latvia-189355
LETA. (2018c, October 15). Latvijas finieris plāno investēt 1,1 miljonu eiro tehnoloģiju pilnveidē un tirgus potenciāla izpētē (Latvijas finieris plans to invest 1,1 million euro in technology development and market research). *Dienas Bizness*. Retrieved from https://www.db.lv/zinas/latvijas-finieris-plano-investet-11-miljonu-eiro-tehnologiju-pilnveide-un-tirgus-potenciala-izpete-480065
LETA. (2018d, June 26). «Latvijas finiera» apgrozījums pērn audzis par 2,6% – līdz 224,49 miljoniem eiro ("Latvijas finieris" turnover over the past year has grown by 2.6% - up to 224,49 million euro). *LSM*. Retrieved from https://www.lsm.lv/raksts/zinas/ekonomika/latvijas-finiera-apgrozijums-pern-audzis-par-26--lidz-22449-miljoniem-eiro.a283281/
LETA. (2018e, November 13). LVM cena par 'Bergvik Skog' meža īpašumiem bijusi pārāk augsta (The price for Bergvik Skog forest properties was too high for LVM). *DELFI*. Retrieved from https://www.delfi.lv/bizness/biznesa_vide/lvm-cena-par-bergvik-skog-meza-ipasumiem-bijusi-parak-augsta.d?id=50578807
Lindenmayer, D. B., Franklin, J. F., & Fischer, J. (2006). *Biological Conservation, 131(3),* 433-445.

Lindenmayer, D. B., Margules, C. R. & Botkin, D. B. (2000). Indicators of Biodiversity for Ecologically Sustainable Forest Management. *Conservation Biology, 14(4)*, 941-950.
LSM. (2016, November 22). Vides aizstāvji raizējas par valsts mežu ilgtspējīgu apsaimniekošanu; LVM bažas noraida (Environmentalists express concerns for state forest sustainable management; LVM denies concerns). *LSM.* Retrieved from https://www.lsm.lv/raksts/dzive--stils/vide-un-dzivnieki/vides-aizstavji-raizejas-par-valsts-mezu-ilgtspejigu-apsaimniekosanu-lvm-bazas-noraida.a211253/
LSM. (2017, October 27). Vides eksperts: Koku ciršanas jaunie noteikumi nebalstās sabiedrības interesēs (Environmental expert: New laws on tree felling are not based on society's interests). *LSM.* Retrieved February 10, 2019, from https://www.lsm.lv/raksts/dzive--stils/vide-un-dzivnieki/vides-eksperts-koku-cirsanas-jaunie-noteikumi-nebalstas-sabiedribas-intereses.a255180/
LSM. (2018, November 14). Bergvik Skog sells its forests, businesses in Latvia to Sodra for €324m. *LSM*. Retrieved from https://eng.lsm.lv/article/economy/business/bergvik-skog-sells-its-forests-businesses-in-latvia-to-sodra-for-324m.a299622/
Latvijas Valsts Meži [LVM]. (2016). *JSC "Latvijas valsts meži" Medium term operating strategy SUMMARY*. Retrieved from https://www.lvm.lv/images/lvm/Par_mums/EN/Kopsavilkums__LVM_videja_termina_strategija_ENG.pdf
LVM. (2019a, March 12). *Explore the Forest un the Open Forest Daysexplore the Forest in the Open Forest Days.* Retrieved April 5, 2019, from https://www.lvm.lv/en/news/4292-explore-the-forest-in-the-open-forest-daysexplore-the-forest-in-the-open-forest-days
LVM. (2019b, January 11). *AS "Latvijas Valsts Meži" Paraksta Sadarbības Līgumu ar SIA "ZAAO"* (LVM signs partnership contract with SIA "ZAAO"). Retrieved March 11, 2019, from https://www.lvm.lv/jaunumi/4167-as-latvijas-valsts-mezi-paraksta-sadarbibas-ligumu-ar-sia-zaao%C2%A0
LVM. (n.d.a). *Uzņēmuma Sertifikāti* (Company's Certificates). Retrieved March 5, 2019, from https://www.lvm.lv/biznesa-partneriem/profesionaliem/sertifikacija/uznemuma-sertifikati
LVM. (n.d.b). *2. What Is Environmentally Friendly Forestry?* Retrieved March 5, 2019, from https://www.lvm.lv/mezsaimniecibas-cikls/en/musu-mezs/kas-ir-dabai-draudziga-mezsaimnieciba-1
LVM. (n.d.c). *Where Are Protected Areas Created And Why?* Retrieved March 5, 2019, from https://www.lvm.lv/mezsaimniecibas-cikls/en/planosana/kur-un-kapec-veido-aizsargajamas-teritorijas-1
LVM. (n.d.d). *Mežkopība* (Forestry). Retrieved March 6, 2019, from https://www.lvm.lv/biznesa-partneriem/profesionaliem/mezkopiba
Lyon, T., P., & Maxwell, J., W. (2011). Greenwash: Corporate Environmental Disclosure under Threat of Audit. *Journal of Economics and Management Strategy*, *20*(1), 3-41.
Malhotra, N. K., Birks, D. F., & Wills P. (2012). *Marketing Research*. Essex: Pearson Education Limited.
Megginson, W. L., Netter, J. M. (2001). From state to market: a survey of empirical studies. *Journal of Economic Literature, 39* (2), 321-389.
Meyer, A., Pac, G.(2013). Environmental performance of state-owned and privatized eastern European energy utilities. *Energy Economics, 36,* 205–214.
Meža likums (Forest Law). (1999, November). *Legislation of the Republic of Latvia*. Retrieved November 2, 2018, from https://likumi.lv/doc.php?id=2825
Ministry of Agriculture. (2018). *Latvian Forest Sector 2018 in Facts & Figures*. Retrieved October 26, 2018, from https://www.zm.gov.lv/public/ck/files/skaitlifakti_EN_2018web.pdf

Ministry of Agriculture. (n.d.) *Meža nozares normatīvie akti* (Legislation in the forest sector). Retrieved March 26, 2019 from https://www.zm.gov.lv/mezi/statiskas-lapas/meza-nozares-normativie-akti?id=2103#jump

Morelli, J. (2011). Environmental Sustainability: A Definition for Environmental Professionals. *Journal of Environmental Sustainability, 1*(1), Article 2.

Mori, A. S., Lertzman, K. P., & Gustafsson, L. (2017). Biodiversity and ecosystem services in forest ecosystems: a research agenda for applied forest ecology. *Journal of Applied Ecology, 54*, 12–27.

Nabuurs, G.J., O. Masera, K. Andrasko, P. Benitez-Ponce, R. Boer, M. Dutschke, E. Elsiddig, J. Ford-Robertson, P. Frumhoff, T. Karjalainen, O. Krankina, W.A. Kurz, M. Matsumoto, W. Oyhantcabal, N.H. Ravindranath, M.J. Sanz Sanchez, X. Zhang. (2007). *Forestry. In Climate Change 2007: Mitigation*. Cambridge: Cambrige University Press. Retrieved September 3, 2018, from https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg3-chapter9-1.pdf

Nature Conservation Agency. (2013). *Report to the European Commission on the state of conservation of habitats and species in Latvia. Evaluation for 2007-2012.* Retrieved March 1, 2019, from https://www.daba.gov.lv/public/lat/dati1/zinojumi_eiropas_komisijai/

Niedziałkowski, K., & Shkaruba, A. (2018, December). Governance and legitimacy of the Forest Stewardship Council certification in the national contexts – A comparative study of Belarus and Poland. *Forest Policy and Economics, 97*, 180-188.

Norman, W., & MacDonald, C. (2004). Getting to The Bottom of "Triple Bottom Line". *Business Ethics Quarterly, 14*(2), 243-262.

Organization for Economic Co-operation and Development [OECD]. (2001). *Forestry Projects: Permanence, Credit Accounting and Lifetime.* Retrieved February 5, 2019, from https://www.oecd.org/env/cc/2467909.pdf

OECD. (2015). *OECD Guidelines on Corporate Governance of State-Owned Enterprises*. Paris: OECD Publishing. Retrieved September 20, 2018, from https://www.oecd-ilibrary.org/docserver/9789264244160-en.pdf?expires=1541952953&id=id&accname=oid048466&checksum=31BA59C6231FC0B8CCC226F381DFEA19

OECD. (2016, February). *How stringent are environmental policies?* Retrieved February 3, 2019, from http://www.oecd.org/economy/greeneco/How-stringent-are-environmental-policies.pdf

O'Hara, K. L. (2016, January). What is close-to-nature silviculture in a changing world?. *Forestry: An International Journal of Forest Research*, *89*(1), 1-6. Retrieved January 25, 2019, from https://doi.org/10.1093/forestry/cpv043

Oppenheimer Funds (2017, November). ESG in Focus: Can ESG Enhance Returns? Retrieved November 5, 2018, from https://ofi-digitalmedia-accentassets-prod-ue1.s3.amazonaws.com/ESG_in_Focus_Can_ESG_Enhance_Returns.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIYBXEZLWCIR6X4VQ%2F20181105%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20181105T162509Z&X-Amz-Expires=3600&X-Amz-SignedHeaders=host&X-Amz-Signature=c4965aa377dff52b4cca586bc37134e4a002399561a4ad360fa88ee47ab8760a

Orlitzky, M. (2005, January). Social responsibility and financial performance: Trade-off or virtuous circle? *University of Auckland Business Review, 7*(1), 37 – 43.

Pasaules Dabas Fonds (World Wildlife Fund for Nature) (n.d.). *Korporatīvā Sociālā Atbildība Meža Nozares Uzņēmumos* (Corporate Social Responsibility in Forest Industry). Retrieved November 7, 2018, from http://www.pdf.lv/uploads/dokumenti/Mezs/CSR_inForestSectorCompanies.pdf

Programme for the Endorsement of Forest Certification [PEFC]. (n.d.a). *Promoting Sustainable Forest Management Around the World.* Retrieved February 3, 2019, from

https://www.pefc.co.uk/system/resources/W1siZiIsIjIwMTYvMDEvMDcvODRhdXEyNTAyN19QRUZDX1Byb21vdGluZ19TdXN0YWluYWJsZV9Gb3Jlc3RfTWFuYWdlbWVudF9HbG9iYWxseV9XRUIucGRmIl1d/PEFC%20Promoting%20Sustainable%20Forest%20Management%20Globally%20WEB.pdf

PEFC. (n.d.b). *Chain of Custody Certification.* Retrieved March 29, 2019 from https://www.pefc.org/certification-services/supply-chain

Pētersone, I. (2019, March 2). Melni mākoņi pār Latvijas mežiem? Jaunā valdība – mežu cirtēju pusē (Dark clouds over Latvia's forests? New government takes forest feller side). *LA.lv.* Retrieved from http://www.la.lv/jauna-valdiba-mezu-cirteju-puse

Porter, M. E., & Kramer, M. R. (2006, December). Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility. *Harvard Business Review, 84*(12), 78-92.

Ragin, C. C. (2014). *The comparative method: Moving beyond qualitative and quantitative strategies.* Berkeley: University of California Press.

Rametsteiner, E., & Simula, M. (2003). Forest certification—an instrument to promote sustainable forest management? *Journal of Environmental Management, 67*(1), 87-98.

Schreier, M. (2012). *Qualitative content analysis in practice*. London: SAGE Publications.

Schutz, J. (1999, January). Close-to-nature silviculture: is this concept compatible with species diversity? *Forestry: An International Journal of Forest Research, 72*(4), 359–366.

Selin, S. W. (2017). Operationalizing Sustainable Recreation across the National Forest System: A Qualitative Content Analysis of Six Regional Strategies. *Journal of Park & Recreation Administration, 35*(3), 35-47.

Shleifer, A., & Vishny, R. W. (1997, June). A Survey of Corporate Governance. *The Journal of Finance, 52*(2), 737-783.

Sichea, J. R., Agostinhob, F., Ortegab, E., & Romeiroc, A. (2008). Sustainability of nations by indices: Comparative study between environmental sustainability index, ecological footprint and the energy performance indices. *Ecological Economics*, 66(4), 628-637.

Sloan, S. (2008, August). Reforestation amidst deforestation: Simultaneity and succession. *Global Environmental Change, 18*(3), 425-44.

Sodra Latvija. (n.d.). *Uzņēmuma mērķi*. (Company goals). Retrieved April 5, 2019, from http://www.bergvikskog.lv/lv/bergvik-skog-latvija/uznemuma-merki/

Södra. (n.d.). *Södra Mezs* (Sodra Forest). Retrieved March 1, 2019, from https://www.sodra.com/lv/sodra-mezs/

Stanwick, P., & Stanwick, S. (2014). *Understanding Business Ethics* (2nd ed.). Thousand oaks, CA: Sage publications.

Statistics Estonia. (2018, June). An overview of social and economic developments in Estonia. *Quarterly Bulletin of Statistics Estonia*. Retrieved October 26, 2018, from https://www.stat.ee/publication-2018_quarterly-bulletin-of-statistics-estonia-2-18

Sturtevant, R. B., Fall, A., Kneeshaw, D. D., Simon, N. P. P., Papaik, M. J., Berninger, K., Doyon, F., Morgan, D. G., and Messier, C. (2007, December). *Ecology and Society*, *12*(2), 7. Retrieved February 1, 2019, from https://www.ecologyandsociety.org/vol12/iss2/art7/

Tabbush, P. (2010). Cultural Values of Trees, Woods and Forests. *Forest Research.* Retrieved November 6, 2018, from https://www.forestresearch.gov.uk/research/cultural-value-of-trees-woods-and-forests/

The European Industrial Gases Association AISBL. (2012). *Environmental Auditing Guide.* Retrieved February 12, 2019, from https://www.kpesic.com/wp-content/uploads/2018/02/G_Environmental_Auditing_Guide.pdf

The University of Edinburg. (2017, July 3). *What is corporate social responsibility?* Retrieved October 30, 2018, from https://www.ed.ac.uk/careers/your-future/options/occupations/csr/what-is-csr

The World Commission on Environment and Development (1983). *Report of the World Commission on Environment and Development: Our Common Future.* Retrieved October 30, 2018 from http://www.un-documents.net/our-common-future.pdf

Tietenberg, T. (2006). *Environmental and Natural Resource Economics.* (7th ed.). New York: Pearson Education.

Valsts Meža Dienests (National Woods Service). (n.d.a). Normatīvie akti (Legislation). Retrieved November 2, 2018, from http://www.vmd.gov.lv/valsts-meza-dienests/statiskas-lapas/normativie-akti-?id=807#jump

Valsts Meža Dienests (National Woods Service). (n.d.b). Ziņas par iestādi (News about the institution). Retrieved November 2, 2018, from http://www.vmd.gov.lv/valsts-meza-dienests/statiskas-lapas/zinas-par-iestadi?nid=1445#jump

Whiteman, A., Wickramasinghe, A., & Piñac, L. (2015). Global trends in forest ownership, public income and expenditure on forestry and forestry employment. *Forest Ecology and Management, 352,* 99-108.

8. Appendices

Appendix A. Description of the three environmental sustainability rules

Output rule	Pollution caused by certain actions or projects should be contained in a certain environment without causing serious harm to this environment's future pollution absorbance capabilities
Input rule	Categorized into renewables and non-renewables. • Renewables state – the "harvest rates of renewable resource inputs should be within regenerative capacities of the natural system that generates them" (Goodland, 1995, p.10.). • Non-renewables – the exhaustion rate of the non-renewable resource should be lower than the development rate of its substitutes.
Operational principles	The human population and our consumption should be in limits or lower than the carrying capacity and that the sustainable development technologies should evolve in an efficiency-increasing manner.

Table A.1. Description of the three environmental sustainability rules

Source: Created by the authors using information from Goodland (1995).

Appendix B. Characteristics of PEFC and FSC

	FSC	PEFC
Verification	*Third-party verification *Accreditation Services International (ASI), FSC's subsidiary, approves the auditor *ASI then checks auditors' work	*Third-party verification *Certification body needs to satisfy the International Accreditation Forum (IAF) standards *Certification body is completely independent from PEFC
Governance and Decision Making	*Established three-chamber system (social, environmental and economic issues) *Aims for general agreement; majority of the three chambers must agree with proposals	*Decision-making is based on general agreement striving to reach equal representation *Uses the nine stakeholder groups *No individual stakeholder group can prevent a decision or push one through
Stakeholder engagement	*Operates on a top-down basis *Sets its own requirements and standards *Uses national standards that can be tailored to a specific region	*Operates on a bottom-up basis *Broad range of stakeholder groups take part in national standard making processes *Advocates national standards and each national standard has to follow the internationally recognized PEFC International Benchmarks *Tailor standards to specific country

Chain of Custody and Labels	*Acknowledges three labels: 100%, Mix and Recycled *Certified goods can have FSC Mix label if the company has 70% or more materials in timber products coming from FSC-certified forests and/or reclaimed (post-consumer) material.	*Acknowledges two labels to be used on certified products: Certified and Recycled labels *70% or more of the material has to be certified or recycled to qualify for either of the two labels

Table B.1. FSC and PEFC certification scheme characteristics

Source: Created by the authors using information from PEFC. (n.d.a)

Appendix C. List of first part interviewees

Uģis Rotenbergs	WWF	Board Member
Ilze Prūse	Ministry of Environmental Protection and Regional Development	Head of Climate Change Department
Jānis Rozītis	WWF	CEO
Dace Vilkaste	Ministry of Environmental Protection and Regional Development	Head of Nature Protection Department
Normunds Strūve	Ministry of Agriculture	Forest Strategy and Support Deputy Director
Dace Helmane	InCSR	Board Member

Table C.1. The list of experts interviewed

Source: Created by the authors.

Appendix D. First part interview questions

Could you please define what in your opinion is sustainable development?
Could you please define environmental sustainability?
How important do you think these aspects are for the forest industry in Latvia? Why are they so important?

Environmental Governance system

How does a successful environmental governance system look like? What components should be there?
What is the difference between FSC and PEFC? Why most companies choose PEFC?
What is the level of government involvement in these certification schemes and compliance?

Environmental policy

What could be the environmental policy tools forest companies could use (like for example countries can use taxation as an environmental policy tool)?

Environmental audits

Do forestry companies in Latvia have environmental audits? If yes, what usually is audited? Are they mandatory?
Who conducts the audits?

Impact on the surrounding environment

Are there any safety measures for natural disturbances (fires, floods, strong winds) in Latvia? Is it necessary specifically in Latvia?

Do you think that Latvian forest companies take enough safety measures in order to ensure that the tree harvesting they do will not harm the environment?

Environmentally friendly procurement

Are there any environmental guidelines forest companies need to follow when they are purchasing something for the company? (for example, technology, level of gas emissions etc.)

If there are, is there anything else that the company should be doing on top of these guidelines?

Forest management strategy, planning documents, guidelines

What do you think should be included in the planning documents of forest companies? How detailed should be the guidelines they create?

What stakeholder groups, in your opinion, should be taken into consideration while developing these guidelines?

Silviculture methods replicating natural processes

What are the recent trends in silviculture methods?

Do companies talk about changing these methods?

How do you think the process of changing silviculture methods happen?

Biodiversity

How important is the issue of biodiversity in Latvia?

What tools could forest companies use to solve the issue of biodiversity?

Appendix E. List of second part interviewees

Pauls Beķeris	Latvijas Finieris	Media Specialist
Edijs Putniņš		Environmental Specialist
Aigars Dudelis	Latvijas Valsts Meži	Head of Forest Management Planning
Žanis Bancāns	Sodra Latvia	Head of Forest Management
Costel Bucur	INGKA Group (IRI Forest Assets Latvia)	Compliance Manager Forestry

Table E.1. List of company representatives interviewed

Source: Created by the authors.

Appendix F. Second part interview questions

Environmental governance

Do you have an environmental governance system in place?

What are the most important aspects in your environmental governance system?

What risks do you assess when creating an environmental governance plan? How do you make sure that the system you have in place is implemented in practice?

Who monitors your environmental governance?

Which certification have you implemented? What are the reasons behind choosing this certification?

Environmental policy

What are the environmental policy tools you have implemented in your company? Which are the most important?
How do you make sure that these environmental policy tools translate to real actions?

Environmental audits

Are environmental audits necessary? Do they provide meaningful information and recommendations that can be easily implemented into the company's environmental management system?
Should these audits be more demanding then they are at the moment?
Has your company ever had any disagreements with the auditors and/or questioned their credibility?

Impact on the surrounding environment

How do you assess the impact your company has on the surrounding environment?
How do you deal with unexpected negative impact that logging may have caused in the forest ecosystem?

Environmentally friendly procurement

What guidelines have you implemented regarding environmentally friendly procurement that are above what is required Latvian and European laws?
When your company engages into any purchasing process, are you usually looking at companies that are more environmentally friendly and sustainable or do you have other preferences?

Forest management strategy

How do you take into consideration the surrounding environment (soil, climate, water systems) when creating your strategy?
Do you have specific guidelines for implementing your forest management strategy in practice?
Do you involve the people living around your forest area in your decision-making processes?

Silviculture methods replicating natural processes

How have your silviculture methods evolved over time?
How frequently do you review the methods?
Has anything changed in the past methods you have used? How do you adapt these methods, via researching or experimenting?
Do you implement silviculture methods that are close to the natural forest environment?

Biodiversity

What is your current strategy regarding biodiversity?
How often do you adapt your strategy?
How does it differ throughout regions in Latvia?
Do you think that there is an issue of decreasing biodiversity? If yes, how do you solve it?